

# TAKEOFF 04.21

valid until 31.01.2022

**ATORN**

Solid carbide high-performance drill bit  
TiAlNplus HPC with internal cooling

**P. 4****ATORN**

ROCKTEC PRO milling cutters

**P. 12****ATORN**

Recessing blades GROOVE

**P. 19**

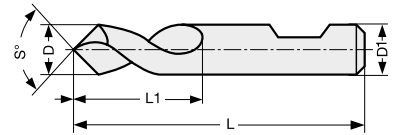
## ATORN® NC spotting drill



- $S^\circ$  = point angle 90°, 120° and 142°
- Straight shank with clamping surface in accordance with DIN6535-HB (from  $\varnothing$  6 mm)
- **Cutting material: solid carbide, uncoated**
- Spot drilling and countersinking on NC and CNC machines
- 142° point angle version for spot drilling for the engagement of the following solid carbide twist drill



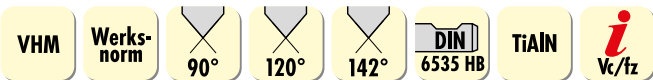
| D<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>steel < 1000 N/mm²<br>mm/rev | 90°<br>Art.no. | €      | 120°<br>Art.no. | €      | 142°<br>Art.no. | €      |
|---------|-------------|---------|----------|----------------------------------------|----------------|--------|-----------------|--------|-----------------|--------|
| 2       | 2           | 32      | 6        | 0.07                                   | 100570 0200    | 14,10  | 100571 0200     | 14,10  | 100572 0200     | 14,10  |
| 3       | 3           | 46      | 12       | 0.07                                   | 100570 0300    | 14,10  | 100571 0300     | 14,10  | 100572 0300     | 14,10  |
| 4       | 4           | 55      | 12       | 0.07                                   | 100570 0400    | 15,25  | 100571 0400     | 15,25  | 100572 0400     | 15,25  |
| 5       | 5           | 62      | 14       | 0.07                                   | 100570 0500    | 15,80  | 100571 0500     | 15,80  | 100572 0500     | 15,80  |
| 6       | 6           | 66      | 20       | 0.13                                   | 100570 0600    | 16,45  | 100571 0600     | 16,45  | 100572 0600     | 16,45  |
| 8       | 8           | 79      | 25       | 0.13                                   | 100570 0800    | 23,-   | 100571 0800     | 23,-   | 100572 0800     | 23,-   |
| 10      | 10          | 89      | 25       | 0.20                                   | 100570 1000    | 32,70  | 100571 1000     | 32,70  | 100572 1000     | 32,70  |
| 12      | 12          | 102     | 30       | 0.20                                   | 100570 1200    | 42,20  | 100571 1200     | 42,20  | 100572 1200     | 42,20  |
| 16      | 16          | 115     | 35       | 0.27                                   | 100570 1600    | 78,30  | 100571 1600     | 78,30  | 100572 1600     | 78,30  |
| 20      | 20          | 131     | 40       | 0.27                                   | 100570 2000    | 139,50 | 100571 2000     | 139,50 | 100572 2000     | 139,50 |



| Material | ● very well suited<br>○ well suited | Steel       |              |              | Stainless steel   |            |        | Cast iron |       | Titanium alloys | Super alloys Fe/NiCo-based |          | Aluminium |          | Copper Cu alloy | Graphite GRP/CF/thermo | Hardened steel |          |          |
|----------|-------------------------------------|-------------|--------------|--------------|-------------------|------------|--------|-----------|-------|-----------------|----------------------------|----------|-----------|----------|-----------------|------------------------|----------------|----------|----------|
|          |                                     | < 700 N/mm² | < 1000 N/mm² | < 1400 N/mm² | ferritic/martens. | austenitic | duplex | GG/GTS    | GGG   |                 | < 30 HRC                   | ≥ 30 HRC | < 8 % Si  | ≥ 8 % Si |                 |                        | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
|          |                                     | 60-100      | 55-75        | 30-50        | 25-50             | 25-50      |        | 80-90     | 70-90 | 35-40           |                            |          | 150-200   | 100-180  | 110-140         |                        |                |          |          |

Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up!

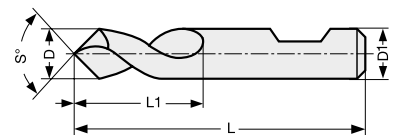
## ATORN® NC spotting drill



- $S^\circ$  = point angle 90°, 120° and 142°
- Straight shank with clamping surface in accordance with DIN6535-HB (from  $\varnothing$  6 mm)
- **Cutting material: solid carbide, TiAlN-coated**
- Spot drilling and countersinking on NC and CNC machines
- 142° point angle version for spot drilling for the engagement of the following solid carbide twist drill



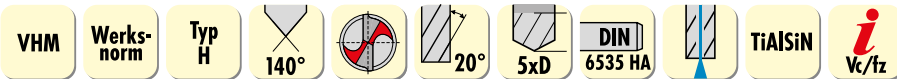
| D<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>steel < 1000 N/mm²<br>mm/rev | 90°<br>Art.no. | €      | 120°<br>Art.no. | €      | 142°<br>Art.no. | €      |
|---------|-------------|---------|----------|----------------------------------------|----------------|--------|-----------------|--------|-----------------|--------|
| 2       | 2           | 32      | 6        | 0.07                                   | 100580 0200    | 18,95  | 100581 0200     | 18,95  | 100582 0200     | 18,95  |
| 3       | 3           | 46      | 12       | 0.07                                   | 100580 0300    | 18,95  | 100581 0300     | 18,95  | 100582 0300     | 18,95  |
| 4       | 4           | 55      | 12       | 0.07                                   | 100580 0400    | 24,40  | 100581 0400     | 24,40  | 100582 0400     | 24,40  |
| 5       | 5           | 62      | 14       | 0.07                                   | 100580 0500    | 25,30  | 100581 0500     | 25,30  | 100582 0500     | 25,30  |
| 6       | 6           | 66      | 20       | 0.13                                   | 100580 0600    | 25,90  | 100581 0600     | 25,90  | 100582 0600     | 25,90  |
| 8       | 8           | 79      | 25       | 0.13                                   | 100580 0800    | 32,50  | 100581 0800     | 32,50  | 100582 0800     | 32,50  |
| 10      | 10          | 89      | 25       | 0.20                                   | 100580 1000    | 43,10  | 100581 1000     | 43,10  | 100582 1000     | 43,10  |
| 12      | 12          | 102     | 30       | 0.20                                   | 100580 1200    | 55,20  | 100581 1200     | 55,20  | 100582 1200     | 55,20  |
| 16      | 16          | 115     | 35       | 0.27                                   | 100580 1600    | 95,50  | 100581 1600     | 95,50  | 100582 1600     | 95,50  |
| 20      | 20          | 131     | 40       | 0.27                                   | 100580 2000    | 171,50 | 100581 2000     | 171,50 | 100582 2000     | 171,50 |



| Material | ● very well suited<br>○ well suited | Steel       |              |              | Stainless steel   |            |        | Cast iron |       | Titanium alloys | Super alloys Fe/NiCo-based |          | Aluminium |          | Copper Cu alloy | Graphite GRP/CF/thermo | Hardened steel |          |          |
|----------|-------------------------------------|-------------|--------------|--------------|-------------------|------------|--------|-----------|-------|-----------------|----------------------------|----------|-----------|----------|-----------------|------------------------|----------------|----------|----------|
|          |                                     | < 700 N/mm² | < 1000 N/mm² | < 1400 N/mm² | ferritic/martens. | austenitic | duplex | GG/GTS    | GGG   |                 | < 30 HRC                   | ≥ 30 HRC | < 8 % Si  | ≥ 8 % Si |                 |                        | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
|          |                                     | 60-100      | 55-75        | 30-50        | 25-50             | 25-50      |        | 80-90     | 70-90 | 35-40           |                            |          | 150-200   | 100-180  | 110-140         |                        |                |          |          |

Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up!

# ATORN® Solid carbide high-performance drill



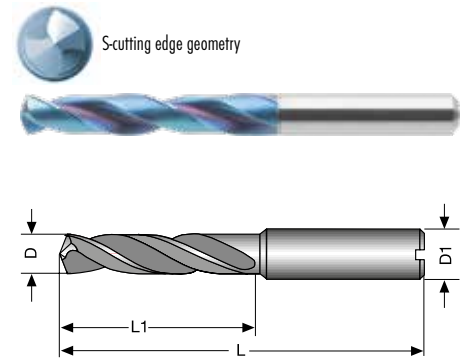
- **Cutting material: solid carbide, TiAlSiN-coated**
- Reinforced core and special point thinning with sharp chisel edge
- **Long service life thanks to stable S-cutting edge geometry and Si-endowed coating**
- Wide range of applications for steel and cast iron materials
- **Other diameters and 3xD version are available in the catalogue**

NEW

Stable HPC drill

for steel up to 65 HRC

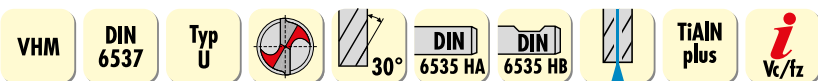
| D<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>hardened steel ≥ 60 HRC<br>mm/rev | without<br>internal cooling<br>Art.no. | €      | with<br>Internal cooling<br>Art.no. | €      |
|---------|-------------|---------|----------|---------------------------------------------|----------------------------------------|--------|-------------------------------------|--------|
| 2       | 4           | 57      | 21       | 0.04                                        | 111536 0020                            | 38,80  | 111537 0020                         | 49,90  |
| 2.5     | 4           | 57      | 21       | 0.04                                        | 111536 0025                            | 38,80  | 111537 0025                         | 49,90  |
| 2.6     | 4           | 57      | 21       | 0.04                                        | 111536 0026                            | 38,80  | 111537 0026                         | 49,90  |
| 2.8     | 4           | 57      | 21       | 0.04                                        | 111536 0028                            | 38,80  | 111537 0028                         | 49,90  |
| 3       | 6           | 66      | 28       | 0.04                                        | 111536 0030                            | 38,80  | 111537 0030                         | 49,90  |
| 3.3     | 6           | 66      | 28       | 0.06                                        | 111536 0033                            | 38,80  | 111537 0033                         | 49,90  |
| 3.4     | 6           | 66      | 28       | 0.06                                        | 111536 0034                            | 38,80  | 111537 0034                         | 49,90  |
| 3.5     | 6           | 66      | 28       | 0.06                                        | 111536 0035                            | 38,80  | 111537 0035                         | 49,90  |
| 3.7     | 6           | 66      | 28       | 0.06                                        | 111536 0037                            | 38,80  | 111537 0037                         | 49,90  |
| 3.8     | 6           | 74      | 36       | 0.06                                        | 111536 0038                            | 38,80  | 111537 0038                         | 49,90  |
| 3.9     | 6           | 74      | 36       | 0.06                                        | 111536 0039                            | 38,80  | 111537 0039                         | 49,90  |
| 4       | 6           | 74      | 36       | 0.06                                        | 111536 0040                            | 38,80  | 111537 0040                         | 49,90  |
| 4.2     | 6           | 74      | 36       | 0.06                                        | 111536 0042                            | 38,80  | 111537 0042                         | 49,90  |
| 4.3     | 6           | 74      | 36       | 0.06                                        | 111536 0043                            | 38,80  | 111537 0043                         | 49,90  |
| 4.5     | 6           | 74      | 36       | 0.06                                        | 111536 0045                            | 38,80  | 111537 0045                         | 49,90  |
| 4.8     | 6           | 82      | 44       | 0.06                                        | 111536 0048                            | 38,80  | 111537 0048                         | 49,90  |
| 4.9     | 6           | 82      | 44       | 0.06                                        | 111536 0049                            | 38,80  | 111537 0049                         | 49,90  |
| 5       | 6           | 82      | 44       | 0.06                                        | 111536 0050                            | 38,80  | 111537 0050                         | 49,90  |
| 5.1     | 6           | 82      | 44       | 0.07                                        | 111536 0051                            | 38,80  | 111537 0051                         | 49,90  |
| 5.2     | 6           | 82      | 44       | 0.07                                        | 111536 0052                            | 38,80  | 111537 0052                         | 49,90  |
| 5.5     | 6           | 82      | 44       | 0.07                                        | 111536 0055                            | 38,80  | 111537 0055                         | 49,90  |
| 5.8     | 6           | 82      | 44       | 0.07                                        | 111536 0058                            | 38,80  | 111537 0058                         | 49,90  |
| 6       | 6           | 82      | 44       | 0.07                                        | 111536 0060                            | 38,80  | 111537 0060                         | 49,90  |
| 6.5     | 8           | 91      | 53       | 0.07                                        | 111536 0065                            | 43,—   | 111537 0065                         | 57,80  |
| 6.8     | 8           | 91      | 53       | 0.07                                        | 111536 0068                            | 43,—   | 111537 0068                         | 57,80  |
| 7       | 8           | 91      | 53       | 0.07                                        | 111536 0070                            | 43,—   | 111537 0070                         | 57,80  |
| 7.8     | 8           | 91      | 53       | 0.07                                        | 111536 0078                            | 43,—   | 111537 0078                         | 57,80  |
| 8       | 8           | 91      | 53       | 0.07                                        | 111536 0080                            | 43,—   | 111537 0080                         | 57,80  |
| 8.5     | 10          | 103     | 61       | 0.08                                        | 111536 0085                            | 48,60  | 111537 0085                         | 68,20  |
| 8.7     | 10          | 103     | 61       | 0.08                                        | 111536 0087                            | 48,60  | 111537 0087                         | 68,20  |
| 8.8     | 10          | 103     | 61       | 0.08                                        | 111536 0088                            | 48,60  | 111537 0088                         | 68,20  |
| 9       | 10          | 103     | 61       | 0.08                                        | 111536 0090                            | 48,60  | 111537 0090                         | 68,20  |
| 9.8     | 10          | 103     | 61       | 0.08                                        | 111536 0098                            | 48,60  | 111537 0098                         | 68,20  |
| 10      | 10          | 103     | 61       | 0.08                                        | 111536 0100                            | 48,60  | 111537 0100                         | 68,20  |
| 10.2    | 12          | 118     | 71       | 0.08                                        | 111536 0102                            | 70,50  | 111537 0102                         | 96,20  |
| 10.3    | 12          | 118     | 71       | 0.08                                        | 111536 0103                            | 70,50  | 111537 0103                         | 96,20  |
| 10.5    | 12          | 118     | 71       | 0.08                                        | 111536 0105                            | 70,50  | 111537 0105                         | 96,20  |
| 11      | 12          | 118     | 71       | 0.08                                        | 111536 0110                            | 70,50  | 111537 0110                         | 96,20  |
| 11.8    | 12          | 118     | 71       | 0.08                                        | 111536 0118                            | 70,50  | 111537 0118                         | 96,20  |
| 12      | 12          | 118     | 71       | 0.08                                        | 111536 0120                            | 70,50  | 111537 0120                         | 96,20  |
| 12.5    | 14          | 124     | 77       | 0.1                                         | 111536 0125                            | 92,90  | 111537 0125                         | 125,—  |
| 13      | 14          | 124     | 77       | 0.1                                         | 111536 0130                            | 92,90  | 111537 0130                         | 125,—  |
| 14      | 14          | 124     | 77       | 0.1                                         | 111536 0140                            | 92,90  | 111537 0140                         | 125,—  |
| 15      | 16          | 133     | 83       | 0.1                                         | 111536 0150                            | 118,90 | 111537 0150                         | 151,50 |
| 16      | 16          | 133     | 83       | 0.1                                         | 111536 0160                            | 118,90 | 111537 0160                         | 151,50 |
| 18      | 18          | 143     | 93       | 0.11                                        | 111536 0180                            | 215,—  | 111537 0180                         | 240,—  |



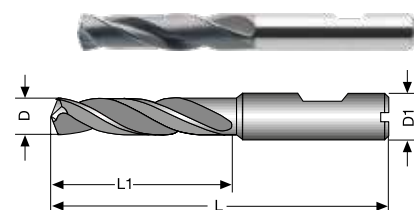
| Material | ● very well suited<br>○ well suited | Steel       |              |              | Stainless steel  |            |        | Cast iron |          | Titanium alloys | Super alloys Fe/NiCo-based |          | Aluminium | Copper Cu alloy | Graphite GRP/CFP/thermoal | Hardened steel |          |          |
|----------|-------------------------------------|-------------|--------------|--------------|------------------|------------|--------|-----------|----------|-----------------|----------------------------|----------|-----------|-----------------|---------------------------|----------------|----------|----------|
|          |                                     | < 700 N/mm² | < 1000 N/mm² | < 1400 N/mm² | ferrit./martens. | austenitic | duplex | GG/GTS    | GGG      |                 | < 30 HRC                   | ≥ 30 HRC | < 8 % Si  | ≥ 8 % Si        |                           | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
|          |                                     | ● 90-120    | ● 70-105     | ● 30-70      | ○ 30-60          |            |        | ● 60-100  | ● 60-100 |                 |                            |          |           |                 |                           | ● 15-20        | ● 10-16  | ● 8-13   |

Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up!

# ATORN® Solid carbide high-performance drill bit **TiAlNplus HPC** with internal cooling



- Optimised shank diameter tolerance for use as a holding fixture in power chucks and hydraulic expansion chucks
- **Cutting material: ultra-fine grain solid carbide TiAlNplus**
- Efficient drilling in different materials
- Newly developed geometry in conjunction with a customised multilayer coating for enhanced output
- Special cutting edge finishing reduces micro-nicks and increases service life



## 3xD, HB

| D1 h7<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>steel < 1000 N/mm²<br>mm/rev | Art.no.     | €     |
|-------------|-------------|---------|----------|----------------------------------------|-------------|-------|
| 3           | 6           | 62      | 20       | 0.08                                   | 111565 0300 | 36,50 |
| 3.2         | 6           | 62      | 20       | 0.08                                   | 111565 0320 | 38,50 |
| 3.3         | 6           | 62      | 20       | 0.08                                   | 111565 0330 | 38,50 |
| 3.5         | 6           | 62      | 20       | 0.09                                   | 111565 0350 | 38,50 |
| 3.8         | 6           | 66      | 24       | 0.10                                   | 111565 0380 | 38,50 |
| 4           | 6           | 66      | 24       | 0.10                                   | 111565 0400 | 38,50 |
| 4.2         | 6           | 66      | 24       | 0.11                                   | 111565 0420 | 38,50 |
| 4.5         | 6           | 66      | 24       | 0.11                                   | 111565 0450 | 38,50 |
| 4.8         | 6           | 66      | 28       | 0.12                                   | 111565 0480 | 38,50 |
| 5           | 6           | 66      | 28       | 0.13                                   | 111565 0500 | 38,50 |
| 5.1         | 6           | 66      | 28       | 0.13                                   | 111565 0510 | 38,50 |
| 5.5         | 6           | 66      | 28       | 0.14                                   | 111565 0550 | 38,50 |
| 5.8         | 6           | 66      | 28       | 0.15                                   | 111565 0580 | 38,50 |
| 6           | 6           | 66      | 28       | 0.15                                   | 111565 0600 | 38,50 |
| 6.2         | 8           | 79      | 34       | 0.16                                   | 111565 0620 | 49,80 |
| 6.5         | 8           | 79      | 34       | 0.16                                   | 111565 0650 | 49,80 |
| 6.8         | 8           | 79      | 34       | 0.17                                   | 111565 0680 | 49,80 |
| 7           | 8           | 79      | 34       | 0.18                                   | 111565 0700 | 49,80 |
| 7.5         | 8           | 79      | 41       | 0.19                                   | 111565 0750 | 49,80 |
| 8           | 8           | 79      | 41       | 0.20                                   | 111565 0800 | 49,80 |
| 8.2         | 10          | 89      | 47       | 0.21                                   | 111565 0820 | 58,-  |
| 8.5         | 10          | 89      | 47       | 0.21                                   | 111565 0850 | 58,-  |
| 8.8         | 10          | 89      | 47       | 0.22                                   | 111565 0880 | 58,-  |
| 9           | 10          | 89      | 47       | 0.23                                   | 111565 0900 | 58,-  |

| D1 h7<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>steel < 1000 N/mm²<br>mm/rev | Art.no.     | €      |
|-------------|-------------|---------|----------|----------------------------------------|-------------|--------|
| 9.5         | 10          | 89      | 47       | 0.24                                   | 111565 0950 | 58,-   |
| 10          | 10          | 89      | 47       | 0.25                                   | 111565 1000 | 58,-   |
| 10.2        | 12          | 102     | 55       | 0.26                                   | 111565 1020 | 87,10  |
| 10.5        | 12          | 102     | 55       | 0.26                                   | 111565 1050 | 87,10  |
| 11          | 12          | 102     | 55       | 0.28                                   | 111565 1100 | 87,10  |
| 11.5        | 12          | 102     | 55       | 0.29                                   | 111565 1150 | 87,10  |
| 12          | 12          | 102     | 55       | 0.30                                   | 111565 1200 | 87,10  |
| 12.5        | 14          | 107     | 60       | 0.31                                   | 111565 1250 | 117,-  |
| 13          | 14          | 107     | 60       | 0.33                                   | 111565 1300 | 117,-  |
| 13.5        | 14          | 107     | 60       | 0.34                                   | 111565 1350 | 117,-  |
| 14          | 14          | 107     | 60       | 0.35                                   | 111565 1400 | 117,-  |
| 14.5        | 16          | 115     | 65       | 0.36                                   | 111565 1450 | 138,50 |
| 15          | 16          | 115     | 65       | 0.38                                   | 111565 1500 | 138,50 |
| 15.5        | 16          | 115     | 65       | 0.39                                   | 111565 1550 | 138,50 |
| 16          | 16          | 115     | 65       | 0.40                                   | 111565 1600 | 138,50 |
| 16.5        | 18          | 123     | 73       | 0.41                                   | 111565 1650 | 194,50 |
| 17          | 18          | 123     | 73       | 0.43                                   | 111565 1700 | 194,50 |
| 17.5        | 18          | 123     | 73       | 0.44                                   | 111565 1750 | 194,50 |
| 18          | 18          | 123     | 73       | 0.45                                   | 111565 1800 | 194,50 |
| 18.5        | 20          | 131     | 79       | 0.46                                   | 111565 1850 | 244,-  |
| 19          | 20          | 131     | 79       | 0.48                                   | 111565 1900 | 244,-  |
| 19.5        | 20          | 131     | 79       | 0.49                                   | 111565 1950 | 244,-  |
| 20          | 20          | 131     | 79       | 0.50                                   | 111565 2000 | 244,-  |

## 5xD, HB

| D h7<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>steel < 1000 N/mm²<br>mm/rev | Art.no.     | €     |
|------------|-------------|---------|----------|----------------------------------------|-------------|-------|
| 3          | 6           | 66      | 28       | 0.08                                   | 111569 0300 | 47,90 |
| 3.2        | 6           | 66      | 28       | 0.08                                   | 111569 0320 | 47,90 |
| 3.3        | 6           | 66      | 28       | 0.08                                   | 111569 0330 | 47,90 |
| 3.5        | 6           | 66      | 28       | 0.09                                   | 111569 0350 | 47,90 |
| 3.8        | 6           | 74      | 36       | 0.10                                   | 111569 0380 | 47,90 |
| 4          | 6           | 74      | 36       | 0.10                                   | 111569 0400 | 47,90 |
| 4.2        | 6           | 74      | 36       | 0.11                                   | 111569 0420 | 48,60 |
| 4.5        | 6           | 74      | 36       | 0.11                                   | 111569 0450 | 48,60 |
| 4.8        | 6           | 82      | 44       | 0.12                                   | 111569 0480 | 48,60 |
| 5          | 6           | 82      | 44       | 0.13                                   | 111569 0500 | 48,60 |
| 5.1        | 6           | 82      | 44       | 0.13                                   | 111569 0510 | 48,60 |
| 5.5        | 6           | 82      | 44       | 0.14                                   | 111569 0550 | 48,60 |
| 5.8        | 6           | 82      | 44       | 0.15                                   | 111569 0580 | 48,60 |
| 6          | 6           | 82      | 44       | 0.15                                   | 111569 0600 | 48,60 |
| 6.2        | 8           | 91      | 53       | 0.16                                   | 111569 0620 | 53,60 |
| 6.5        | 8           | 91      | 53       | 0.16                                   | 111569 0650 | 53,60 |
| 6.8        | 8           | 91      | 53       | 0.17                                   | 111569 0680 | 53,60 |
| 7          | 8           | 91      | 53       | 0.18                                   | 111569 0700 | 53,60 |
| 7.5        | 8           | 91      | 53       | 0.19                                   | 111569 0750 | 53,60 |
| 8          | 8           | 91      | 53       | 0.20                                   | 111569 0800 | 53,60 |
| 8.2        | 10          | 103     | 61       | 0.21                                   | 111569 0820 | 62,90 |
| 8.5        | 10          | 103     | 61       | 0.21                                   | 111569 0850 | 62,90 |
| 8.8        | 10          | 103     | 61       | 0.22                                   | 111569 0880 | 62,90 |
| 9          | 10          | 103     | 61       | 0.23                                   | 111569 0900 | 62,90 |

| D h7<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>steel < 1000 N/mm²<br>mm/rev | Art.no.     | €      |
|------------|-------------|---------|----------|----------------------------------------|-------------|--------|
| 9.5        | 10          | 103     | 61       | 0.24                                   | 111569 0950 | 62,90  |
| 10         | 10          | 103     | 61       | 0.25                                   | 111569 1000 | 62,90  |
| 10.2       | 12          | 118     | 71       | 0.26                                   | 111569 1020 | 89,50  |
| 10.5       | 12          | 118     | 71       | 0.26                                   | 111569 1050 | 89,50  |
| 11         | 12          | 118     | 71       | 0.28                                   | 111569 1100 | 89,50  |
| 11.5       | 12          | 118     | 71       | 0.29                                   | 111569 1150 | 89,50  |
| 12         | 12          | 118     | 71       | 0.30                                   | 111569 1200 | 89,50  |
| 12.5       | 14          | 124     | 77       | 0.31                                   | 111569 1250 | 119,50 |
| 13         | 14          | 124     | 77       | 0.33                                   | 111569 1300 | 119,50 |
| 13.5       | 14          | 124     | 77       | 0.34                                   | 111569 1350 | 119,50 |
| 14         | 14          | 124     | 77       | 0.35                                   | 111569 1400 | 119,50 |
| 14.5       | 16          | 133     | 83       | 0.36                                   | 111569 1450 | 141,-  |
| 15         | 16          | 133     | 83       | 0.38                                   | 111569 1500 | 141,-  |
| 15.5       | 16          | 133     | 83       | 0.39                                   | 111569 1550 | 141,-  |
| 16         | 16          | 133     | 83       | 0.40                                   | 111569 1600 | 141,-  |
| 16.5       | 18          | 143     | 93       | 0.41                                   | 111569 1650 | 225,-  |
| 17         | 18          | 143     | 93       | 0.43                                   | 111569 1700 | 225,-  |
| 17.5       | 18          | 143     | 93       | 0.44                                   | 111569 1750 | 225,-  |
| 18         | 18          | 143     | 93       | 0.45                                   | 111569 1800 | 225,-  |
| 18.5       | 20          | 153     | 101      | 0.46                                   | 111569 1850 | 238,-  |
| 19         | 20          | 153     | 101      | 0.48                                   | 111569 1900 | 238,-  |
| 19.5       | 20          | 153     | 101      | 0.49                                   | 111569 1950 | 245,-  |
| 20         | 20          | 153     | 101      | 0.50                                   | 111569 2000 | 245,-  |



# 8xD, HA

| D h7<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>steel < 1000 N/mm <sup>2</sup><br>mm/rev | Art.no.     | €      |
|------------|-------------|---------|----------|----------------------------------------------------|-------------|--------|
| 3          | 6           | 72      | 34       | 0.08                                               | 111570 0300 | 108,50 |
| 3.2        | 6           | 72      | 34       | 0.08                                               | 111570 0320 | 108,50 |
| 3.3        | 6           | 72      | 34       | 0.08                                               | 111570 0330 | 108,50 |
| 3.5        | 6           | 72      | 34       | 0.09                                               | 111570 0350 | 108,50 |
| 3.8        | 6           | 81      | 43       | 0.10                                               | 111570 0380 | 108,50 |
| 4          | 6           | 81      | 43       | 0.10                                               | 111570 0400 | 108,50 |
| 4.2        | 6           | 81      | 43       | 0.11                                               | 111570 0420 | 108,50 |
| 4.5        | 6           | 81      | 43       | 0.11                                               | 111570 0450 | 108,50 |
| 4.8        | 6           | 95      | 57       | 0.12                                               | 111570 0480 | 108,50 |
| 5          | 6           | 95      | 57       | 0.13                                               | 111570 0500 | 108,50 |
| 5.1        | 6           | 95      | 57       | 0.13                                               | 111570 0510 | 108,50 |
| 5.5        | 6           | 95      | 57       | 0.14                                               | 111570 0550 | 108,50 |
| 5.8        | 6           | 95      | 57       | 0.15                                               | 111570 0580 | 108,50 |
| 6          | 6           | 95      | 57       | 0.15                                               | 111570 0600 | 108,50 |
| 6.2        | 8           | 114     | 76       | 0.16                                               | 111570 0620 | 134,50 |
| 6.5        | 8           | 114     | 76       | 0.16                                               | 111570 0650 | 134,50 |
| 6.8        | 8           | 114     | 76       | 0.17                                               | 111570 0680 | 134,50 |
| 7          | 8           | 114     | 76       | 0.18                                               | 111570 0700 | 134,50 |
| 7.5        | 8           | 114     | 76       | 0.19                                               | 111570 0750 | 134,50 |
| 8          | 8           | 114     | 76       | 0.20                                               | 111570 0800 | 134,50 |
| 8.2        | 10          | 142     | 95       | 0.21                                               | 111570 0820 | 170,50 |
| 8.5        | 10          | 142     | 95       | 0.21                                               | 111570 0850 | 170,50 |
| 8.8        | 10          | 142     | 95       | 0.22                                               | 111570 0880 | 170,50 |



| D h7<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>steel < 1000 N/mm <sup>2</sup><br>mm/rev | Art.no.     | €      |
|------------|-------------|---------|----------|----------------------------------------------------|-------------|--------|
| 9          | 10          | 142     | 95       | 0.23                                               | 111570 0900 | 170,50 |
| 9.5        | 10          | 142     | 95       | 0.24                                               | 111570 0950 | 170,50 |
| 10         | 10          | 142     | 95       | 0.25                                               | 111570 1000 | 170,50 |
| 10.2       | 12          | 162     | 114      | 0.26                                               | 111570 1020 | 218,-  |
| 10.5       | 12          | 162     | 114      | 0.26                                               | 111570 1050 | 218,-  |
| 11         | 12          | 162     | 114      | 0.28                                               | 111570 1100 | 218,-  |
| 11.5       | 12          | 162     | 114      | 0.29                                               | 111570 1150 | 218,-  |
| 12         | 12          | 162     | 114      | 0.30                                               | 111570 1200 | 218,-  |
| 12.5       | 14          | 178     | 131      | 0.31                                               | 111570 1250 | 273,-  |
| 13         | 14          | 178     | 131      | 0.33                                               | 111570 1300 | 273,-  |
| 13.5       | 14          | 178     | 131      | 0.34                                               | 111570 1350 | 273,-  |
| 14         | 14          | 178     | 131      | 0.35                                               | 111570 1400 | 273,-  |
| 14.5       | 16          | 203     | 152      | 0.36                                               | 111570 1450 | 374,-  |
| 15         | 16          | 203     | 152      | 0.38                                               | 111570 1500 | 374,-  |
| 15.5       | 16          | 203     | 152      | 0.39                                               | 111570 1550 | 374,-  |
| 16         | 16          | 203     | 152      | 0.40                                               | 111570 1600 | 374,-  |
| 16.5       | 18          | 222     | 171      | 0.41                                               | 111570 1650 | 456,-  |
| 17         | 18          | 222     | 171      | 0.43                                               | 111570 1700 | 456,-  |
| 17.5       | 18          | 222     | 171      | 0.44                                               | 111570 1750 | 456,-  |
| 18         | 18          | 222     | 171      | 0.45                                               | 111570 1800 | 456,-  |
| 19         | 20          | 243     | 190      | 0.48                                               | 111570 1900 | 545,-  |
| 19.5       | 20          | 243     | 190      | 0.49                                               | 111570 1950 | 545,-  |
| 20         | 20          | 243     | 190      | 0.50                                               | 111570 2000 | 545,-  |

# 12xD, HA

| D h7<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>steel < 1000 N/mm <sup>2</sup><br>mm/rev | Art.no.     | €     |
|------------|-------------|---------|----------|----------------------------------------------------|-------------|-------|
| 3          | 6           | 92      | 54       | 0.08                                               | 111572 0300 | 125,- |
| 3.2        | 6           | 92      | 54       | 0.08                                               | 111572 0320 | 125,- |
| 3.3        | 6           | 92      | 54       | 0.08                                               | 111572 0330 | 125,- |
| 3.5        | 6           | 92      | 54       | 0.09                                               | 111572 0350 | 125,- |
| 3.8        | 6           | 102     | 64       | 0.10                                               | 111572 0380 | 125,- |
| 4          | 6           | 102     | 64       | 0.10                                               | 111572 0400 | 125,- |
| 4.2        | 6           | 102     | 64       | 0.11                                               | 111572 0420 | 125,- |
| 4.5        | 6           | 102     | 64       | 0.11                                               | 111572 0450 | 125,- |
| 4.8        | 6           | 116     | 78       | 0.12                                               | 111572 0480 | 125,- |
| 5          | 6           | 116     | 78       | 0.13                                               | 111572 0500 | 125,- |
| 5.5        | 6           | 116     | 78       | 0.14                                               | 111572 0550 | 125,- |
| 5.8        | 6           | 116     | 78       | 0.15                                               | 111572 0580 | 125,- |
| 6          | 6           | 116     | 78       | 0.15                                               | 111572 0600 | 125,- |
| 6.5        | 8           | 146     | 108      | 0.16                                               | 111572 0650 | 173,- |
| 6.8        | 8           | 146     | 108      | 0.17                                               | 111572 0680 | 173,- |
| 7          | 8           | 146     | 108      | 0.18                                               | 111572 0700 | 173,- |



| D h7<br>mm | D1 h6<br>mm | L<br>mm | L1<br>mm | Feed f<br>steel < 1000 N/mm <sup>2</sup><br>mm/rev | Art.no.     | €     |
|------------|-------------|---------|----------|----------------------------------------------------|-------------|-------|
| 7.5        | 8           | 146     | 108      | 0.19                                               | 111572 0750 | 173,- |
| 7.8        | 8           | 146     | 108      | 0.20                                               | 111572 0780 | 173,- |
| 8          | 8           | 146     | 108      | 0.20                                               | 111572 0800 | 173,- |
| 8.5        | 10          | 162     | 120      | 0.21                                               | 111572 0850 | 208,- |
| 8.8        | 10          | 162     | 120      | 0.22                                               | 111572 0880 | 208,- |
| 9          | 10          | 162     | 120      | 0.23                                               | 111572 0900 | 208,- |
| 9.5        | 10          | 162     | 120      | 0.24                                               | 111572 0950 | 220,- |
| 9.8        | 10          | 162     | 120      | 0.25                                               | 111572 0980 | 220,- |
| 10         | 10          | 162     | 120      | 0.25                                               | 111572 1000 | 220,- |
| 10.2       | 12          | 204     | 156      | 0.26                                               | 111572 1020 | 280,- |
| 10.5       | 12          | 204     | 156      | 0.26                                               | 111572 1050 | 280,- |
| 10.8       | 12          | 204     | 156      | 0.27                                               | 111572 1080 | 280,- |
| 11         | 12          | 204     | 156      | 0.28                                               | 111572 1100 | 280,- |
| 11.5       | 12          | 204     | 156      | 0.29                                               | 111572 1150 | 280,- |
| 11.8       | 12          | 204     | 156      | 0.30                                               | 111572 1180 | 280,- |
| 12         | 12          | 204     | 156      | 0.30                                               | 111572 1200 | 280,- |

| Material  | ● very well suited<br>○ well suited | Steel                   |                          |                          | Stainless steel  |            |        | Cast iron |     | Titanium alloys | Super alloys Fe/NiCo-based |          | Aluminium |         | Copper Cu-alloy | Graphite GRP/CF/thermo | Hardened steel |          |          |
|-----------|-------------------------------------|-------------------------|--------------------------|--------------------------|------------------|------------|--------|-----------|-----|-----------------|----------------------------|----------|-----------|---------|-----------------|------------------------|----------------|----------|----------|
|           |                                     | < 700 N/mm <sup>2</sup> | < 1000 N/mm <sup>2</sup> | < 1400 N/mm <sup>2</sup> | ferrit./martens. | austenitic | duplex | GG/GTS    | GGG |                 | < 30 HRC                   | ≥ 30 HRC | < 8% Si   | ≥ 8% Si |                 |                        | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
|           |                                     |                         |                          |                          |                  |            |        |           |     |                 |                            |          |           |         |                 |                        |                |          |          |
| 111565... | ●                                   | ●                       | ●                        | ●                        | ●                | ●          | ●      | ●         | ●   | ●               | ●                          | ●        | ●         | ●       | ●               |                        | ●              | ○        | ○        |
| 111569... | ○                                   | 120-170                 | 85-120                   | 65-105                   | 45               | 55         | 44     | 160       | 120 | 40-45           | 40                         | 35       | 260-310   | 220     | 125             |                        | 55             | 35       | 30       |
| 111570... | ●                                   | ●                       | ●                        | ●                        | ●                | ●          |        | 160       | 120 | ●               | ●                          | ●        | ●         | ●       | ●               |                        | ○              |          |          |
|           |                                     | 120-145                 | 65-120                   | 65-105                   | 45               | 55         |        |           |     | 40              | 35                         | 35       | 260-310   | 220     | 125             |                        | 55             |          |          |
| 111572... | ●                                   | ●                       | ●                        | ●                        | ●                | ●          |        | 120       | 90  |                 |                            |          | ●         | ●       | ●               |                        | ○              |          |          |
|           |                                     | 80-90                   | 80                       | 40-60                    | 40               | 40         |        |           |     |                 |                            |          | 120       | 150     | 120             |                        | 35             |          |          |

Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up!



Modular drilling tools from Allied Machine & Engineering Co. (AMEC) meet the increasing demands of customers from various industries.

Solutions are provided not only for general mechanical engineering, but also for the automotive sector and aerospace technology. The flexible drilling tool systems are characterised by their universal application capabilities and in particular by the combination of cutting materials, coatings and geometries.

### Guaranteed application

Describe your machining problem to us. Working with the manufacturer, we will draw up a quotation for you for the use of appropriate tools. Allied Machine Engineering Co. guarantees the feasibility of the project.



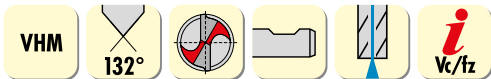
### T-A Pro™

- Diameter range from 11.10 to 47.80 mm
- Geometries and basic materials for machining steel, cast iron and non-ferrous metals
- Material-specific geometries in accordance with ISO for simplified tool selection
- New support and coolant bore design for improved chip removal
- Drilling depths up to 15 x D



# Drilling system T-A Pro™ Series 1

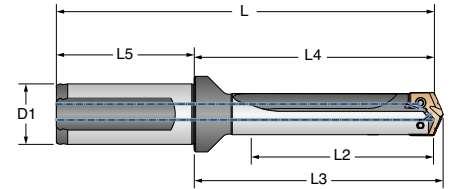
NEW



- Series 1, diameter range 17.70-24.30 mm
- Drilling depths up to 15 x D
- Supports with innovative coolant bore system for higher flow rate
- Cutting fluid is fed directly under the chip and creates a "hydraulic wedge"
- Sturdy support and new chip flute design for safe chip removal
- Three material-specific geometries available
- Wide range of applications in the ISO material groups P, M, K and N
- Complete programme in the catalogue

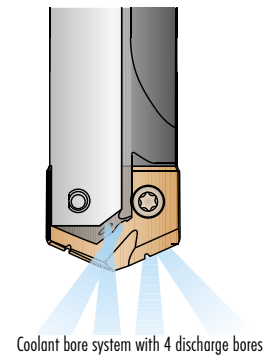
## Note

- Holder type A: possible diameter range 17.70-24.30 mm
- Holder type C: recommended for greater stability from a diameter of 20.60 mm



## Series 1 holder

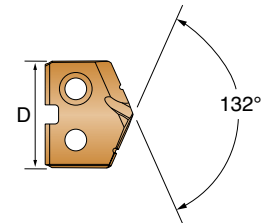
| Type     | D<br>mm       | L2<br>mm | L4<br>mm | L3<br>mm | L<br>mm | L5<br>mm | D1<br>mm | Art.no.     | €      |
|----------|---------------|----------|----------|----------|---------|----------|----------|-------------|--------|
| 3xD (A)  | 17,70 - 20,50 | 62.9     | 100.9    | 104.5    | 158.8   | 57.9     | 25       | 105027 0103 | 339,20 |
| 3xD (C)  | 20,60 - 24,30 | 62.9     | 100.9    | 104.5    | 158.8   | 57.9     | 25       | 105027 0303 | 339,20 |
| 5xD (A)  | 17,70 - 20,50 | 104.8    | 142.8    | 146.4    | 200.7   | 57.9     | 25       | 105027 0105 | 362,40 |
| 5xD (C)  | 20,60 - 24,30 | 104.8    | 142.8    | 146.4    | 200.7   | 57.9     | 25       | 105027 0305 | 362,40 |
| 7xD (A)  | 17,70 - 20,50 | 146.7    | 184.7    | 188.3    | 242.7   | 57.9     | 25       | 105027 0107 | 389,90 |
| 7xD (C)  | 20,60 - 24,30 | 146.7    | 184.7    | 188.3    | 242.7   | 57.9     | 25       | 105027 0307 | 389,90 |
| 10xD (A) | 17,70 - 20,50 | 209.6    | 247.6    | 251.2    | 305.5   | 57.9     | 25       | 105027 0110 | 415,-  |
| 10xD (C) | 20,60 - 24,30 | 209.6    | 247.6    | 251.2    | 305.5   | 57.9     | 25       | 105027 0310 | 415,-  |
| 12xD (A) | 17,70 - 20,50 | 251.5    | 289.5    | 293.1    | 347.4   | 57.9     | 25       | 105027 0112 | 453,20 |
| 12xD (C) | 20,60 - 24,30 | 251.5    | 289.5    | 293.1    | 347.4   | 57.9     | 25       | 105027 0312 | 453,20 |
| 15xD (A) | 17,70 - 20,50 | 314.3    | 352.4    | 355.9    | 410.3   | 57.9     | 25       | 105027 0115 | 517,10 |
| 15xD (C) | 20,60 - 24,30 | 314.3    | 352.4    | 355.9    | 410.3   | 57.9     | 25       | 105027 0315 | 517,10 |



## Carbide cutting inserts

### Series 1

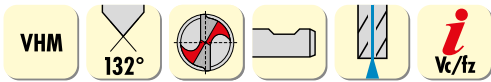
| D<br>mm | Art.no.       | €    | Art.no.       | €    | Art.no.       | €    |
|---------|---------------|------|---------------|------|---------------|------|
|         |               |      |               |      |               |      |
| 18.00   | 2 105980 1800 | 93,- | 2 105982 1800 | 93,- | 2 105984 1800 | 93,- |
| 18.50   | 2 105980 1850 | 93,- | 2 105982 1850 | 93,- | 2 105984 1850 | 93,- |
| 19.00   | 2 105980 1900 | 93,- | 2 105982 1900 | 93,- | 2 105984 1900 | 93,- |
| 19.50   | 2 105980 1950 | 93,- | 2 105982 1950 | 93,- | 2 105984 1950 | 93,- |
| 20.00   | 2 105980 2000 | 93,- | 2 105982 2000 | 93,- | 2 105984 2000 | 93,- |
| 20.50   | 2 105980 2050 | 93,- | 2 105982 2050 | 93,- | 2 105984 2050 | 93,- |
| 21.00   | 2 105980 2100 | 93,- | 2 105982 2100 | 93,- | 2 105984 2100 | 93,- |
| 21.50   | 2 105980 2150 | 93,- | 2 105982 2150 | 93,- | 2 105984 2150 | 93,- |
| 22.00   | 2 105980 2200 | 93,- | 2 105982 2200 | 93,- | 2 105984 2200 | 93,- |
| 22.50   | 2 105980 2250 | 93,- | 2 105982 2250 | 93,- | 2 105984 2250 | 93,- |
| 23.00   | 2 105980 2300 | 93,- | 2 105982 2300 | 93,- | 2 105984 2300 | 93,- |
| 23.50   | 2 105980 2350 | 93,- | 2 105982 2350 | 93,- | 2 105984 2350 | 93,- |
| 24.00   | 2 105980 2400 | 93,- | 2 105982 2400 | 93,- | 2 105984 2400 | 93,- |



| Material   | ● very well suited<br>○ well suited | Steel       |              |              | Stainless steel  |            |        | Cast iron |     | Titanium alloys | Super alloys Fe/NiCo-based |          | Aluminium |          | Copper Cu-alloy | Graphite GRP/CFP/thermoal | Hardened steel |          |          |
|------------|-------------------------------------|-------------|--------------|--------------|------------------|------------|--------|-----------|-----|-----------------|----------------------------|----------|-----------|----------|-----------------|---------------------------|----------------|----------|----------|
|            |                                     | < 700 N/mm² | < 1000 N/mm² | < 1400 N/mm² | ferrit./martens. | austenitic | duplex | GG/GTS    | GGG |                 | < 30 HRC                   | ≥ 30 HRC | < 8 % Si  | ≥ 8 % Si |                 |                           | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
| 105980.... | ●                                   | ●           | ●            | ●            | ○                | ○          | ○      |           |     | ○               | ○                          | ○        |           |          |                 |                           | ○              |          |          |
| 105982.... |                                     |             |              |              |                  |            |        | ●         | ●   |                 |                            |          |           |          |                 |                           |                |          |          |
| 105984.... |                                     |             |              |              |                  |            |        |           |     |                 |                            |          | ●         | ●        | ●               |                           |                |          |          |

# Drilling system T-A Pro™ Series 2

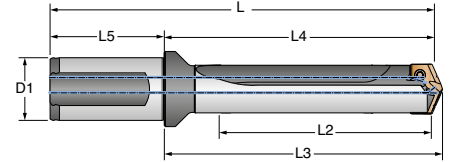
NEW



- Series 2, diameter range 24.40–35.00 mm
- Drilling depths up to 15 x D
- Supports with innovative coolant bore system for higher flow rate
- Cutting fluid is fed directly under the chip and creates a “hydraulic wedge”
- Sturdy support and new chip flute design for safe chip removal
- Three material-specific geometries available
- Wide range of applications in the ISO material groups P, M, K and N
- Complete programme in the catalogue

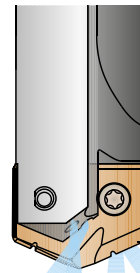
## Note

- Holder type A: possible diameter range 24.40–35.00 mm
- Holder type C: recommended for greater stability from a diameter of 28.50 mm



## Series 2 holder

| Type     | D mm          | L2 mm | L4 mm | L3 mm | L mm  | L5 mm | D1 mm | Art.no.     | €      |
|----------|---------------|-------|-------|-------|-------|-------|-------|-------------|--------|
| 3xD (A)  | 24,40 - 28,40 | 89.2  | 137.4 | 141   | 195.4 | 57.9  | 32    | 105029 0103 | 373,10 |
| 3xD (C)  | 28,50 - 35,00 | 89.2  | 137.4 | 141   | 195.4 | 57.9  | 32    | 105029 0303 | 373,10 |
| 5xD (A)  | 24,40 - 28,40 | 148.7 | 196.9 | 200.5 | 254.8 | 57.9  | 32    | 105029 0105 | 398,60 |
| 5xD (C)  | 28,50 - 35,00 | 148.7 | 196.9 | 200.5 | 254.8 | 57.9  | 32    | 105029 0305 | 398,60 |
| 7xD (A)  | 24,40 - 28,40 | 208.2 | 256.4 | 260   | 314.3 | 57.9  | 32    | 105029 0107 | 428,90 |
| 7xD (C)  | 28,50 - 35,00 | 208.2 | 256.4 | 260   | 314.3 | 57.9  | 32    | 105029 0307 | 428,90 |
| 10xD (A) | 24,40 - 28,40 | 297.4 | 345.6 | 349.2 | 403.6 | 57.9  | 32    | 105029 0110 | 456,50 |
| 10xD (C) | 28,50 - 35,00 | 297.4 | 345.6 | 349.2 | 403.6 | 57.9  | 32    | 105029 0310 | 456,50 |
| 12xD (A) | 24,40 - 28,40 | 356.9 | 405.1 | 408.7 | 463   | 57.9  | 32    | 105029 0112 | 498,60 |
| 12xD (C) | 28,50 - 35,00 | 356.9 | 405.1 | 408.7 | 463   | 57.9  | 32    | 105029 0312 | 498,60 |
| 15xD (A) | 24,40 - 28,40 | 446.2 | 494.4 | 497.9 | 552.3 | 57.9  | 32    | 105029 0115 | 568,80 |
| 15xD (C) | 28,50 - 35,00 | 446.2 | 494.4 | 497.9 | 552.3 | 57.9  | 32    | 105029 0315 | 568,80 |

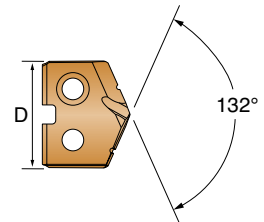


Coolant bore system with 4 discharge bores

## Carbide cutting inserts

### Series 2

| D mm  | ISO  M |             |        | ISO  K |             |        | ISO  N |             |        |
|-------|--------|-------------|--------|--------|-------------|--------|--------|-------------|--------|
|       | AM300  | Art.no.     | €      | TiAlN  | Art.no.     | €      | TiCN   | Art.no.     | €      |
| 24.50 | 2      | 105980 2450 | 110,40 | 2      | 105982 2450 | 110,40 | 2      | 105984 2450 | 110,40 |
| 25.00 | 2      | 105980 2500 | 110,40 | 2      | 105982 2500 | 110,40 | 2      | 105984 2500 | 110,40 |
| 25.50 | 2      | 105980 2550 | 110,40 | 2      | 105982 2550 | 110,40 | 2      | 105984 2550 | 110,40 |
| 26.00 | 2      | 105980 2600 | 110,40 | 2      | 105982 2600 | 110,40 | 2      | 105984 2600 | 110,40 |
| 26.50 | 2      | 105980 2650 | 110,40 | 2      | 105982 2650 | 110,40 | 2      | 105984 2650 | 110,40 |
| 27.00 | 2      | 105980 2700 | 110,40 | 2      | 105982 2700 | 110,40 | 2      | 105984 2700 | 110,40 |
| 27.50 | 2      | 105980 2750 | 110,40 | 2      | 105982 2750 | 110,40 | 2      | 105984 2750 | 110,40 |
| 28.00 | 2      | 105980 2800 | 110,40 | 2      | 105982 2800 | 110,40 | 2      | 105984 2800 | 110,40 |
| 28.50 | 2      | 105980 2850 | 110,40 | 2      | 105982 2850 | 110,40 | 2      | 105984 2850 | 110,40 |
| 29.00 | 2      | 105980 2900 | 110,40 | 2      | 105982 2900 | 110,40 | 2      | 105984 2900 | 110,40 |
| 29.50 | 2      | 105980 2950 | 110,40 | 2      | 105982 2950 | 110,40 | 2      | 105984 2950 | 110,40 |
| 30.00 | 2      | 105980 3000 | 110,40 | 2      | 105982 3000 | 110,40 | 2      | 105984 3000 | 110,40 |
| 30.50 | 2      | 105980 3050 | 110,40 | 2      | 105982 3050 | 110,40 | 2      | 105984 3050 | 110,40 |
| 31.00 | 2      | 105980 3100 | 110,40 | 2      | 105982 3100 | 110,40 | 2      | 105984 3100 | 110,40 |
| 31.50 | 2      | 105980 3150 | 110,40 | 2      | 105982 3150 | 110,40 | 2      | 105984 3150 | 110,40 |
| 32.00 | 2      | 105980 3200 | 110,40 | 2      | 105982 3200 | 110,40 | 2      | 105984 3200 | 110,40 |
| 32.50 | 2      | 105980 3250 | 110,40 | 2      | 105982 3250 | 110,40 | 2      | 105984 3250 | 110,40 |
| 33.00 | 2      | 105980 3300 | 110,40 | 2      | 105982 3300 | 110,40 | 2      | 105984 3300 | 110,40 |
| 33.50 | 2      | 105980 3350 | 110,40 | 2      | 105982 3350 | 110,40 | 2      | 105984 3350 | 110,40 |
| 34.00 | 2      | 105980 3400 | 110,40 | 2      | 105982 3400 | 110,40 | 2      | 105984 3400 | 110,40 |
| 34.50 | 2      | 105980 3450 | 110,40 | 2      | 105982 3450 | 110,40 | 2      | 105984 3450 | 110,40 |
| 35.00 | 2      | 105980 3500 | 110,40 | 2      | 105982 3500 | 110,40 | 2      | 105984 3500 | 110,40 |



| Material   | ● very well suited<br>○ well suited | Steel       |              |              | Stainless steel  |            |        | Cast iron |     | Titanium alloys | Super alloys Fe/NiCo-based |          | Aluminium |          | Copper Cu-alloy | Graphite GRP/CFP/thermoal | Hardened steel |          |          |
|------------|-------------------------------------|-------------|--------------|--------------|------------------|------------|--------|-----------|-----|-----------------|----------------------------|----------|-----------|----------|-----------------|---------------------------|----------------|----------|----------|
|            |                                     | < 700 N/mm² | < 1000 N/mm² | < 1400 N/mm² | ferrit./martens. | austenitic | duplex | GG/GTS    | GGG |                 | < 30 HRC                   | ≥ 30 HRC | < 8 % Si  | ≥ 8 % Si |                 |                           | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
| 105980.... | ●                                   | ●           | ●            | ●            | ●                | ●          | ●      | ●         | ●   | ○               | ○                          | ○        | ●         | ●        | ●               |                           | ○              |          |          |
| 105982.... |                                     |             |              |              |                  |            |        | ●         | ●   |                 |                            |          |           |          |                 |                           |                |          |          |
| 105984.... |                                     |             |              |              |                  |            |        |           |     |                 |                            |          | ●         | ●        | ●               |                           |                |          |          |

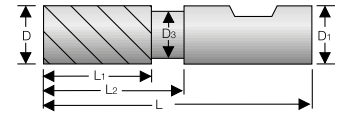
## SARA® End milling cutter



- With clearance
- Smooth shank
- from Ø 6 mm with weldon shanks in accordance with DIN 6535 HB
- **First-rate chip removal due to extremely smooth surface**
- **Cutting material: ultra-fine grain solid carbide, TiAlN-Ultra-coated**



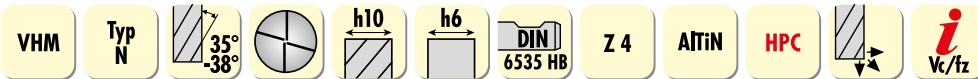
| D<br>mm | L1<br>mm | L2<br>mm | L<br>mm | D1<br>mm | D3<br>mm | Feed fz<br>steel < 1400 N/mm²<br>mm/Z | Feed fz<br>steel < 1400 N/mm²<br>mm/Z | Art.no.            | €             |
|---------|----------|----------|---------|----------|----------|---------------------------------------|---------------------------------------|--------------------|---------------|
| 2.0     | 8        | -        | 32      | 2.0      | -        | 0.0056                                | 0.007                                 | <b>254054 0020</b> | <b>16,85</b>  |
| 3.0     | 12       | -        | 38      | 3.0      | -        | 0.012                                 | 0.015                                 | 254054 0030        | <b>18,10</b>  |
| 4.0     | 12       | -        | 40      | 4.0      | -        | 0.012                                 | 0.015                                 | 254054 0040        | <b>19,40</b>  |
| 5.0     | 15       | 20       | 50      | 5.0      | 4.8      | 0.024                                 | 0.03                                  | 254054 0050        | <b>20,60</b>  |
| 6.0     | 16       | 20       | 58      | 6.0      | 5.8      | 0.024                                 | 0.03                                  | 254054 0060        | <b>28,40</b>  |
| 8.0     | 22       | 32       | 70      | 8.0      | 7.7      | 0.024                                 | 0.03                                  | 254054 0080        | <b>31,-</b>   |
| 10.0    | 25       | 31       | 73      | 10.0     | 9.6      | 0.032                                 | 0.04                                  | 254054 0100        | <b>46,30</b>  |
| 12.0    | 28       | 37       | 84      | 12.0     | 11.6     | 0.032                                 | 0.04                                  | 254054 0120        | <b>67,30</b>  |
| 16.0    | 35       | 43       | 93      | 16.0     | 15.5     | 0.04                                  | 0.05                                  | 254054 0160        | <b>108,50</b> |
| 20.0    | 40       | 52       | 104     | 20.0     | 19.5     | 0.048                                 | 0.06                                  | 254054 0200        | <b>159,50</b> |



| Material | ● very well suited<br>○ well suited | Steel       |              |              | Stainless steel |            |        | Cast iron |        | Titanium alloys | Super alloys Fe/NiCo-based | Aluminium |          | Copper Co-alloy | Graphite GRP/CFP/thermoat | Hardened steel |          |          |
|----------|-------------------------------------|-------------|--------------|--------------|-----------------|------------|--------|-----------|--------|-----------------|----------------------------|-----------|----------|-----------------|---------------------------|----------------|----------|----------|
|          |                                     | < 700 N/mm² | < 1000 N/mm² | < 1400 N/mm² | ferrit/martens  | austenitic | duplex | GG/GTS    | GGG    |                 | < 30 HRC                   | > 30 HRC  | < 8 % Si | > 8 % Si        |                           | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
|          |                                     | 100-120     | 80-100       | 60-80        | 50-65           | 50-60      | 40-50  | 100-130   | 80-120 | 40-60           | 40-50                      | 30-40     | 300-400  | 200-300         | 100-140                   |                |          |          |

Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up!

## SARA® Stainless steel end milling cutter

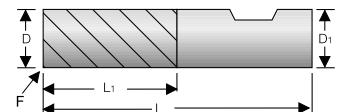


- **Irregular helix angle and pitch for low-vibration milling**
- With protective chamfer F for improved tool life
- Specially designed for stainless steel machining



### Short

| D<br>mm | L1<br>mm | L<br>mm | D1<br>mm | F x 45°<br>mm | Z | Feed fz<br>stainless steel austenitic<br>mm/Z | Feed fz<br>stainless steel austenitic<br>mm/Z | Art.no.            | €            |
|---------|----------|---------|----------|---------------|---|-----------------------------------------------|-----------------------------------------------|--------------------|--------------|
| 3.0     | 6        | 54      | 6        | 0.10          | 4 | 0.008                                         | 0.009                                         | <b>254134 0030</b> | <b>19,60</b> |
| 4.0     | 8        | 54      | 6        | 0.13          | 4 | 0.013                                         | 0.015                                         | 254134 0040        | <b>19,60</b> |
| 5.0     | 9        | 54      | 6        | 0.18          | 4 | 0.021                                         | 0.025                                         | 254134 0050        | <b>19,60</b> |
| 6.0     | 10       | 54      | 6        | 0.20          | 4 | 0.021                                         | 0.025                                         | 254134 0060        | <b>19,60</b> |
| 7.0     | 12       | 58      | 8        | 0.20          | 4 | 0.027                                         | 0.032                                         | 254134 0070        | <b>25,60</b> |
| 8.0     | 12       | 58      | 8        | 0.20          | 4 | 0.027                                         | 0.032                                         | 254134 0080        | <b>25,60</b> |
| 9.0     | 14       | 66      | 10       | 0.30          | 4 | 0.027                                         | 0.032                                         | 254134 0090        | <b>35,70</b> |
| 10.0    | 14       | 66      | 10       | 0.30          | 4 | 0.044                                         | 0.052                                         | 254134 0100        | <b>35,70</b> |
| 11.0    | 16       | 73      | 12       | 0.30          | 4 | 0.044                                         | 0.052                                         | 254134 0110        | <b>45,90</b> |
| 12.0    | 16       | 73      | 12       | 0.30          | 4 | 0.044                                         | 0.052                                         | 254134 0120        | <b>45,90</b> |
| 13.0    | 18       | 75      | 14       | 0.30          | 4 | 0.059                                         | 0.07                                          | 254134 0130        | <b>57,10</b> |
| 14.0    | 18       | 75      | 14       | 0.30          | 4 | 0.059                                         | 0.07                                          | 254134 0140        | <b>57,10</b> |
| 16.0    | 22       | 82      | 16       | 0.40          | 4 | 0.059                                         | 0.07                                          | 254134 0160        | <b>74,20</b> |
| 18.0    | 24       | 84      | 18       | 0.40          | 4 | 0.071                                         | 0.084                                         | 254134 0180        | <b>109,-</b> |
| 20.0    | 26       | 92      | 20       | 0.50          | 4 | 0.071                                         | 0.084                                         | 254134 0200        | <b>114,-</b> |
| 25.0    | 32       | 92      | 25       | 0.50          | 4 | 0.077                                         | 0.091                                         | 254134 0250        | <b>265,-</b> |

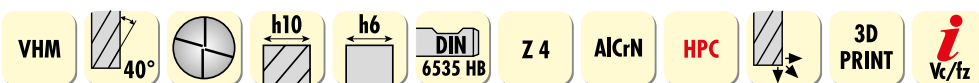




# EXTREME LOW-VIBRATION DUE TO UNEQUAL PITCH



## HPMT End milling cutter

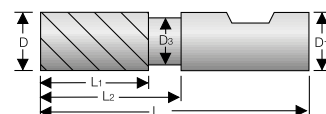


- With clearance
- Unequal pitch to minimise vibrations
- CNC repetition precision to within 10 µm
- For milling stainless steel, machining exotic materials, and general applications
- Especially suitable for slot milling and for lateral machining

**EXCLUSIVE item:**  
The all-rounder!



| D<br>mm | L1<br>mm | L2<br>mm | D1<br>mm | L<br>mm | D3<br>mm | Feed fz<br>steel < 1000 N/mm <sup>2</sup><br>mm/Z | Feed fz<br>steel < 1000 N/mm <sup>2</sup><br>mm/Z | Art.no.     | €      |
|---------|----------|----------|----------|---------|----------|---------------------------------------------------|---------------------------------------------------|-------------|--------|
| 3       | 9        | 15       | 6        | 57      | 2.80     | 0.016                                             | 0.020                                             | 254121 0030 | 18,80  |
| 4       | 12       | 20       | 6        | 57      | 3.70     | 0.021                                             | 0.026                                             | 254121 0040 | 18,80  |
| 5       | 13       | 20       | 6        | 57      | 4.60     | 0.026                                             | 0.032                                             | 254121 0050 | 18,80  |
| 6       | 13       | 20       | 6        | 57      | 5.50     | 0.031                                             | 0.038                                             | 254121 0060 | 18,80  |
| 8       | 20       | 30       | 8        | 64      | 7.40     | 0.037                                             | 0.046                                             | 254121 0080 | 26,50  |
| 10      | 22       | 32       | 10       | 72      | 9.20     | 0.044                                             | 0.054                                             | 254121 0100 | 39,50  |
| 12      | 26       | 37       | 12       | 83      | 11.00    | 0.050                                             | 0.062                                             | 254121 0120 | 51,—   |
| 16      | 32       | 46       | 16       | 92      | 15.00    | 0.063                                             | 0.078                                             | 254121 0160 | 89,—   |
| 20      | 38       | 58       | 20       | 104     | 19.00    | 0.075                                             | 0.094                                             | 254121 0200 | 143,50 |



| Material | ● very well suited<br>○ well suited | Steel                   |                          |                          | Stainless steel   |            |         | Cast iron |     | Titanium alloys | Super alloys Fe/NiCo-based | Aluminium |           | Copper Cu-alloy | Graphite GRP/CFR/fiberglass | Hardened steel |          |          |
|----------|-------------------------------------|-------------------------|--------------------------|--------------------------|-------------------|------------|---------|-----------|-----|-----------------|----------------------------|-----------|-----------|-----------------|-----------------------------|----------------|----------|----------|
|          |                                     | < 700 N/mm <sup>2</sup> | < 1000 N/mm <sup>2</sup> | < 1400 N/mm <sup>2</sup> | ferritic/martens. | austenitic | duplex  | GG/GTS    | GGG |                 | < 30 HRC                   | ≥ 30 HRC  | < 8 % Si  | ≥ 8 % Si        |                             | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
|          |                                     | ● 150-200               | ● 100-120                | ○ 70-90                  | ● 40-70           | ● 40-70    | ● 50-60 |           |     | ● 60-70         | ● 15-25                    | ● 15-20   | ● 280-350 | ● 200-250       | ● 150-200                   |                |          |          |

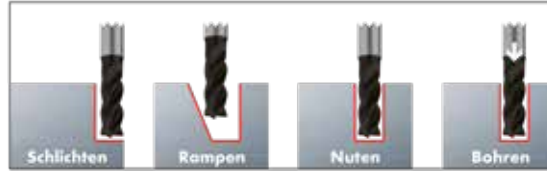
Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up!

## SARA® Drilling and plunge milling cutters

Drilling and milling with  
one tool

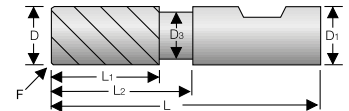


- Face geometry for drilling and ramping
- With clearance
- Unequal pitch to minimise vibrations
- High material removal rate
- High feed rates for plunge milling and groove milling
- up to 45° plunge angle
- Undersized for precise fitting grooves



### Standard with driving plane

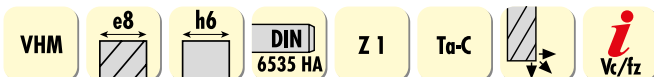
| D<br>mm | L1<br>mm | L2<br>mm | D1<br>mm | L<br>mm | D3<br>mm | F x 45°<br>mm | Feed fz<br>steel < 1000 N/mm²<br>mm/Z | Feed fz<br>steel < 1000 N/mm²<br>mm/Z | DIN 6535-HB<br>Art.no. | €      |
|---------|----------|----------|----------|---------|----------|---------------|---------------------------------------|---------------------------------------|------------------------|--------|
| 5.7     | 13       | 19       | 6        | 57      | 5.4      | 0.1           | 0.03                                  | 0.04                                  | 254145 0057            | 28,70  |
| 6       | 13       | 19       | 6        | 57      | 5.7      | 0.1           | 0.03                                  | 0.04                                  | 254145 0060            | 28,70  |
| 7.7     | 19       | 25       | 8        | 63      | 7.3      | 0.2           | 0.045                                 | 0.055                                 | 254145 0077            | 38,70  |
| 8       | 19       | 25       | 8        | 63      | 7.6      | 0.2           | 0.045                                 | 0.055                                 | 254145 0080            | 38,70  |
| 10      | 22       | 30       | 10       | 72      | 9.5      | 0.25          | 0.055                                 | 0.065                                 | 254145 0100            | 57,90  |
| 12      | 26       | 36       | 12       | 83      | 11.5     | 0.3           | 0.06                                  | 0.08                                  | 254145 0120            | 74,10  |
| 14      | 26       | 36       | 14       | 83      | 13.5     | 0.35          | 0.07                                  | 0.09                                  | 254145 0140            | 97,50  |
| 16      | 32       | 42       | 16       | 92      | 15.5     | 0.4           | 0.085                                 | 0.1                                   | 254145 0160            | 127,50 |
| 20      | 38       | 52       | 20       | 104     | 19.5     | 0.5           | 0.1                                   | 0.12                                  | 254145 0200            | 195,-  |



| Material                                                                                                   | ● very well suited<br>○ well suited | Steel                                                                               |                                                                                     |                                                                                     | Stainless steel                                                                     |                                                                                     |                                                                                     | Cast iron                                                                           |                                                                                     | Titanium alloys                                                                     | Super alloys Fe/NiCo-based                                                            |                                                                                       | Aluminium                                                                             |          | Copper   | Graphite          | Hardened steel |          |          |
|------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------|----------|-------------------|----------------|----------|----------|
|                                                                                                            |                                     | < 700 N/mm²                                                                         | < 1000 N/mm²                                                                        | < 1400 N/mm²                                                                        | ferrit./martens.                                                                    | austenitic                                                                          | duplex                                                                              | GG/GTS                                                                              | GGG                                                                                 |                                                                                     | < 30 HRC                                                                              | ≥ 30 HRC                                                                              | < 8 % Si                                                                              | ≥ 8 % Si | Cu-alloy | GRP/CFP/thermo-st | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
|                                                                                                            |                                     |  |  |  |  |  |  |  |  |  |  |  |  |          |          |                   |                |          |          |
|                                                                                                            |                                     | 210                                                                                 | 175                                                                                 | 120                                                                                 | 110                                                                                 | 110                                                                                 | 90                                                                                  | 150                                                                                 | 110                                                                                 | 60-70                                                                               | 20-35                                                                                 | 15-30                                                                                 |                                                                                       |          |          |                   |                |          |          |
| Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up! |                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |          |          |                   |                |          |          |

Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up!

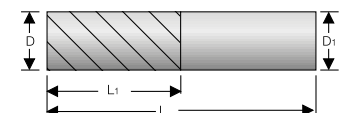
## ATORN® Single-blade milling cutter Ultra-N PRO



- 1 cutting edge, sharp
- For non-ferrous materials
- Cutting material: solid carbide with DLC-sp3 coating
- Spiral angle 30°
- With polish grinding in the chip chambers
- Large chip space for unhindered chip removal



| D<br>mm | L1<br>mm | L<br>mm | D1<br>mm | Feed fz<br>aluminium < 8 % Si<br>mm/Z | Art.no.     | €     |
|---------|----------|---------|----------|---------------------------------------|-------------|-------|
| 1.0     | 4        | 50      | 3.0      | 0.004                                 | 249005 0010 | 23,30 |
| 1.5     | 6        | 50      | 3.0      | 0.004                                 | 249005 0015 | 23,60 |
| 2.0     | 8        | 50      | 3.0      | 0.008                                 | 249005 0020 | 24,80 |
| 3.0     | 12       | 50      | 3.0      | 0.008                                 | 249005 0030 | 26,10 |
| 4.0     | 15       | 60      | 4.0      | 0.015                                 | 249005 0040 | 29,10 |
| 5.0     | 17       | 60      | 5.0      | 0.015                                 | 249005 0050 | 33,80 |
| 6.0     | 20       | 65      | 6.0      | 0.025                                 | 249005 0060 | 35,70 |
| 8.0     | 22       | 65      | 8.0      | 0.03                                  | 249005 0080 | 49,90 |
| 10.0    | 25       | 75      | 10.0     | 0.04                                  | 249005 0100 | 73,80 |
| 12.0    | 30       | 80      | 12.0     | 0.05                                  | 249005 0120 | 102,- |



| Material                                                                                                              | ● very well suited<br>○ well suited | Steel       |              |              | Stainless steel  |            |        | Cast iron |     | Titanium alloys | Super alloys Fe/NiCo-based |          | Aluminium                                                                             |                                                                                       | Copper   | Graphite          | Hardened steel |          |          |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------|--------------|--------------|------------------|------------|--------|-----------|-----|-----------------|----------------------------|----------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------|-------------------|----------------|----------|----------|
|                                                                                                                       |                                     | < 700 N/mm² | < 1000 N/mm² | < 1400 N/mm² | ferrit./martens. | austenitic | duplex | GG/GTS    | GGG |                 | < 30 HRC                   | ≥ 30 HRC | < 8 % Si                                                                              | ≥ 8 % Si                                                                              | Cu-alloy | GRP/CFP/thermo-st | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
|                                                                                                                       |                                     |             |              |              |                  |            |        |           |     |                 |                            |          |  |  |          |                   |                |          |          |
| Cutting speed V <sub>c</sub> m/min. Please adjust these guidelines according to clamping operation and machine setup! |                                     |             |              |              |                  |            |        |           |     |                 |                            |          |                                                                                       |                                                                                       |          |                   |                |          |          |

Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up!

## Test Winner

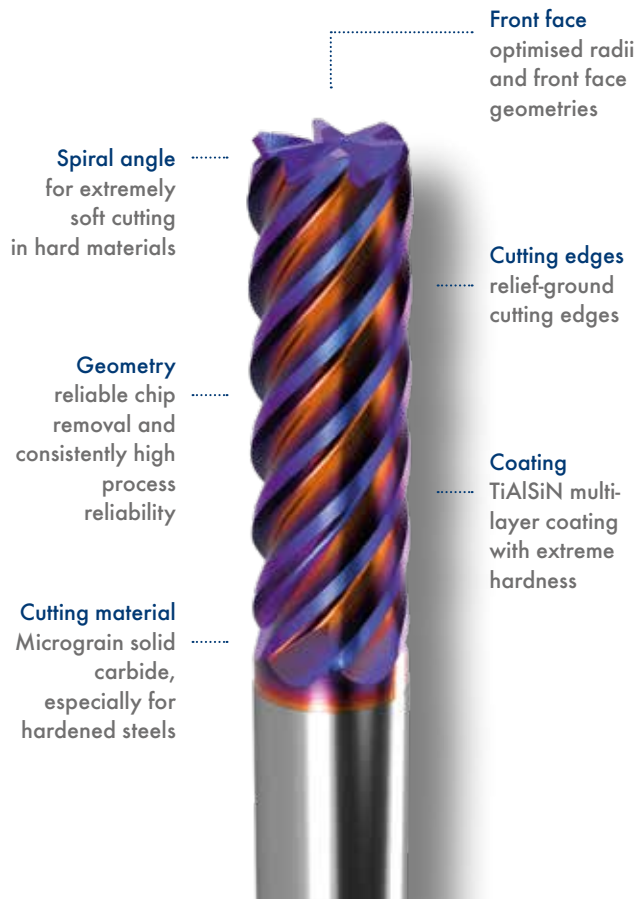
RockTec PRO emerged the winner in a comparative test conducted by GFE Gesellschaft für Fertigungstechnik und Entwicklung Schmalkalden e.V. Set against the competition, RockTec PRO milling cutters proved themselves in hard milling trials.

A 1.2379 (X153 CrMo V12) tool steel with a hardness of 58 HRC was machined. This involved milling test tracks with defined ap and ae using different solid carbide milling cutters. RockTec PRO milling cutters exhibited the longest tool life overall and so came in at Number 1 in the overall rating.

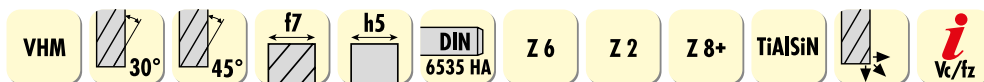


### Test results

- low flank wear
- few nicks
- low edge build-up
- minimal coating wear



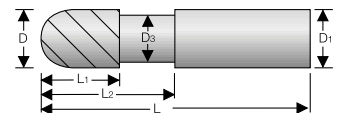
## ATORN® RockTec PRO milling cutters

**NEW**


- For machining materials **from 47 to 65 HRC**
- Optimised geometry for hard machining
- **Solid carbide ultra-fine grain cutting material**
- State-of-the-art coating technology for reduced wear and extreme hardness
- **Subject to process-related colour variations in the coating.**

### Radius milling cutters

| D<br>mm | D1<br>mm | D3<br>mm | L<br>mm | L1<br>mm | L2<br>mm | Z | Feed fz<br>hardened steel < 60 HRC<br>mm/Z | Art.no.            | €            |
|---------|----------|----------|---------|----------|----------|---|--------------------------------------------|--------------------|--------------|
| 1       | 6        | 0.96     | 65      | 1.5      | 3.5      | 2 | 0.005                                      | <b>257110 0010</b> | <b>42,30</b> |
| 1.5     | 6        | 1.44     | 65      | 2        | 4        | 2 | 0.005                                      | 257110 0015        | <b>41,60</b> |
| 2       | 6        | 1.95     | 65      | 2.5      | 4.5      | 2 | 0.005                                      | 257110 0020        | <b>41,30</b> |
| 2.5     | 6        | -        | 65      | 3        | 6.5      | 2 | 0.019                                      | 257110 0025        | <b>40,60</b> |
| 3       | 6        | -        | 65      | 3.5      | 7        | 2 | 0.019                                      | 257110 0030        | <b>40,20</b> |
| 4       | 6        | -        | 65      | 4.5      | 7        | 2 | 0.019                                      | 257110 0040        | <b>39,90</b> |
| 5       | 6        | -        | 65      | 5.5      | 10       | 2 | 0.048                                      | 257110 0050        | <b>39,20</b> |
| 6       | 6        | -        | 65      | 7        | -        | 2 | 0.048                                      | 257110 0060        | <b>38,10</b> |
| 8       | 8        | -        | 85      | 9        | -        | 2 | 0.06                                       | 257110 0080        | <b>48,30</b> |
| 10      | 10       | -        | 85      | 93       | -        | 2 | 0.07                                       | 257110 0100        | <b>63,70</b> |
| 12      | 12       | -        | 93      | 14       | -        | 2 | 0.08                                       | 257110 0120        | <b>84,-</b>  |
| 16      | 16       | -        | 110     | 18       | -        | 2 | 0.09                                       | 257110 0160        | <b>159,-</b> |
| 20      | 20       | -        | 126     | 22       | -        | 2 | 0.1                                        | 257110 0200        | <b>229,-</b> |



| Material | Steel            |             |              | Stainless steel |                 |            | Cast iron |        | Titanium alloys | Super alloys Fe/NiCo-based |          | Aluminium |          | Copper Cu alloy | Graphite GRP/CFP/thermoal | Hardened steel |          |          |
|----------|------------------|-------------|--------------|-----------------|-----------------|------------|-----------|--------|-----------------|----------------------------|----------|-----------|----------|-----------------|---------------------------|----------------|----------|----------|
|          | very well suited | < 700 N/mm² | < 1000 N/mm² | < 1400 N/mm²    | ferrit/martens. | austenitic | duplex    | GG/GTS | GGG             | < 30 HRC                   | ≥ 30 HRC | < 8 % Si  | ≥ 8 % Si |                 |                           | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
|          |                  |             |              | 140-160         |                 |            |           |        |                 |                            |          |           |          |                 |                           | 80-110         | 80-110   | 50-80    |

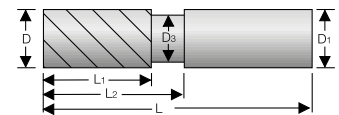
Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up!

# ATORN® Multi-flute milling cutters 90° RockTec PRO

NEW



- For machining materials **from 47 to 65 HRC**
- Optimised geometry for hard machining
- **Solid carbide ultra-fine grain cutting material**
- State-of-the-art coating technology for reduced wear and extreme hardness
- **Subject to process-related colour variations in the coating.**



## Short

| D<br>mm | D1<br>mm | D3<br>mm | L<br>mm | L1<br>mm | L2<br>mm | Z  | Feed fz<br>hardened steel < 60 HRC<br>mm/Z | Art.no.            | €            |
|---------|----------|----------|---------|----------|----------|----|--------------------------------------------|--------------------|--------------|
| 3       | 6        | 2.9      | 57      | 4        | 12       | 6  | 0.009                                      | <b>257170 0030</b> | <b>23,90</b> |
| 4       | 6        | 3.8      | 57      | 5        | 14       | 6  | 0.011                                      | 257170 0040        | <b>23,90</b> |
| 5       | 6        | 4.7      | 57      | 6        | 16       | 6  | 0.013                                      | 257170 0050        | <b>27,90</b> |
| 6       | 6        | 5.6      | 57      | 7        | 20       | 6  | 0.015                                      | 257170 0060        | <b>32,20</b> |
| 8       | 8        | 7.6      | 63      | 9        | 26       | 6  | 0.018                                      | 257170 0080        | <b>36,70</b> |
| 10      | 10       | 9.4      | 72      | 11       | 32       | 6  | 0.019                                      | 257170 0100        | <b>63,30</b> |
| 12      | 12       | 11.4     | 83      | 12       | 38       | 6  | 0.023                                      | 257170 0120        | <b>86,50</b> |
| 16      | 16       | 15.4     | 92      | 16       | 44       | 8  | 0.025                                      | 257170 0160        | <b>154,-</b> |
| 20      | 20       | 19.4     | 104     | 20       | 52       | 10 | 0.03                                       | 257170 0200        | <b>219,-</b> |



## Standard

| D<br>mm | D1<br>mm | D3<br>mm | L<br>mm | L1<br>mm | Z  | Feed fz<br>hardened steel < 60 HRC<br>mm/Z | Art.no.            | €             |
|---------|----------|----------|---------|----------|----|--------------------------------------------|--------------------|---------------|
| 3       | 6        | -        | 57      | 9        | 6  | 0.009                                      | <b>257175 0030</b> | <b>29,-</b>   |
| 4       | 6        | -        | 57      | 11       | 6  | 0.011                                      | 257175 0040        | <b>32,30</b>  |
| 5       | 6        | -        | 57      | 13       | 6  | 0.013                                      | 257175 0050        | <b>34,80</b>  |
| 6       | 6        | -        | 57      | 15       | 6  | 0.015                                      | 257175 0060        | <b>37,10</b>  |
| 8       | 8        | -        | 63      | 19       | 6  | 0.018                                      | 257175 0080        | <b>43,40</b>  |
| 10      | 10       | -        | 72      | 24       | 6  | 0.019                                      | 257175 0100        | <b>73,50</b>  |
| 12      | 12       | -        | 83      | 28       | 6  | 0.023                                      | 257175 0120        | <b>102,50</b> |
| 16      | 16       | -        | 92      | 36       | 8  | 0.025                                      | 257175 0160        | <b>192,50</b> |
| 20      | 20       | -        | 104     | 44       | 10 | 0.03                                       | 257175 0200        | <b>279,-</b>  |



## Long

| D<br>mm | D1<br>mm | D3<br>mm | L<br>mm | L1<br>mm | L2<br>mm | Z  | Feed fz<br>hardened steel < 60 HRC<br>mm/Z | Art.no.            | €             |
|---------|----------|----------|---------|----------|----------|----|--------------------------------------------|--------------------|---------------|
| 3       | 6        | -        | 65      | 9        | 11       | 6  | 0.009                                      | <b>257180 0030</b> | <b>36,-</b>   |
| 4       | 6        | -        | 65      | 12       | 13       | 6  | 0.011                                      | 257180 0040        | <b>39,20</b>  |
| 5       | 6        | -        | 65      | 15       | 15       | 6  | 0.013                                      | 257180 0050        | <b>41,60</b>  |
| 6       | 6        | -        | 65      | 18       | -        | 6  | 0.015                                      | 257180 0060        | <b>42,70</b>  |
| 8       | 8        | -        | 70      | 24       | -        | 6  | 0.018                                      | 257180 0080        | <b>45,80</b>  |
| 10      | 10       | -        | 85      | 30       | -        | 6  | 0.019                                      | 257180 0100        | <b>89,50</b>  |
| 12      | 12       | -        | 93      | 36       | -        | 6  | 0.023                                      | 257180 0120        | <b>119,-</b>  |
| 16      | 16       | -        | 110     | 48       | -        | 8  | 0.025                                      | 257180 0160        | <b>213,50</b> |
| 20      | 20       | -        | 126     | 60       | -        | 10 | 0.03                                       | 257180 0200        | <b>345,-</b>  |



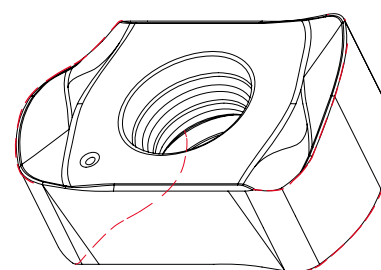
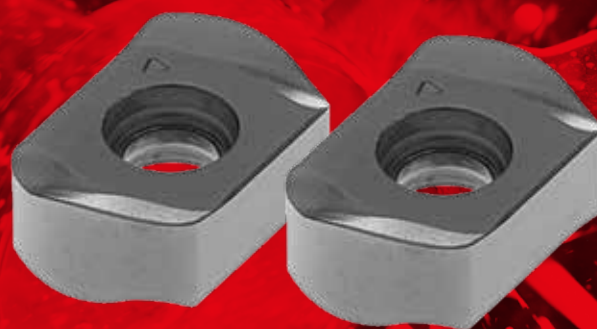
| Material | ● very well suited | ○ well suited | Steel       |              |              | Stainless steel  |            |        | Cast iron |     | Titanium alloys | Super alloys Fe/NiCo-based |          | Aluminium |          | Copper Cu alloy | Graphite GRP/CFP/thermoal | Hardened steel |          |          |
|----------|--------------------|---------------|-------------|--------------|--------------|------------------|------------|--------|-----------|-----|-----------------|----------------------------|----------|-----------|----------|-----------------|---------------------------|----------------|----------|----------|
|          |                    |               | < 700 N/mm² | < 1000 N/mm² | < 1400 N/mm² | ferrit./martens. | austenitic | duplex | GG/GTS    | GGG |                 | < 30 HRC                   | ≥ 30 HRC | < 8 % Si  | ≥ 8 % Si |                 |                           | < 55 HRC       | < 60 HRC | ≥ 60 HRC |
|          |                    |               |             |              | ● 140-160    |                  |            |        |           |     |                 |                            |          |           |          |                 |                           | ● 80-110       | ● 80-110 | ● 50-80  |

Cutting speed Vc m/min. Please adjust these guidelines according to clamping operation and machine set-up!

# MILLING INSERTS XNKU.. 06.. TETRAFEED

PHH  
NEW  
GRADE

PHP  
NEW  
GRADE



## PHP coating technology

The new PHP coating technology offers high levels of layer hardness and smooth surfaces for increased wear resistance and reduction of material build-up.

Suitable for high-performance applications in unalloyed, alloyed and high-speed steels as well as for the machining of cast iron.

## Optimised design for better chip removal

- More stable, improved insert seat for a long service life of the abrasive bead

## PHH coating technology

The new PHH coating technology has a very high level of thermal stability and offers long tool service lives.

Suitable for the machining of hardened steel, stainless steel and titanium alloys.

## Geometry

The reinforced cutting edge is designed for general applications in various substances.

### Plate width

- Large cross-section

### Cutting edge

- Stable cutting edge
- Increased wear resistance

### Double-sided indexable insert

- Double-sided indexable insert with 4 cutting edges

## palbit Shank 20° TETRAFEED

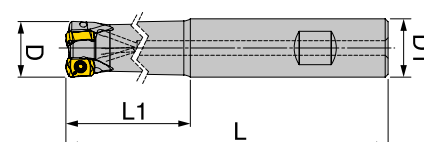


- For milling inserts XNKU 06
- Easy cutting action due to the positive installation position of the indexable insert
- **four cutting edges per insert**
- Tools deliver smooth milling performance
- **Internal coolant supply**



**NEW**

| D<br>mm | D1<br>mm | L<br>mm | L1<br>mm | Z | Tightening torque max.<br>N·m | Art.no.     | €     |
|---------|----------|---------|----------|---|-------------------------------|-------------|-------|
| 20      | 20       | 160     | 90       | 3 | 1.20                          | 260311 0020 | 179,- |
| 25      | 25       | 180     | 100      | 4 | 1.20                          | 260311 0025 | 199,- |
| 32      | 32       | 200     | 120      | 5 | 1.20                          | 260311 0032 | 229,- |





## palbit Screw-in milling cutter 20° **TETRAFEED**

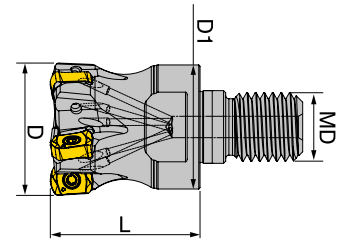
NEW



- For milling inserts **XNKU 06**
- Easy cutting action due to the positive installation position of the indexable insert
- **four cutting edges per insert**
- Tools deliver smooth milling performance
- **Internal coolant supply**



| D<br>mm | MD  | D1<br>mm | L<br>mm | Z | Tightening torque max.<br>N·m | Art.no.            | €            |
|---------|-----|----------|---------|---|-------------------------------|--------------------|--------------|
| 16      | M8  | 13       | 25      | 2 | 1.20                          | <b>260312 0016</b> | <b>129,-</b> |
| 20      | M10 | 18       | 28      | 3 | 1.20                          | 260312 0020        | <b>179,-</b> |
| 25      | M12 | 18       | 30      | 4 | 1.20                          | 260312 0025        | <b>195,-</b> |
| 32      | M16 | 29       | 35      | 5 | 1.20                          | 260312 0032        | <b>229,-</b> |
| 35      | M16 | 29       | 35      | 6 | 1.20                          | 260312 0035        | <b>235,-</b> |
| 40      | M16 | 29       | 45      | 5 | 1.20                          | 260312 0040        | <b>265,-</b> |
| 42      | M16 | 29       | 35      | 7 | 1.20                          | 260312 0042        | <b>269,-</b> |

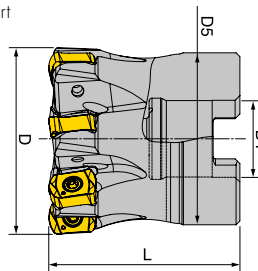


## palbit 20° corner milling cutter **TETRAFEED**

NEW



- For milling inserts **XNKU 06**
- Easy cutting action due to the positive installation position of the indexable insert
- **four cutting edges per insert**
- Tools deliver smooth milling performance
- **Internal coolant supply**



| D<br>mm | D1<br>mm | D5<br>mm | L<br>mm | Z | Tightening torque max.<br>N·m | Art.no.            | €            |
|---------|----------|----------|---------|---|-------------------------------|--------------------|--------------|
| 40      | 16       | 36       | 40      | 7 | 1.20                          | <b>260313 0040</b> | <b>259,-</b> |
| 50      | 22       | 42       | 40      | 8 | 1.20                          | 260313 0050        | <b>299,-</b> |
| 52      | 22       | 40       | 40      | 8 | 1.20                          | 260313 0052        | <b>309,-</b> |
| 63      | 22       | 40       | 40      | 9 | 1.20                          | 260313 0063        | <b>339,-</b> |



## Milling inserts **XNKU.. 06.. TETRAFEED**

NEW

| F<br>finishing                                                                      | M<br>medium | R<br>roughing | palbit  | ISO P | ISO M | ISO K | ISO N | ISO S | ISO H | Quality | Art.no.        | €           |
|-------------------------------------------------------------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|---------|----------------|-------------|
| -                                                                                   | -           | -             | ISO designation                                                                            |       |       |       |       |       |       |         |                |             |
|  |             |               | XNKU 06T310-MP                                                                             |       | ●     |       |       | ●     |       | PHH 930 | 10 285560 0167 | <b>9,50</b> |
|                                                                                     |             |               |                                                                                            | ●     |       | ●     |       |       |       | PHP 920 | 10 285560 0168 | <b>9,50</b> |
|                                                                                     |             |               |                                                                                            | ●     | ●     | ●     |       | ●     |       | PHS 740 | 10 285560 0174 | <b>9,50</b> |
|                                                                                     |             |               |                                                                                            | ●     |       |       |       |       |       | PHP 910 | 10 285560 0192 | <b>9,50</b> |

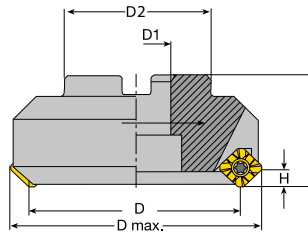
| ISO                                      | PHH 930      | PHP 910                  | PHP 920      | PHS 740      |
|------------------------------------------|--------------|--------------------------|--------------|--------------|
| ISO P<br>Steel                           |              | Vc = 140-250             | Vc = 160-250 | Vc = 140-230 |
| ISO M<br>Stainless steel                 | Vc = 80-170  |                          |              | Vc = 70-180  |
| ISO K<br>Cast iron                       |              |                          | Vc = 100-320 | Vc = 70-260  |
| ISO S<br>Superalloy                      | Vc = 30-75   |                          |              | Vc = 30-70   |
| Vc = (m/min)<br>fz = (mm/Z)<br>ap = (mm) | fz = 0.5-1.4 | fz = 0.5-1.5<br>ap = 1.0 |              | fz = 0.5-1.3 |



# palbit Face milling cutter 45° **LINEPRO 09945**



- for ISO milling inserts, type SE.. 13T3
- Highly positive rake angle
- With spacer
- Smooth, low-noise milling
- For plunge milling and face milling
- Supplied with clamping screws and wrench
- **Cutting angle:** Tool cutting-edge angle 45°, axial rake angle 20°



With spacers



| D<br>mm | D1<br>mm | D max.<br>mm | D2<br>mm | L<br>mm | H<br>mm | Z  | Weight<br>kg | Tightening torque max.<br>N-m | Suitable<br>indexable inserts | Art.no.            | €            |
|---------|----------|--------------|----------|---------|---------|----|--------------|-------------------------------|-------------------------------|--------------------|--------------|
| 50      | 22       | 63           | 40       | 40      | 6.0     | 4  | 0.36         | 3.0                           | SE..13T3                      | <b>260213 0050</b> | <b>219,-</b> |
| 63      | 22       | 76           | 48       | 40      | 6.0     | 5  | 0.59         | 3.0                           | SE..13T3                      | 260213 0063        | <b>265,-</b> |
| 80      | 27       | 93           | 60       | 50      | 6.0     | 6  | 1.02         | 3.0                           | SE..13T3                      | 260213 0080        | <b>315,-</b> |
| 100     | 32       | 113          | 70       | 50      | 6.0     | 7  | 1.52         | 3.0                           | SE..13T3                      | 260213 0100        | <b>385,-</b> |
| 125     | 40       | 138          | 90       | 63      | 6.0     | 8  | 3.16         | 3.0                           | SE..13T3                      | 260213 0125        | <b>459,-</b> |
| 160     | 40       | 173          | 110      | 63      | 6.0     | 10 | 4.61         | 3.0                           | SE..13T3                      | 260213 0160        | <b>629,-</b> |

## Milling inserts SE..13T3.. **LINEPRO 09945**

Compatible with:  
**Sandvik Coro Mill® 24S**  
**Mitsubishi ASX4S**  
**Sumitomo WGC**

### SEHT 13T3

| F<br>finishing                                                                      | M<br>medium | R<br>roughing | palbit  | ISO P | ISO M | ISO K | ISO N | ISO S | ISO H | Quality | Art.no.        | €           |
|-------------------------------------------------------------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|---------|----------------|-------------|
| -                                                                                   | -           | -             | ISO designation                                                                            |       |       |       |       |       |       |         |                |             |
|  |             |               | SEHT 13T3 AGFN-LN                                                                          |       |       |       |       |       |       | PH 0910 | 10 285234 0320 | <b>9,30</b> |
|                                                                                     |             |               | SEHT 13T3 AGSN                                                                             | ●     | ●     | ●     |       |       |       | PH 6740 | 10 285234 0139 | <b>9,30</b> |
|                                                                                     |             |               |                                                                                            | ●     |       | ●     |       |       |       | PH 6920 | 10 285234 0142 | <b>9,30</b> |

| ISO                                      | PH 0910       | PH 6740                        | PH 6920      |
|------------------------------------------|---------------|--------------------------------|--------------|
| ISO P<br>Steel                           |               | Vc = 100-160                   | Vc = 130-230 |
| ISO M<br>Stainless steel                 |               | Vc = 70-120                    |              |
| ISO K<br>Cast iron                       |               | Vc = 80-250                    | Vc = 80-280  |
| ISO N<br>Al/non-ferrous                  | Vc = 350-1400 |                                |              |
| Vc = [m/min]<br>fz = [mm/Z]<br>ap = [mm] | fz = 0.1-0.2  | fz = 0.1-0.25<br>ap = 0.05-6.0 |              |

| F<br>finishing                                                                      | M<br>medium | R<br>roughing | palbit  | ISO P | ISO M | ISO K | ISO N | ISO S | ISO H | Quality | Art.no.        | €            |
|-------------------------------------------------------------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|---------|----------------|--------------|
| -                                                                                   | -           | -             | ISO designation                                                                            |       |       |       |       |       |       |         |                |              |
|  |             |               | SEHT 13T3 AGSN-WIPER                                                                       | ●     |       | ●     |       |       |       | PH 6920 | 10 285234 0442 | <b>10,95</b> |
|                                                                                     |             |               |                                                                                            |       |       |       |       |       |       |         |                |              |

| ISO                                      | PH 6920                       |
|------------------------------------------|-------------------------------|
| ISO P<br>Steel                           | Vc = 130-230                  |
| ISO K<br>Cast iron                       | Vc = 80-280                   |
| Vc = [m/min]<br>fz = [mm/Z]<br>ap = [mm] | fz = 0.1-0.3<br>ap = 0.05-6.0 |

### SEHW 13T3

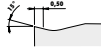
| F<br>finishing                                                                      | M<br>medium | R<br>roughing | palbit  | ISO P | ISO M | ISO K | ISO N | ISO S | ISO H | Quality | Art.no.        | €           |
|-------------------------------------------------------------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|---------|----------------|-------------|
| -                                                                                   | -           | -             | ISO designation                                                                            |       |       |       |       |       |       |         |                |             |
|  |             |               | SEHW 13T3 AGFN                                                                             | ●     |       | ●     |       |       |       | PH 6920 | 10 285237 0142 | <b>9,30</b> |
|                                                                                     |             |               |                                                                                            |       |       |       |       |       |       |         |                |             |

| ISO                                      | PH 6920                        |
|------------------------------------------|--------------------------------|
| ISO P<br>Steel                           | Vc = 130-230                   |
| ISO K<br>Cast iron                       | Vc = 80-280                    |
| Vc = [m/min]<br>fz = [mm/Z]<br>ap = [mm] | fz = 0.1-0.25<br>ap = 0.05-6.0 |

# ISO indexable cutting inserts, chip breaker GS

- The brandnew chip breaker GS from Palbit for machining ISO M and ISO S substances.
- The indexable cutting inserts are characterised by a very soft cut and smooth running.
- The dynamic chip breaker allows for good chip control, as well as an above-average material removal rate.
- Even duplex materials can be machined very well.

## Chip breaker GS negative

| F<br>finishing                                                                                        |  |  | M<br>medium                                                                       |  |  | R<br>roughing  |  |  | palbit<br><small>SAFETY AND DURABILITY</small> |   |  | ISO designation |  | ISO P | ISO M | ISO K | ISO N   | ISO S   | ISO H       | Quality     |  Art.no. | €    |
|-------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------------|--|--|----------------|--|--|------------------------------------------------|---|--|-----------------|--|-------|-------|-------|---------|---------|-------------|-------------|-------------------------------------------------------------------------------------------|------|
| ○                                                                                                     |  |  | ●                                                                                 |  |  | -              |  |  |                                                |   |  |                 |  |       |       |       |         |         |             |             |                                                                                           |      |
| <br>Medium machining |  |  |  |  |  | CNMG 120404-GS |  |  |                                                | ● |  |                 |  | ●     |       |       |         |         | PHH 920     | 10          | 333577 0194                                                                               | 6,80 |
|                                                                                                       |  |  |                                                                                   |  |  |                |  |  |                                                | ● |  |                 |  | ●     |       |       |         | PHH 910 | 10          | 333577 0195 | 6,80                                                                                      |      |
|                                                                                                       |  |  |                                                                                   |  |  |                |  |  |                                                | ● |  |                 |  | ●     |       |       | PHH 920 | 10      | 333577 0294 | 6,80        |                                                                                           |      |
|                                                                                                       |  |  |                                                                                   |  |  |                |  |  |                                                | ● |  |                 |  | ●     |       |       | PHH 910 | 10      | 333577 0295 | 6,80        |                                                                                           |      |
|                                                                                                       |  |  |                                                                                   |  |  |                |  |  |                                                | ● |  |                 |  | ●     |       |       | PHH 920 | 10      | 333577 0394 | 6,80        |                                                                                           |      |
|                                                                                                       |  |  |                                                                                   |  |  |                |  |  |                                                | ● |  |                 |  | ●     |       |       | PHH 910 | 10      | 333577 0395 | 6,80        |                                                                                           |      |

## Chip breaker GS negative

| <div>F</div> <div>M</div> <div>R</div> <div>finishing</div> <div>medium</div> <div>roughing</div>                                                                                                        |                |                | <div>palbit</div> <div>POWER TOOL COMPANY</div> | ISO P | ISO M | ISO K | ISO N | ISO S | ISO H   | Quality        | <div>Art.no.</div> | €    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|-------------------------------------------------|-------|-------|-------|-------|-------|---------|----------------|--------------------|------|
| ○                                                                                                                                                                                                        | ●              | -              | ISO designation                                 |       |       |       |       |       |         |                |                    |      |
| <div>  <p>Medium machining</p>  </div> |                | DNMG 110404-GS |                                                 | ●     |       |       |       | ●     |         | PHH 920        | 10 333578 0794     | 6,75 |
|                                                                                                                                                                                                          |                |                |                                                 |       | ●     |       |       | ●     |         | PHH 910        | 10 333578 0795     | 6,75 |
|                                                                                                                                                                                                          |                | DNMG 110408-GS |                                                 |       | ●     |       |       | ●     |         | PHH 920        | 10 333578 0894     | 6,75 |
|                                                                                                                                                                                                          |                |                |                                                 |       | ●     |       |       | ●     |         | PHH 910        | 10 333578 0895     | 6,75 |
|                                                                                                                                                                                                          |                | DNMG 150404-GS |                                                 |       | ●     |       |       | ●     |         | PHH 920        | 10 333578 0194     | 8,90 |
|                                                                                                                                                                                                          |                |                |                                                 |       | ●     |       |       | ●     |         | PHH 910        | 10 333578 0195     | 8,90 |
|                                                                                                                                                                                                          |                | DNMG 150408-GS |                                                 |       | ●     |       |       | ●     |         | PHH 920        | 10 333578 0294     | 8,90 |
|                                                                                                                                                                                                          |                |                |                                                 |       | ●     |       |       | ●     |         | PHH 910        | 10 333578 0295     | 8,90 |
|                                                                                                                                                                                                          |                | DNMG 150412-GS |                                                 |       | ●     |       |       | ●     |         | PHH 920        | 10 333578 0394     | 8,90 |
|                                                                                                                                                                                                          |                |                |                                                 |       | ●     |       |       | ●     |         | PHH 910        | 10 333578 0395     | 8,90 |
|                                                                                                                                                                                                          |                | DNMG 150604-GS |                                                 |       | ●     |       |       | ●     |         | PHH 920        | 10 333578 0494     | 9,95 |
|                                                                                                                                                                                                          |                |                |                                                 |       | ●     |       |       | ●     |         | PHH 910        | 10 333578 0495     | 9,95 |
|                                                                                                                                                                                                          | DNMG 150608-GS |                |                                                 | ●     |       |       | ●     |       | PHH 920 | 10 333578 0594 | 9,95               |      |
|                                                                                                                                                                                                          |                |                |                                                 | ●     |       |       | ●     |       | PHH 910 | 10 333578 0595 | 9,95               |      |
|                                                                                                                                                                                                          | DNMG 150612-GS |                |                                                 | ●     |       |       | ●     |       | PHH 920 | 10 333578 0694 | 9,95               |      |
|                                                                                                                                                                                                          |                |                |                                                 | ●     |       |       | ●     |       | PHH 910 | 10 333578 0695 | 9,95               |      |

## Chip breaker GS negative

| F<br>finishing                                                                                                                                                                                                |                |   | M<br>medium | R<br>roughing |  | ISO designation | ISO P | ISO M | ISO K          | ISO N | ISO S              | ISO H       | Quality |  Art.no. | € |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---|-------------|---------------|-------------------------------------------------------------------------------------|-----------------|-------|-------|----------------|-------|--------------------|-------------|---------|---------------------------------------------------------------------------------------------|---|
| ○                                                                                                                                                                                                             | ●              | - |             |               |                                                                                     |                 |       |       |                |       |                    |             |         |                                                                                             |   |
|                                                                                                                                                                                                               |                |   |             |               |                                                                                     |                 |       |       |                |       |                    |             |         |                                                                                             |   |
| <br><br><b>Medium machining</b><br><br> | VNMG 160404-GS |   | ●           |               |                                                                                     |                 | ●     |       | <b>PHH 920</b> | 10    | <b>333582 0194</b> | <b>9,50</b> |         |                                                                                             |   |
|                                                                                                                                                                                                               |                |   | ●           |               |                                                                                     |                 | ●     |       | <b>PHH 910</b> | 10    | <b>333582 0195</b> | <b>9,50</b> |         |                                                                                             |   |
|                                                                                                                                                                                                               | VNMG 160408-GS |   | ●           |               |                                                                                     |                 | ●     |       | <b>PHH 920</b> | 10    | <b>333582 0294</b> | <b>9,50</b> |         |                                                                                             |   |
|                                                                                                                                                                                                               |                |   | ●           |               |                                                                                     |                 | ●     |       | <b>PHH 910</b> | 10    | <b>333582 0295</b> | <b>9,50</b> |         |                                                                                             |   |
|                                                                                                                                                                                                               | VNMG 160412-GS |   | ●           |               |                                                                                     |                 | ●     |       | <b>PHH 920</b> | 10    | <b>333582 0394</b> | <b>9,50</b> |         |                                                                                             |   |
|                                                                                                                                                                                                               |                |   | ●           |               |                                                                                     |                 | ●     |       | <b>PHH 910</b> | 10    | <b>333582 0395</b> | <b>9,50</b> |         |                                                                                             |   |

## Chip breaker GS negative

| F<br>finishing<br>○                                                                                     | M<br>medium<br>● | R<br>roughing<br>- | <br>ISO designation | ISO P | ISO M | ISO K | ISO N | ISO S | ISO H | Quality |  Art.no. | €    |
|---------------------------------------------------------------------------------------------------------|------------------|--------------------|--------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|---------|---------------------------------------------------------------------------------------------|------|
| <br>Medium machining |                  |                    | WNMG 060404-GS                                                                                         |       | ●     |       |       | ●     |       | PHH 920 | 10 333583 0494                                                                              | 6,15 |
|                                                                                                         |                  |                    |                                                                                                        |       | ●     |       |       | ●     |       | PHH 910 | 10 333583 0495                                                                              | 6,15 |
|                                                                                                         |                  |                    | WNMG 060408-GS                                                                                         |       | ●     |       |       | ●     |       | PHH 920 | 10 333583 0594                                                                              | 6,15 |
|                                                                                                         |                  |                    |                                                                                                        |       | ●     |       |       | ●     |       | PHH 910 | 10 333583 0595                                                                              | 6,15 |
|                                                                                                         |                  |                    | WNMG 080404-GS                                                                                         |       | ●     |       |       | ●     |       | PHH 920 | 10 333583 0194                                                                              | 7,40 |
|                                                                                                         |                  |                    |                                                                                                        |       | ●     |       |       | ●     |       | PHH 910 | 10 333583 0195                                                                              | 7,40 |
|                                                                                                         |                  |                    | WNMG 080408-GS                                                                                         |       | ●     |       |       | ●     |       | PHH 920 | 10 333583 0294                                                                              | 7,40 |
|                                                                                                         |                  |                    |                                                                                                        |       | ●     |       |       | ●     |       | PHH 910 | 10 333583 0295                                                                              | 7,40 |
|                                                                                                         |                  |                    | WNMG 080412-GS                                                                                         |       | ●     |       |       | ●     |       | PHH 920 | 10 333583 0394                                                                              | 7,40 |
|                                                                                                         |                  |                    |                                                                                                        |       | ●     |       |       | ●     |       | PHH 910 | 10 333583 0395                                                                              | 7,40 |

ISO M

ISO S

| ISO                                       | PHH 910                        | PHH 920      |
|-------------------------------------------|--------------------------------|--------------|
| ISO M<br>Stainless steel                  | Vc = 130-250                   | Vc = 110-220 |
| ISO S<br>Superalloy                       | Vc = 25-70                     | Vc = 20-60   |
| Vc = [m/min]<br>f = [mm/rev]<br>ap = [mm] | f = 0.10-0.50<br>ap = 0.50-4.0 |              |

| ISO                                       | PHH 910                        | PHH 920      |
|-------------------------------------------|--------------------------------|--------------|
| ISO M<br>Stainless steel                  | Vc = 130-250                   | Vc = 110-220 |
| ISO S<br>Superalloy                       | Vc = 25-70                     | Vc = 20-60   |
| Vc = [m/min]<br>f = [mm/rev]<br>ap = [mm] | f = 0.10-0.35<br>ap = 0.15-3.0 |              |

| ISO                                       | PHH 910                        | PHH 920      |
|-------------------------------------------|--------------------------------|--------------|
| ISO M<br>Stainless steel                  | Vc = 130-250                   | Vc = 110-220 |
| ISO S<br>Superalloy                       | Vc = 25-70                     | Vc = 20-60   |
| Vc = [m/min]<br>f = [mm/rev]<br>ap = [mm] | f = 0.10-0.50<br>ap = 0.50-4.0 |              |

| ISO                                       | PHH 910                         | PHH 920      |
|-------------------------------------------|---------------------------------|--------------|
| ISO M<br>Stainless steel                  | Vc = 130-250                    | Vc = 110-220 |
| ISO S<br>Superalloy                       | Vc = 25-70                      | Vc = 20-60   |
| Vc = [m/min]<br>f = [mm/rev]<br>ap = [mm] | f = 0.10-0.40<br>ap = 0.15-3.50 |              |

## ATORN® Recessing inserts **AD** neutral **GROOVE**

- The feed rates must be adjusted to the respective cutting edge width
- Cutting edge accuracy  $W \pm 0.02 \text{ mm}$
- AD = double-edged cutting insert **max. 24 mm punching depth**
- AE = single-edged cutting insert **punching depth can be extended up to 50 mm depending on blade overhang**

### Chip breaker **M**—medium, universal

- For grooving
- Recessing insert with slightly negative edge rounding
- Appropriate for almost all areas of application
- Main application area steel and cast iron

| ISO designation  | Width mm | r mm | max. depth mm | ISO P | ISO M | ISO K | ISO N | ISO S | ISO H | Quality  | Art.no.        | €     |
|------------------|----------|------|---------------|-------|-------|-------|-------|-------|-------|----------|----------------|-------|
| AD 1.50-0.15 N-M | 1.50     | 0.15 | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388030 1520 | 16,10 |
|                  | 1.50     | 0.15 | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388030 1540 | 16,10 |
|                  | 1.50     | 0.15 | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388030 1545 | 16,10 |
| AD 2.00-0.2 N-M  | 2.00     | 0.2  | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388000 2035 | 12,95 |
|                  | 2.00     | 0.2  | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388000 2040 | 12,95 |
|                  | 2.00     | 0.2  | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388000 2045 | 12,95 |
| AD 3.00-0.2 N-M  | 3.00     | 0.2  | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388000 3035 | 14,20 |
|                  | 3.00     | 0.2  | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388000 3040 | 14,20 |
|                  | 3.00     | 0.2  | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388000 3045 | 14,20 |
| AD 4.00-0.3 N-M  | 4.00     | 0.3  | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388000 4035 | 15,90 |
|                  | 4.00     | 0.3  | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388000 4040 | 15,90 |
|                  | 4.00     | 0.3  | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388000 4045 | 15,90 |
| AD 5.00-0.4 N-M  | 5.00     | 0.4  | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388000 5035 | 21,50 |
|                  | 5.00     | 0.4  | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388000 5040 | 21,50 |
|                  | 5.00     | 0.4  | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388000 5045 | 21,50 |
| AD 6.00-0.4 N-M  | 6.00     | 0.4  | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388000 6035 | 22,60 |
|                  | 6.00     | 0.4  | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388000 6040 | 22,60 |
|                  | 6.00     | 0.4  | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388000 6045 | 22,60 |

| ISO                          | ACP 20 G      | APM 45 G    | APU 40 G    |
|------------------------------|---------------|-------------|-------------|
| ISO P<br>Steel               | Vc = 50-240   | Vc = 40-120 | Vc = 50-240 |
| ISO M<br>Stainless steel     | Vc = 50-180   | Vc = 60-180 | Vc = 50-200 |
| ISO K<br>Cast iron           | Vc = 80-200   |             | Vc = 80-200 |
| ISO S<br>Superalloy          |               | Vc = 15-120 |             |
| Vc = [m/min]<br>f = [mm/rev] | f = 0.05-0.35 |             |             |

### Chip breaker **ET** – extra

- For grooving
- Specially for stainless materials
- “Problem-solver” for materials that are difficult to machine such as titanium or duplex
- Extremely soft cutting

| ISO designation   | Width mm | r mm | max. depth mm | ISO P | ISO M | ISO K | ISO N | ISO S | ISO H | Quality  | Art.no.        | €     |
|-------------------|----------|------|---------------|-------|-------|-------|-------|-------|-------|----------|----------------|-------|
| AD 1.50-0.15 N-ET | 1.50     | 0.15 | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388031 1520 | 16,10 |
|                   | 1.50     | 0.15 | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388031 1540 | 16,10 |
|                   | 1.50     | 0.15 | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388031 1545 | 16,10 |
| AD 2.00-0.2 N-ET  | 2.00     | 0.2  | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388012 2035 | 12,95 |
|                   | 2.00     | 0.2  | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388012 2040 | 12,95 |
|                   | 2.00     | 0.2  | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388012 2045 | 12,95 |
| AD 3.00-0.2 N-ET  | 3.00     | 0.2  | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388012 3035 | 14,20 |
|                   | 3.00     | 0.2  | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388012 3040 | 14,20 |
|                   | 3.00     | 0.2  | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388012 3045 | 14,20 |
| AD 4.00-0.3 N-ET  | 4.00     | 0.3  | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388012 4035 | 15,90 |
|                   | 4.00     | 0.3  | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388012 4040 | 15,90 |
|                   | 4.00     | 0.3  | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388012 4045 | 15,90 |
| AD 5.00-0.4 N-ET  | 5.00     | 0.4  | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388012 5035 | 21,50 |
|                   | 5.00     | 0.4  | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388012 5040 | 21,50 |
|                   | 5.00     | 0.4  | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388012 5045 | 21,50 |
| AD 6.00-0.4 N-ET  | 6.00     | 0.4  | 24            | ●     | ○     | ●     |       |       |       | ACP 20 G | 10 388012 6035 | 22,60 |
|                   | 6.00     | 0.4  | 24            | ●     | ●     | ●     |       |       |       | APU 40 G | 10 388012 6040 | 22,60 |
|                   | 6.00     | 0.4  | 24            | ○     | ●     |       |       | ●     |       | APM 45 G | 10 388012 6045 | 22,60 |

| ISO                          | ACP 20 G      | APM 45 G    | APU 40 G    |
|------------------------------|---------------|-------------|-------------|
| ISO P<br>Steel               | Vc = 50-240   | Vc = 40-120 | Vc = 50-240 |
| ISO M<br>Stainless steel     | Vc = 50-180   | Vc = 60-180 | Vc = 50-200 |
| ISO K<br>Cast iron           | Vc = 80-200   |             | Vc = 80-200 |
| ISO S<br>Superalloy          |               | Vc = 15-120 |             |
| Vc = [m/min]<br>f = [mm/rev] | f = 0.06-0.27 |             |             |

## ATORN® Recessing blades **GROOVE**

- For recessing inserts system AD / AE
- For parting-off and deep grooving
- Supplied without chuck key



### Recessing blade **ABE neutral**

| ISO designation | B mm | L mm | W mm | Suitable cutting inserts | D max. mm | Suitable wrench | Art.no.            | €            |
|-----------------|------|------|------|--------------------------|-----------|-----------------|--------------------|--------------|
| ABE N 26-ADE02  | 26   | 150  | 2.0  | System AD/AE 2.0         | 50        | 3565000030      | <b>356005</b> 2602 | <b>89,-</b>  |
| ABE N 26-ADE03  | 26   | 150  | 3.0  | System AD/AE 3.0         | 70        | 3565000030      | 356005 2603        | <b>77,-</b>  |
| ABE N 26-ADE04  | 26   | 150  | 4.0  | System AD/AE 4.0         | 80        | 3565000040      | 356005 2604        | <b>84,-</b>  |
| ABE N 32-ADE02  | 32   | 150  | 2.0  | System AD/AE 2.0         | 50        | 3565000030      | 356005 3202        | <b>90,-</b>  |
| ABE N 32-ADE03  | 32   | 150  | 3.0  | System AD/AE 3.0         | 100       | 3565000030      | 356005 3203        | <b>77,-</b>  |
| ABE N 32-ADE04  | 32   | 150  | 4.0  | System AD/AE 4.0         | 100       | 3565000040      | 356005 3204        | <b>84,50</b> |



### Recessing blade **ABE with internal cooling**

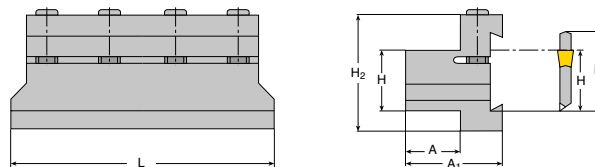
| ISO designation  | B mm | L mm | W mm | Suitable cutting inserts | D max. mm | Suitable wrench | Art.no.            | €             |
|------------------|------|------|------|--------------------------|-----------|-----------------|--------------------|---------------|
| ABE N 26-ADE02-C | 26   | 150  | 2.0  | System AD/AE 2.0         | 50        | 3565000030      | <b>356050</b> 2602 | <b>149,50</b> |
| ABE N 26-ADE03-C | 26   | 150  | 3.0  | System AD/AE 3.0         | 70        | 3565000030      | 356050 2603        | <b>142,50</b> |
| ABE N 26-ADE04-C | 26   | 150  | 4.0  | System AD/AE 4.0         | 80        | 3565000040      | 356050 2604        | <b>169,50</b> |
| ABE N 32-ADE02-C | 32   | 150  | 2.0  | System AD/AE 2.0         | 50        | 3565000030      | 356050 3202        | <b>140,-</b>  |
| ABE N 32-ADE03-C | 32   | 150  | 3.0  | System AD/AE 3.0         | 100       | 3565000030      | 356050 3203        | <b>146,50</b> |
| ABE N 32-ADE04-C | 32   | 150  | 4.0  | System AD/AE 4.0         | 100       | 3565000040      | 356050 3204        | <b>165,50</b> |

### Chuck key

| ISO designation                          | Wrench Art.no.     | €            |
|------------------------------------------|--------------------|--------------|
| Wrench blade 2-3 mm system ASS/ABE/AD/AE | <b>356500</b> 0030 | <b>29,90</b> |
| Wrench blade 4-6 mm system ASS/ABE/AD/AE | 356500 0040        | <b>29,90</b> |



## ATORN® Recessing blade mount **AD / AE / ASS GROOVE**



### Recessing blade holder **AEB**

- For recessing blade ABE ASS without internal cooling
- For recessing blade ABE AD without internal cooling

| ISO designation | H mm | A mm | B mm | L mm | A1 mm | H2 mm | Suitable Cutting edge holder | Art.no.            | €            |
|-----------------|------|------|------|------|-------|-------|------------------------------|--------------------|--------------|
| AEB26-2020      | 20   | 20   | 26   | 90   | 37    | 43    | Dimension B = 26             | <b>356101</b> 2620 | <b>139,-</b> |
| AEB32-2525      | 25   | 20   | 32   | 110  | 38    | 49    | Dimension B = 32             | 356101 3225        | <b>152,-</b> |



### Recessing blade holder **AEB with internal cooling**

- For recessing blade ABE AD with internal cooling

| ISO designation | H mm | A mm | B mm | L mm | A1 mm | H2 mm | Suitable Cutting edge holder | Art.no.            | €            |
|-----------------|------|------|------|------|-------|-------|------------------------------|--------------------|--------------|
| AEB26-2020 IK   | 20   | 20   | 26   | 82   | 40    | 43    | Dimension B = 26             | <b>356100</b> 2620 | <b>250,-</b> |
| AEB32-2525 IK   | 25   | 25   | 32   | 95   | 44.5  | 49    | Dimension B = 32             | 356100 3225        | <b>255,-</b> |



- **Drilling and turning**
- Complete set including holder
- **L1 maximum turning depth**
- **L2 maximum drilling depth**
- Version: **right-hand cutting**
- Cutting inserts: **AL41F-TiAlN coated**
- Supplied in a case

#### **RD1-4**

- Internal machining from Ø 3.7mm

| Designation                  | d g6<br>mm | L1<br>mm | L2<br>mm | D min.<br>mm | Art.no.            | €             |
|------------------------------|------------|----------|----------|--------------|--------------------|---------------|
| 640.DT16, RD1.4-15, RD1.4-20 | 16         | 15, 20   | 10, 16   | 3.7          | <b>304602 0001</b> | <b>172,50</b> |



#### **RD1-5**

- Internal machining from Ø 4.7mm

| Designation                  | d g6<br>mm | L1<br>mm | L2<br>mm | D min.<br>mm | Art.no.            | €             |
|------------------------------|------------|----------|----------|--------------|--------------------|---------------|
| 650.DT16, RD1.5-15, RD1.5-25 | 16         | 15, 25   | 10, 20   | 4.7          | <b>304602 0002</b> | <b>172,50</b> |

#### **RD1-6**

- Internal machining from Ø 5.7mm

| Designation                  | d g6<br>mm | L1<br>mm | L2<br>mm | D min.<br>mm | Art.no.            | €             |
|------------------------------|------------|----------|----------|--------------|--------------------|---------------|
| 660.DT16, RD1.6-15, RD1.6-30 | 16         | 15, 30   | 10, 25   | 5.7          | <b>304602 0003</b> | <b>172,50</b> |

#### **RD1-7**

- Internal machining from Ø 6.7mm

| Designation                  | d g6<br>mm | L1<br>mm | L2<br>mm | D min.<br>mm | Art.no.            | €             |
|------------------------------|------------|----------|----------|--------------|--------------------|---------------|
| 670.DT16, RD1.7-20, RD1.7-35 | 16         | 20, 35   | 15, 30   | 6.7          | <b>304602 0004</b> | <b>172,50</b> |



High-gloss polished...

... extremely sharp.

**ATORN**®  
Leistung braucht Qualität



## ATORN® Quick-change tool holder

- Profile-ground, toothed central body attached to the lathe support along with the base body
- The base body can accommodate an unlimited number of interchangeable holders for turning or drilling tools, one after the other.
- 40 different steel holder angle settings possible
- Repetition precision  $\pm 0.01$  mm

### Quick-change D lathe tool holder

- Flat tool support
- Supplied with lockable height-adjustment screw and clamping screws

| Suitable for holder size | D<br>mm | Total length<br>mm | Suitable quadratic-head bolt | Art.no.            | €             |
|--------------------------|---------|--------------------|------------------------------|--------------------|---------------|
| AA                       | 12      | 50                 | M5 x 0.8 x 18                | <b>446505</b> 0012 | <b>65,-</b>   |
| A                        | 16      | 75                 | M7 x 1 x 23                  | 446505 1116        | <b>65,-</b>   |
| A                        | 16      | 90                 | M7 x 1 x 23                  | 446505 1117        | <b>65,-</b>   |
| A                        | 20      | 75                 | M7 x 1 x 23                  | 446505 1120        | <b>66,-</b>   |
| A                        | 20      | 90                 | M7 x 1 x 23                  | 446505 1121        | <b>66,-</b>   |
| B                        | 25      | 120                | M11 x 1 x 30                 | 446505 2225        | <b>102,50</b> |
| B                        | 25      | 140                | M11 x 1 x 30                 | 446505 2226        | <b>102,50</b> |
| B                        | 32      | 120                | M11 x 1 x 30                 | 446505 2232        | <b>104,-</b>  |
| B                        | 32      | 140                | M11 x 1 x 30                 | 446505 2233        | <b>104,-</b>  |
| C                        | 32      | 150                | M14 x 1.5 x 40               | 446505 3332        | <b>161,-</b>  |
| C                        | 32      | 170                | M14 x 1.5 x 40               | 446505 3333        | <b>161,-</b>  |
| C                        | 40      | 150                | M14 x 1.5 x 40               | 446505 3340        | <b>175,-</b>  |
| C                        | 40      | 170                | M14 x 1.5 x 40               | 446505 3341        | <b>175,-</b>  |
| C                        | 45      | 170                | M14 x 1.5 x 40               | 446505 3345        | <b>183,-</b>  |
| D1                       | 40      | 180                | M14 x 1.5 x 40               | 446505 4440        | <b>265,-</b>  |
| D1                       | 50      | 180                | M14 x 1.5 x 40               | 446505 4450        | <b>280,-</b>  |
| D1                       | 63      | 180                | M14 x 1.5 x 40               | 446505 4463        | <b>299,-</b>  |



### Quick-change BS boring bar holder

- With straight bore for Morse taper sleeves and for direct attachment of boring bars
- Supplied with lockable height-adjustment screw and clamping screws
- Tool holder blanks available on request

| Suitable for holder size | For boring bar Ø<br>mm | Total length<br>mm | Art.no.            | €             |
|--------------------------|------------------------|--------------------|--------------------|---------------|
| AA                       | 15                     | 50                 | <b>446520</b> 0015 | <b>85,-</b>   |
| A                        | 30                     | 80                 | 446520 1130        | <b>102,-</b>  |
| B                        | 40                     | 120                | 446520 2240        | <b>154,-</b>  |
| C                        | 40                     | 160                | 446520 3340        | <b>255,-</b>  |
| C                        | 50                     | 160                | 446520 3350        | <b>260,-</b>  |
| D1                       | 63                     | 180                | 446520 4463        | <b>535.00</b> |



### Morse taper sleeve, type H

- With jacking screw
- For mounting in BS quick-release boring bar holders, cylindrical outer diameter
- For tools with a Morse taper shank

| Suitable for holder size | Shank Ø<br>mm | Shank design interior | Art.no.            | €            |
|--------------------------|---------------|-----------------------|--------------------|--------------|
| A                        | 30            | MK 1                  | <b>446525</b> 1101 | <b>35,50</b> |
| A                        | 30            | MK 2                  | 446525 1102        | <b>37,60</b> |
| B                        | 40            | MK 3                  | 446525 2203        | <b>46,-</b>  |
| B                        | 40            | MK 4                  | 446525 2204        | <b>51,50</b> |
| C                        | 40            | MK 3                  | 446525 3303        | <b>46,-</b>  |
| C                        | 40            | MK 4                  | 446525 3304        | <b>51,50</b> |
| C                        | 50            | MK 3                  | 446525 3313        | <b>58,-</b>  |
| C                        | 50            | MK 4                  | 446525 3314        | <b>61,50</b> |
| C                        | 50            | MK 5                  | 446525 3315        | <b>83,50</b> |
| D1                       | 63            | MK 5                  | 446525 4405        | <b>121,-</b> |



## SARA® Live centres

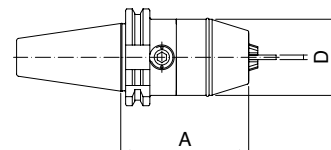
- Excellent true running accuracy thanks to reliable precision bearings
- Special lubrication for long service life and low maintenance costs
- 60° point angle



| Shank | Projecting length<br>mm | Head Ø<br>mm | Moving point Ø x length<br>mm | True running accuracy<br>mm | Workpiece weight max.<br>kg | Max. speed<br>rpm | Art.no.            | €            |
|-------|-------------------------|--------------|-------------------------------|-----------------------------|-----------------------------|-------------------|--------------------|--------------|
| MK 2  | 65                      | 45           | 20 x 41                       | 0.005                       | 200                         | 7000              | <b>401516 0002</b> | <b>69,50</b> |
| MK 3  | 79.5                    | 60           | 25 x 48.5                     | 0.005                       | 500                         | 5000              | 401516 0003        | <b>83,—</b>  |
| MK 4  | 102.5                   | 70           | 32 x 61.5                     | 0.005                       | 800                         | 3800              | 401516 0004        | <b>99,50</b> |
| MK 5  | 129                     | 90           | 40 x 78.5                     | 0.005                       | 2000                        | 3000              | 401516 0005        | <b>165,—</b> |

## SARA® NC short drill chuck with spur gear system

- **Clamping via spur gear system**
- **Clockwise and anti-clockwise rotation possible**
- **True running accuracy 0.05 mm**
- Reliable bevel-pinion gear
- Slim design
- max. permitted rotational speed with unbalanced tool 7,000 rpm



### DIN ISO 7388-1 Form A / DIN 69871

| Shank | Clamping range<br>mm | D<br>mm | A<br>mm | Tightening torque max.<br>N-m | Retention force<br>N | Wr. width<br>mm | True running accuracy<br>mm | Art.no.            | €             |
|-------|----------------------|---------|---------|-------------------------------|----------------------|-----------------|-----------------------------|--------------------|---------------|
| SK 40 | 0,5 - 13             | 50      | 84      | 20                            | 40                   | 6               | 0.05                        | <b>440243 4013</b> | <b>152,50</b> |
| SK 40 | 2,5 - 16             | 57      | 84      | 20                            | 40                   | 6               | 0.05                        | 440243 4016        | <b>152,50</b> |



### DIN ISO 7388-2 Form A / (JIS B6339)

| Shank | Clamping range<br>mm | D<br>mm | A<br>mm | Tightening torque max.<br>N-m | Retention force<br>N | Wr. width<br>mm | True running accuracy<br>mm | Art.no.            | €             |
|-------|----------------------|---------|---------|-------------------------------|----------------------|-----------------|-----------------------------|--------------------|---------------|
| SK 40 | 0,5 - 13             | 50      | 94      | 20                            | 40                   | 6               | 0.05                        | <b>440241 4013</b> | <b>152,50</b> |
| SK 40 | 2,5 - 16             | 57      | 94      | 20                            | 40                   | 6               | 0.05                        | 440241 4016        | <b>152,50</b> |



### DIN 2080, Form A

| Shank | Clamping range<br>mm | D<br>mm | A<br>mm | Tightening torque max.<br>N-m | Retention force<br>N | Wr. width<br>mm | True running accuracy<br>mm | Art.no.            | €             |
|-------|----------------------|---------|---------|-------------------------------|----------------------|-----------------|-----------------------------|--------------------|---------------|
| SK 40 | 0,5 - 13             | 50      | 78      | 20                            | 40                   | 6               | 0.05                        | <b>440242 4013</b> | <b>152,50</b> |
| SK 40 | 2,5 - 16             | 57      | 78      | 20                            | 40                   | 6               | 0.05                        | 440242 4016        | <b>152,50</b> |



## SARA® Assembly system

- Aluminium housing
- 4 x 90° swivel-mounted
- Steel modular tool holders
- Quick and easy replacement of holding fixtures
- High flexibility
- Positive-locking fixing of the tools
- No damage to cone tip

- Interchangeable adapter for polygon shank according to DIN 26623-1 also available

### Assembly system

| Designation                                                    | Art.no.            | €            |
|----------------------------------------------------------------|--------------------|--------------|
| Basic unit, 4 x 90° swivel-mounted for interchangeable adapter | <b>438180</b> 0001 | <b>145,-</b> |



438180 0001

### Interchangeable adapter

- For DIN 69893 Form A (HSK-A)

| Designation         | Art.no.            | €             |
|---------------------|--------------------|---------------|
| Tool holder HSK 40  | <b>438382</b> 0040 | <b>139,-</b>  |
| Tool holder HSK 50  | 438382 0050        | <b>139,-</b>  |
| Tool holder HSK 63  | 438382 0063        | <b>139,-</b>  |
| Tool holder HSK 80  | 438382 0080        | <b>179,50</b> |
| Tool holder HSK 100 | 438382 0100        | <b>179,50</b> |



### Interchangeable adapter

- For DIN ISO 7388-1 (DIN 69871) / 7388-2 (JIS B) and DIN 2080

| Designation       | Art.no.            | €            |
|-------------------|--------------------|--------------|
| Tool holder SK 30 | <b>438181</b> 0030 | <b>145,-</b> |
| Tool holder SK 40 | 438181 0040        | <b>145,-</b> |
| Tool holder SK 50 | 438181 0050        | <b>169,-</b> |



### Interchangeable adapter

- For DIN 69880 (VDI)

| Designation        | Art.no.            | €            |
|--------------------|--------------------|--------------|
| Tool holder VDI 20 | <b>438383</b> 0020 | <b>145,-</b> |
| Tool holder VDI 30 | 438383 0030        | <b>145,-</b> |
| Tool holder VDI 40 | 438383 0040        | <b>169,-</b> |
| Tool holder VDI 50 | 438383 0050        | <b>169,-</b> |



Best surfaces...

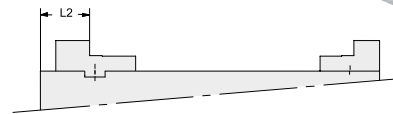
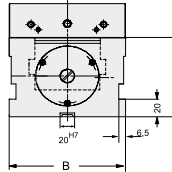
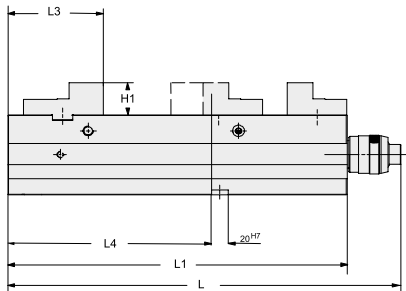
... with curve segment.

**ATORN®**  
Leistung braucht Qualität

## ATORN® MM-G NC high-pressure machine vice

- **mechanical/mechanical**

- Base body made of spheroidal graphite iron
- clamping on base
- Pull-down jaws and other accessories available on request
- Stepped jaws, reversible, hardened and ground
- Long clamping slide assembly including a transverse slot drive spindle with pre-set clamping force
- Mounting thread M12 for workpiece stop
- Clamping surfaces for clamping claws
- Stable chip guard, prevents chips from entering inside the body
- **Incl. clamping fitting bore (pitch 200 mm) for ATORN zero-point clamping system**



### Compact spanner

- incl. stepped jaws and regulator

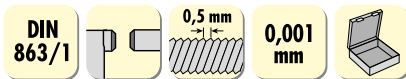
| Jaw width<br>mm | Clamp force<br>kN | L<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | L4<br>mm | H<br>mm | H1<br>mm | Clamping range<br>mm | Weight<br>kg | Art.no.            | €              |
|-----------------|-------------------|---------|----------|----------|----------|----------|---------|----------|----------------------|--------------|--------------------|----------------|
| 125             | 40                | 463     | 400      | 56.5     | 112.5    | 240      | 100     | 40       | 0 - 312              | 41           | <b>458800 0125</b> | <b>1.499,-</b> |

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NO MATTER WHERE:  
24-HOUR DELIVERY ACROSS EUROPE**

**THAT'S POWER TO PRODUCE**

## SARA® Digital micrometers

NEW



- Sturdy, with ratchet
- Painted steel frame with hand protection
- Spindle fixed by a locking lever
- Spindle Ø 6.5 mm
- Calibration including setting gauge
- Supplied with CR2032 battery (no. 548079 6032) and adjustment key, versions over 25 mm include setting gauge



| Measurement range<br>mm | Art.no.     | €     | DAkkS calibration<br>Art.no. | €    |
|-------------------------|-------------|-------|------------------------------|------|
| 0-25                    | 503490 0025 | 52,50 | 070160 D001                  | 18,- |
| 25-50                   | 503490 0050 | 69,50 | 073103 D047                  | 33,- |
| 50-75                   | 503490 0075 | 87,-  | 073103 D052                  | 36,- |
| 75-100                  | 503490 0100 | 99,50 | 073103 D052                  | 36,- |

## SARA® Digital Vernier callipers for left-handed users



- Large high-contrast digital display
- Locking screw on top
- Precision-lapped measuring areas
- **Functions:** ON/OFF, ZERO, mm/inch
- Supplied with SR 44 battery, No. 500534 0001



| Measurement range<br>mm/inch | Jaw length<br>mm | Error limit<br>mm | Art.no.     | €     | DAkkS calibration<br>Art.no. | €    |
|------------------------------|------------------|-------------------|-------------|-------|------------------------------|------|
| 150/6 inch                   | 40               | 0.03              | 500700 1150 | 69,90 | 072008 D001                  | 14,- |

## ATORN® Laser distance measuring instrument

NEW



- Easy-to-use, handy laser distance measuring instrument for measurements in single or continuous measurement mode
- Measurement range 0.05 to 30 m
- Backlit display
- Automatic switch-off
- Laser class 2
- Dimensions 80 x 30 x 22 mm
- Supplied with pouch and 2x LR3 batteries no. 548079 4003

| Measurement range<br>mm | Error limit<br>mm | Weight<br>kg | Art.no.     | €    |
|-------------------------|-------------------|--------------|-------------|------|
| 0.05 to 30              | 2                 | 0.1          | 557530 1000 | 69,- |



## Height adjustment device for lathes

NEW

- For quick and easy determination of the reference point in the lathes
- Appropriate for horizontal and vertical use
- Can be used only on electrically conductive materials
- **With illuminated display,** LED indicators with good all-round visibility
- Height tolerance  $\pm 0.01$  mm
- Travel reserve 2 mm
- Hardened probe tip, functional surfaces ground and lapped
- **Base equipped with three magnets for better grip when used horizontally**
- Supplied in wooden box with works certificate incl. 2x SR 44 batteries no. 500534 0001



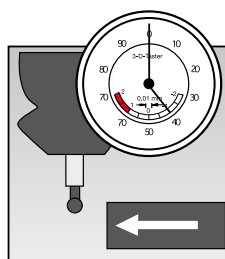
| Height<br>mm | Support surface Ø<br>mm | Sensor surface Ø<br>mm | Art.no.     | €     |
|--------------|-------------------------|------------------------|-------------|-------|
| 60           | 32                      | 19                     | 558030 1060 | 179,- |



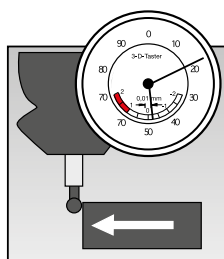
## ATORN® Universal 3D probe



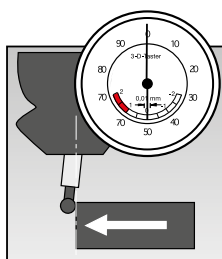
- For determining the spindle centre when aligning workpieces on X, Y, and Z axes
- Easily readable dial indicator
- True running accuracy can be calibrated via 4 adjustment screws in the casing
- Robust metal casing
- No plus/minus sign problems, as actual value readings are independent of the direction
- Automatic probe radius compensation
- Ceramic predetermined break point prevents damage to the mechanism if maximum probe travel is exceeded
- You can replace probes yourself
- For use on all machine tools including eroding machines, as there is insulation between the probe tip and the holding fixture
- Dial indicator diameter: 57 mm  
Casing width: 65 mm  
Clamping shank: 20 mm Ø x 50 mm, similar to DIN 1835B or DIN 69871A, SK 40  
probe ball diameter: 4 mm
- Measurement accuracy: 0.01 mm
- Supplied in moulded packaging, including operating manual



Move towards the workpiece edge



When contact is made with the edge, the display will move



If the small and large pointers are set to "zero", the spindle axis is the same as the probing edge. The machine control system is zeroed.



| Designation                       | Art.no.     | €     | Factory calibration | Art.no.     | €    |
|-----------------------------------|-------------|-------|---------------------|-------------|------|
| Universal 3D probe, shank Ø 20 mm | 558001 0001 | 275,- |                     | 073103 W161 | 48,- |

### Accessories

| Designation                               | Art.no.     | €     |
|-------------------------------------------|-------------|-------|
| Spare contact point 4 mm Ø x 33 mm long   | 558005 0001 | 27,95 |
| Long contact point, Ø 8 mm x length 75 mm | 558005 0005 | 39,95 |

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SARA® Dial indicator

DIN 878 0,01 mm

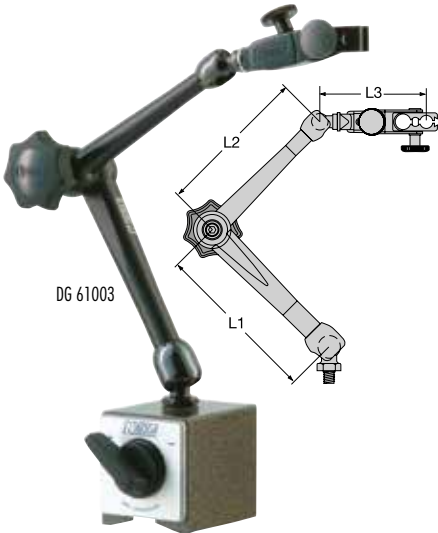
- Matt chrome-plated metal housing
- Rotating external ring for zero setting
- Two adjustable inner tolerance marks
- Probe tip thread: M 2.5
- Clamping shank Ø: 8 mm
- Optional ring clamping, self-locking or with clamping screw
- Supplied in moulded packaging



| Measurement range<br>mm | Pitch<br>mm | External ring Ø<br>mm | Ring clamping | Art.no.     | €     | DAkkS calibration<br>Art.no. | €    |
|-------------------------|-------------|-----------------------|---------------|-------------|-------|------------------------------|------|
| 10                      | 0.01        | 58                    | No            | 510101 1002 | 17,50 | 073009 D003                  | 19,- |

NOGA Magnetic measuring stands

- For quickly and precisely positioning dial indicators
- **With mechanical central clamping mechanism**
- Improved fine adjustment on the magnetic foot
- Strong, switchable magnetic foot
- Universal holding fixture for common dial indicators
- Robust arm system with central clamping mechanism



Complete stand with fine adjustment on the measuring instrument holding fixture

- Measuring instrument holding fixture: Ø 8 mm, 6 mm, 3/8 inch and dovetail

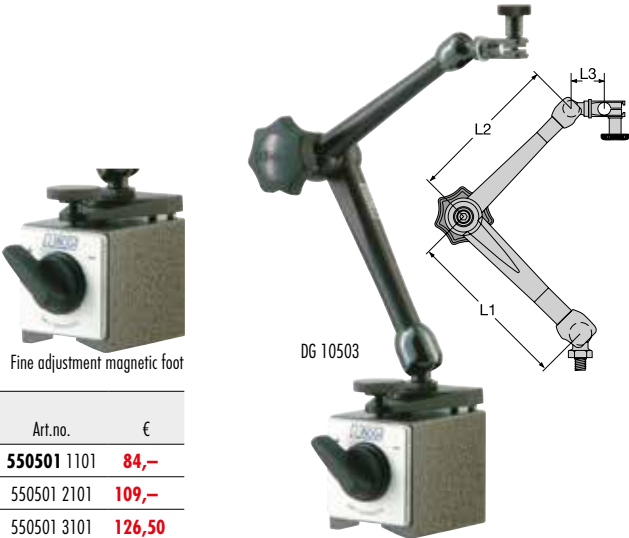
| Model    | L1<br>mm | L2<br>mm | L3<br>mm | Magnetic foot L x W x H<br>mm | Retention force<br>N | Magnetic foot<br>thread | Art.no.     | €      |
|----------|----------|----------|----------|-------------------------------|----------------------|-------------------------|-------------|--------|
| NF 61003 | 56       | 51       | 71       | 40 x 30 x 35                  | 320                  | M 5                     | 550501 1001 | 99,90  |
| DG 61003 | 110      | 101      | 71       | 60 x 50 x 55                  | 800                  | M 8                     | 550501 2001 | 145,50 |
| MG 61003 | 133      | 113      | 71       | 60 x 50 x 55                  | 800                  | M 8                     | 550501 3001 | 161,50 |
| MA 61003 | 287      | 223      | 71       | 120 x 50 x 55                 | 1300                 | M10 x 1.25              | 550501 4001 | 319,-  |



Complete stand with fine adjustment on magnetic foot

- Ø 8 mm and dovetail holding fixture for measuring instruments

| Model    | L1<br>mm | L2<br>mm | L3<br>mm | Magnetic foot L x W x H<br>mm | Retention force<br>N | Magnetic foot<br>thread | Art.no.     | €      |
|----------|----------|----------|----------|-------------------------------|----------------------|-------------------------|-------------|--------|
| NF 10403 | 56       | 51       | 21.5     | 40 x 30 x 35                  | 320                  | M 5                     | 550501 1101 | 84,-   |
| DG 10503 | 110      | 101      | 21.5     | 60 x 50 x 55                  | 800                  | M 8                     | 550501 2101 | 109,-  |
| MG 10503 | 133      | 113      | 21.5     | 60 x 50 x 55                  | 800                  | M 8                     | 550501 3101 | 126,50 |



## SARA® Emulsion mist separator **Ultra-Jet**

- **Mechanical, with patented X-Cyclone® agglomerator system**
- **Thanks to European ErP directives, energy savings of several thousand euros can be had over conventional air purifiers.**
- **No rotational speed regulation**
- **No disposable filters**
- Depending on size, suitable for processing machines of approx. 1 – 3 m³ Suitable for internal chamber volume and light-duty chip removal processes
- Compact design, direct mounting on the machine
- Up to four filter stages, can be retrofitted with a HEPA filter
- Dynamic-static combined filter system
- Dynamically balanced high-performance fan integrated into the filter unit
- Service opening with quick-release clamps
- ULTRA-JET is tested for flame resistance in accordance with DIN EN 16282
- Stainless steel housing powder-coated in RAL 7035 (light grey), high-performance X-Cyclone® separator profiles made of aluminium
- **Supplied with:** Ø 160/150 mm reducer with chip pre-filter insert, 3 m oil return hose
- **Pricing:** ex works, including packaging



### Single units

| Model       | Volume flow max.<br>m³/h | Dimensions<br>L x W x H<br>mm | Connection<br>Ø<br>mm | Weight<br>kg | Motor output<br>kW | I(A) | Voltage<br>V | Noise level<br>dB | Art.no.            | €              |
|-------------|--------------------------|-------------------------------|-----------------------|--------------|--------------------|------|--------------|-------------------|--------------------|----------------|
| Ultra-Jet 1 | 1000                     | 410 x 410 x 480               | 150                   | 20           | 0.25               | 0.74 | 400          | 69                | <b>909016 0010</b> | <b>2.139,-</b> |
| Ultra-Jet 2 | 1400                     | 410 x 410 x 480               | 150                   | 22           | 0.5                | 1.3  | 400          | 73                | 909016 0020        | <b>2.669,-</b> |

## SARA® Mobile smoke filter 3D

**Ideal for 3D printing**

- **Removal of smoke, vapour, odour and gas from exhaust air.**
- The fan is designed for energy-efficiency.
- Thorough air purification and air conditioning using gas filter for odour reduction, HEPA H13 high-performance particle and dust filter.
- Robust and torsion-free housing made of powder-coated stainless steel (RAL 7035 -light grey).
- The HEPA filter is equipped with a high-quality glass-fibre medium and has a large filtering surface.
- Suction arm with integrated stainless steel mechanics
- An intelligent monitoring system with electronic flow sensors guarantees the continuous function monitoring of the suction.
- The air flows indicated in the product description are achieved throughout the entire operating life.
- Designed, constructed and produced in Germany
- **Supplied with:** 3D smoke filter with two suction arms, gas filter, HEPA H13 high-performance particle filter, coarse particle filter
- **Pricing:** ex works, including packaging



| Model  | Volume flow max.<br>m³/h | Suction arm | Dimensions L x W x H<br>mm | Suction arm Ø<br>mm | Weight<br>kg | Noise level<br>dB | Output<br>W | I(A) | Voltage<br>V | Art.no.            | €              |
|--------|--------------------------|-------------|----------------------------|---------------------|--------------|-------------------|-------------|------|--------------|--------------------|----------------|
| SMR-3D | 500                      | 2           | 400 x 400 x 622            | 70                  | 33           | ≤ 50              | 168         | 1.4  | 230          | <b>909111 0010</b> | <b>2.899,-</b> |

## SARA® Cutting fluid

INFO

The SARA® cutting fluids product range is the latest generation of high-performance cutting fluids. These have been developed to meet high demands for product quality and manufacturing reliability in the machining process. Thanks to the latest technologies, the cutting fluids offer a long service life, high lubricating and cooling performance, and low consumption. In addition, they are particularly user-friendly thanks to their environmentally friendly ingredients.

### Advantages

- Very good lubricating and cooling performance
- Low consumption and low odour
- For a long machine service life
- Low foaming in soft water or under high mechanical load
- Biostable against microorganisms
- High user-friendliness thanks to environmentally friendly ingredients (formaldehyde-free)



## Product overview/selection guide

|                                          | Ingredients    |                 |                        |                          | Materials |                 |           |                 |                            |           |                    |                    |                |          | Machining                  |         |                    |          |          |
|------------------------------------------|----------------|-----------------|------------------------|--------------------------|-----------|-----------------|-----------|-----------------|----------------------------|-----------|--------------------|--------------------|----------------|----------|----------------------------|---------|--------------------|----------|----------|
|                                          | Contains boron | Contains amines | Contains form aldehyde | Mineral oil content in % | Steel     | Stainless steel | Cast iron | Titanium alloys | Super alloys Fe/NiCo-based | Aluminium | Non-ferrous metals | Non-ferrous metals | Carbide metals | Plastics | Drilling, milling, turning | Threads | Deep-hole drilling | Grinding | Punching |
| <b>Water-miscible cutting fluids</b>     |                |                 |                        |                          |           |                 |           |                 |                            |           |                    |                    |                |          |                            |         |                    |          |          |
| UNI SC 101                               | ●              | ●               |                        | 35                       | ●         | ○               | ●         |                 |                            | ○         | ○                  |                    |                | ○        | ●                          | ●       | ○                  | ○        |          |
| HEAVY SC 201                             |                |                 |                        | 50                       | ●         | ●               | ●         | ●               | ●                          | ●         | ●                  | ●                  |                | ○        | ●                          | ●       | ●                  | ○        |          |
| HPC SC 301                               | ●              | ●               |                        | 0                        | ●         | ●               | ●         |                 |                            | ●         | ●                  | ●                  |                | ○        | ●                          | ●       | ●                  | ●        |          |
| HI-GRIND SC 401                          |                | ●               |                        | 0                        | ●         | ○               | ●         |                 |                            | ○         | ○                  |                    |                | ○        |                            |         |                    | ●        |          |
| <b>Cutting oils</b>                      |                |                 |                        |                          |           |                 |           |                 |                            |           |                    |                    |                |          |                            |         |                    |          |          |
| UNI SC C0101                             |                |                 |                        | 80                       | ●         | ○               | ●         |                 |                            | ●         | ●                  | ●                  |                | ○        | ●                          | ●       | ●                  | ○        | ●        |
| HEAVY SC C0201                           |                |                 |                        | 0                        | ●         | ●               | ●         | ●               | ●                          | ●         | ●                  | ●                  |                | ○        | ●                          | ●       | ●                  | ○        | ●        |
| ● very well suited ○ limited suitability |                |                 |                        |                          |           |                 |           |                 |                            |           |                    |                    |                |          |                            |         |                    |          |          |

## SARA® Cutting oil

NEW

- Non-water-soluble heavy-duty cutting oil

### UNI SC CO 101

- Mineral oil-based
- Universal application for all substances such as alloyed and unalloyed steels, cast iron, non-ferrous metals and aluminium
- Applied with a squeeze bottle, sprayer or lubricating device
- Massive increase in tool endurance
- Chlorine-free

| Description | Contents l | Art.no.     | €     |
|-------------|------------|-------------|-------|
| Wash bottle | 0.25       | 944001 0250 | 8,25  |
| Wash bottle | 0.5        | 944001 0500 | 12,15 |
| Wash bottle | 1.0        | 944001 1000 | 22,-  |
| Canister    | 5.0        | 944001 0005 | 87,20 |
| Canister    | 10.0       | 944001 0010 | 151,- |
| Canister    | 25.0       | 944001 0025 | 307,- |



### HEAVY SC CO201

- Ester-based
- Especially for machining chrome-nickel, titanium, manganese, copper and its alloys, high-alloy and stainless steels.
- Chlorine and mineral oil-free

| Description | Contents l | Art.no.     | €     |
|-------------|------------|-------------|-------|
| Wash bottle | 0.25       | 944002 0250 | 9,10  |
| Wash bottle | 0.5        | 944002 0500 | 16,60 |
| Wash bottle | 1.0        | 944002 1000 | 30,-  |
| Canister    | 5.0        | 944002 0005 | 119,- |
| Canister    | 10.0       | 944002 0010 | 206,- |
| Canister    | 25.0       | 944002 0025 | 420,- |

ML minimum volume lubrication suitable

## SARA® High-performance lubricating coolant concentrate

- Water-miscible

NEW

Particularly appropriate  
for NC and CNC centres

### UNI SC101

- With high additivation
- Universal for all materials
- Suitable for internal coolant supply and high pressure
- **Chlorine and formaldehyde-free**
- Application concentration 3–5%
- pH value at 5% concentration approx. 9.2
- Refractometer reading 1.4

| Description | Contents<br>l | Art.no.            | €            |
|-------------|---------------|--------------------|--------------|
| Canister    | 5.0           | <b>943001 0005</b> | <b>68,50</b> |
| Canister    | 10.0          | 943001 0010        | 128,—        |
| Canister    | 25.0          | 943001 0025        | 219,—        |
| Canister    | 60.0          | 943001 0060        | 519,—        |
| Barrel      | 215.0         | 943001 0200        | 1.599,—      |



### HEAVY SC201

- Especially for difficult-to-machine and high-strength materials, difficult aluminium alloys and non-ferrous metals
- **Free from chlorine, boric acid, amines and formaldehyde**
- Application concentration 5–9%
- pH value at 5% concentration approx. 8.5
- Refractometer reading 1.0

| Description | Contents<br>l | Art.no.            | €            |
|-------------|---------------|--------------------|--------------|
| Canister    | 5.0           | <b>943002 0005</b> | <b>76,10</b> |
| Canister    | 10.0          | 943002 0010        | 139,50       |
| Canister    | 25.0          | 943002 0025        | 238,—        |
| Canister    | 60.0          | 943002 0060        | 549,—        |
| Barrel      | 215.0         | 943002 0200        | 1.719,—      |

### HPC SC301

- **Ester-based**
- Especially for high-performance machining (HPC)
- Suitable for internal coolant supply and high pressure
- **Free from secondary amines, chlorine, mineral oil and formaldehyde**
- Application concentration 5–9%
- pH value at 5% concentration approx. 8.9–9.3
- Refractometer reading 1.56

| Description | Contents<br>l | Art.no.            | €            |
|-------------|---------------|--------------------|--------------|
| Canister    | 5.0           | <b>943003 0005</b> | <b>77,10</b> |
| Canister    | 10.0          | 943003 0010        | 143,50       |
| Canister    | 25.0          | 943003 0025        | 245,—        |
| Canister    | 60.0          | 943003 0060        | 569,—        |
| Barrel      | 215.0         | 943003 0200        | 1.779,—      |

### HI-GRIND SC401

- **Synthetic**
- Transparent
- Excellent rinsability, prevents smearing on tool surfaces
- High and stable corrosion protection
- **Free from chlorine, silicone, formaldehyde and boric acid**
- Application concentration 3–5%
- pH value at 5% concentration approx. 9.1
- Refractometer reading 2.75

| Description | Contents<br>l | Art.no.            | €            |
|-------------|---------------|--------------------|--------------|
| Canister    | 5.0           | <b>943004 0005</b> | <b>77,10</b> |
| Canister    | 10.0          | 943004 0010        | 143,50       |
| Canister    | 25.0          | 943004 0025        | 245,—        |
| Canister    | 60.0          | 943004 0060        | 569,—        |
| Barrel      | 215.0         | 943004 0200        | 1.779,—      |

Specially for grinding a  
wide range  
of substances

## Universal absorbent fleece

- Replaces cleaning cloth
- Perforations every 25cm
- Highly absorbent, fine-fibre structure that leaves virtually no liquid or fibre residues behind
- The single-layer design is ideal for small spills and cleaning operations.
- Ideal for workshops, tool trolleys, toolboxes and service areas

### Roller material

| Type       | Dimensions   | Thickness        | Contents   | Absorption capacity | Art.no.            | €            |
|------------|--------------|------------------|------------|---------------------|--------------------|--------------|
| MAT1990-DE | 38 cm x 15 m | Single thickness | 1 roller   | 12.5 l              | <b>910110 0026</b> | <b>31,90</b> |
| MAT1991-DE | 38 cm x 15 m | Single thickness | 12 rollers | 150 l               | 910110 0027        | <b>375,-</b> |



910110 0026

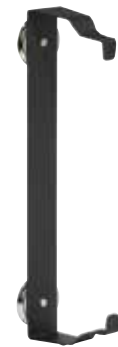
910110 0027

## Absorbent mat roll holder

- PIG roll holder for fast removal of mats as required
- For clean and safe storage of PIG mats



| Model | Description                                       | Art.no.            | €            |
|-------|---------------------------------------------------|--------------------|--------------|
| 57701 | Magnetic roll holder for PIG rollers 38 cm x 15 m | <b>910110 0017</b> | <b>10,20</b> |



## Barrel lid mats

- **Keeps barrel lids clean and dry**
- Absorbs oil, cooling solvents, water
- Pre-cut, fits perfectly onto a 210 litre barrel
- **Price per pack**



| Type    | Ø cm | Thickness        | Contents        | Absorption capacity | Art.no.            | €            |
|---------|------|------------------|-----------------|---------------------|--------------------|--------------|
| MAT 208 | 56   | Double thickness | 25 units in box | 26 l                | <b>910101 0041</b> | <b>89,50</b> |

## DRAINBLOCKER®

- **Drain covers**
- Special surface formation creates a secure seal over the drain opening
- Made of flexible polyurethane for protection against water, oil and most chemicals
- Easy to clean and therefore re-usable
- Cover must overlap the drain by at least 8 cm on all sides



| Type     | Dimensions         | Contents | Art.no.            | €             |
|----------|--------------------|----------|--------------------|---------------|
| PLRE 241 | 46 x 46 x 1.1 cm   | 1 unit   | <b>913020 0001</b> | <b>127,50</b> |
| PLRE244  | 61 x 61 x 1.1 cm   | 1 unit   | 913020 0055        | <b>229,-</b>  |
| PLRE 242 | 91 x 91 x 1.1 cm   | 1 unit   | 913020 0002        | <b>435,-</b>  |
| PLRE 243 | 122 x 122 x 1.1 cm | 1 unit   | 913020 0003        | <b>635,-</b>  |





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