

Ref. **1016**

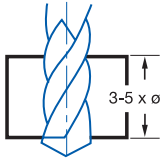
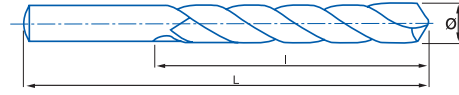
BROCA MANGO CILÍNDRICO MATERIALES DUROS. SERIE CORTA

Hard Materials Straight Shank Twist Drill. Jobber Series
Foret Queue Cylindrique Matériaux Durs. Série Courte



PROFESSIONAL

| | | | | | | | | | | |
|--------------|---------------------------|--------------|--|--|-------------------------|--|-------------------------------------|---------------------------------------|--|--------------|
| HSSE 5%Co | HSSE 5%Co + TIALSIN | DIN 338 N | | | DIN 1412 C ≥ 2 mm | | Ambar Gold Finish Finition Or | Rectificado Ground Taillé Meulé | A.R.I.* * Alto Rendimiento Intensivo I.H.P.* * Intensive High Performance H.P.I.* * Haute Performance Intensif | Tol. D h8 |
|--------------|---------------------------|--------------|--|--|-------------------------|--|-------------------------------------|---------------------------------------|--|--------------|



| Material | | Vc | | Avances mm/rev. Feed / Pas | | | | | | | | | |
|----------|------|-------|---------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Grupo | Sub. | 5% Co | TIALSIN | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 20 |
| 1 | 1.3 | 8-15 | 12-20 | 0,020 | 0,035 | 0,045 | 0,050 | 0,060 | 0,070 | 0,090 | 0,100 | 0,120 | 0,160 |
| 2 | 2.2 | 8-12 | 12-17 | 0,030 | 0,040 | 0,050 | 0,060 | 0,070 | 0,090 | 0,100 | 0,120 | 0,150 | 0,170 |
| 4 | | 10-15 | 14-20 | 0,020 | 0,030 | 0,040 | 0,050 | 0,060 | 0,070 | 0,080 | 0,100 | 0,120 | 0,140 |

Vc= m/min.

r.p.m. = $\frac{Vc \times 1.000}{\pi \times \phi}$



| D | L | I | | Nº Art. | € | Nº Art. | € | D | L | I | | Nº Art. | € | Nº Art. | € |
|------|----|----|----|---------|------|---------|------|------|-----|----|----|---------|------|---------|------|
| mm | mm | mm | | 5% Co | | TIALSIN | | mm | mm | mm | | 5% Co | | TIALSIN | |
| 0,50 | 22 | 6 | 10 | 37442 | 1,59 | | | 4,00 | 75 | 43 | 10 | 19286 | 1,48 | 12903 | 3,20 |
| 0,60 | 27 | 7 | 10 | 37443 | 2,04 | | | 4,10 | 75 | 43 | 10 | 20265 | 1,64 | 12886 | 3,36 |
| 0,70 | 28 | 9 | 10 | 37444 | 2,04 | | | 4,20 | 75 | 43 | 10 | 20269 | 1,64 | 12887 | 3,36 |
| 0,75 | 28 | 9 | 10 | 37445 | 1,47 | | | 4,25 | 75 | 43 | 10 | 19271 | 1,64 | 12888 | 3,36 |
| 0,80 | 30 | 10 | 10 | 37446 | 1,51 | | | 4,30 | 80 | 47 | 10 | 20278 | 1,75 | 12931 | 3,39 |
| 0,90 | 32 | 11 | 10 | 37447 | 1,51 | | | 4,40 | 80 | 47 | 10 | 20283 | 1,75 | | |
| 1,00 | 34 | 12 | 10 | 27309 | 1,18 | 12897 | 2,48 | 4,50 | 80 | 47 | 10 | 19274 | 1,69 | 12904 | 3,41 |
| 1,10 | 36 | 14 | 10 | 20107 | 1,45 | | | 4,60 | 80 | 47 | 10 | 20289 | 1,95 | 17750 | 3,66 |
| 1,20 | 38 | 16 | 10 | 28861 | 1,44 | 17723 | 2,74 | 4,70 | 80 | 47 | 10 | 20293 | 1,95 | | |
| 1,25 | 38 | 16 | 10 | 20112 | 1,39 | 17724 | 2,68 | 4,75 | 80 | 47 | 10 | 20298 | 1,84 | | |
| 1,30 | 38 | 16 | 10 | 20116 | 1,44 | 17725 | 2,74 | 4,80 | 86 | 52 | 10 | 20302 | 1,95 | 17754 | 3,66 |
| 1,40 | 40 | 18 | 10 | 20125 | 1,44 | | | 4,90 | 86 | 52 | 10 | 20311 | 1,95 | 17755 | 3,66 |
| 1,50 | 40 | 18 | 10 | 27170 | 1,12 | 12898 | 2,42 | 5,00 | 86 | 52 | 10 | 19277 | 1,77 | 12905 | 3,49 |
| 1,60 | 43 | 20 | 10 | 20133 | 1,44 | | | 5,10 | 86 | 52 | 10 | 20320 | 2,11 | 12891 | 3,73 |
| 1,70 | 43 | 20 | 10 | 20142 | 1,44 | 17728 | 2,74 | 5,20 | 86 | 52 | 10 | 20328 | 2,11 | 17757 | 3,81 |
| 1,75 | 46 | 22 | 10 | 20146 | 1,39 | 17729 | 2,68 | 5,25 | 86 | 52 | 10 | 19280 | 2,09 | 12893 | 3,77 |
| 1,80 | 46 | 22 | 10 | 20151 | 1,44 | 17730 | 2,74 | 5,30 | 86 | 52 | 10 | 20340 | 2,11 | 17756 | 3,81 |
| 1,90 | 46 | 22 | 10 | 20155 | 1,44 | | | 5,40 | 93 | 57 | 10 | 20349 | 2,11 | | |
| 2,00 | 49 | 24 | 10 | 19247 | 1,17 | 12899 | 2,51 | 5,50 | 93 | 57 | 10 | 19290 | 2,24 | 12906 | 3,94 |
| 2,10 | 49 | 24 | 10 | 20161 | 1,50 | | | 5,60 | 93 | 57 | 10 | 20361 | 2,67 | | |
| 2,20 | 53 | 27 | 10 | 20166 | 1,50 | 17734 | 2,82 | 5,70 | 93 | 57 | 10 | 20370 | 2,67 | 17760 | 4,38 |
| 2,25 | 53 | 27 | 10 | 20170 | 1,44 | 17735 | 2,78 | 5,75 | 93 | 57 | 10 | 20379 | 2,52 | | |
| 2,30 | 53 | 27 | 10 | 20175 | 1,50 | 17736 | 2,85 | 5,80 | 93 | 57 | 10 | 20388 | 2,67 | 17762 | 4,38 |
| 2,40 | 57 | 30 | 10 | 20184 | 1,50 | | | 5,90 | 93 | 57 | 10 | 20397 | 2,67 | | |
| 2,50 | 57 | 30 | 10 | 19251 | 1,17 | 12900 | 2,51 | 6,00 | 93 | 57 | 10 | 19301 | 2,39 | 12907 | 4,08 |
| 2,60 | 57 | 30 | 10 | 20199 | 1,46 | 17738 | 2,79 | 6,10 | 101 | 63 | 10 | 20415 | 2,96 | | |
| 2,70 | 61 | 33 | 10 | 20203 | 1,46 | | | 6,20 | 101 | 63 | 10 | 20424 | 2,96 | | |
| 2,75 | 61 | 33 | 10 | 19262 | 1,44 | | | 6,25 | 101 | 63 | 10 | 20433 | 2,80 | | |
| 2,80 | 61 | 33 | 10 | 20209 | 1,46 | | | 6,30 | 101 | 63 | 10 | 20442 | 2,96 | | |
| 2,90 | 61 | 33 | 10 | 20214 | 1,46 | | | 6,40 | 101 | 63 | 10 | 20451 | 2,96 | 17768 | 7,81 |
| 3,00 | 61 | 33 | 10 | 19256 | 1,14 | 12901 | 2,48 | 6,50 | 101 | 63 | 10 | 27290 | 2,87 | 12908 | 7,53 |
| 3,10 | 65 | 36 | 10 | 20220 | 1,39 | 12882 | 3,12 | 6,60 | 101 | 63 | 10 | 20466 | 3,55 | | |
| 3,20 | 65 | 36 | 10 | 20224 | 1,39 | 17226 | 3,12 | 6,70 | 101 | 63 | 10 | 20475 | 3,55 | | |
| 3,25 | 65 | 36 | 10 | 19259 | 1,39 | 12883 | 3,12 | 6,75 | 109 | 69 | 10 | 20481 | 3,34 | 12894 | 7,98 |
| 3,30 | 65 | 36 | 10 | 20230 | 1,39 | 12884 | 3,12 | 6,80 | 109 | 69 | 10 | 20488 | 3,34 | 12895 | 7,98 |
| 3,40 | 70 | 39 | 10 | 20235 | 1,46 | 12885 | 3,24 | 6,90 | 109 | 69 | 10 | 20493 | 3,55 | | |
| 3,50 | 70 | 39 | 10 | 19268 | 1,38 | 12902 | 3,11 | 7,00 | 109 | 69 | 10 | 19305 | 3,13 | 12909 | 7,97 |
| 3,60 | 70 | 39 | 10 | 20241 | 1,75 | | | 7,10 | 109 | 69 | 10 | 20499 | 4,52 | | |
| 3,70 | 70 | 39 | 10 | 20245 | 1,75 | | | 7,20 | 109 | 69 | 10 | 20503 | 4,52 | | |
| 3,75 | 70 | 39 | 10 | 19269 | 1,64 | | | 7,25 | 109 | 69 | 10 | 20508 | 4,26 | | |
| 3,80 | 75 | 43 | 10 | 20251 | 1,75 | | | 7,30 | 109 | 69 | 10 | 20512 | 4,52 | | |
| 3,90 | 75 | 43 | 10 | 20256 | 1,75 | | | 7,40 | 109 | 69 | 10 | 20517 | 4,52 | | |



| D mm | L mm | I mm | | N° Art. 5% Co | € | N° Art. TIALSIN | € |
|---------|---------|---------|----|------------------|-------|--------------------|-------|
| 7,50 | 109 | 69 | 10 | 19292 | 3,34 | 12910 | 8,17 |
| 7,60 | 117 | 75 | 10 | 20523 | 5,46 | | |
| 7,70 | 117 | 75 | 10 | 20527 | 5,46 | | |
| 7,75 | 117 | 75 | 10 | 20532 | 5,15 | | |
| 7,80 | 117 | 75 | 10 | 20536 | 5,46 | | |
| 7,90 | 117 | 75 | 10 | 20541 | 5,46 | | |
| 8,00 | 117 | 75 | 10 | 20208 | 3,91 | 12911 | 8,70 |
| 8,10 | 117 | 75 | 10 | 22734 | 5,21 | | |
| 8,20 | 117 | 75 | 10 | 22737 | 5,21 | | |
| 8,25 | 117 | 75 | 10 | 22740 | 4,92 | | |
| 8,30 | 117 | 75 | 10 | 22743 | 5,21 | | |
| 8,40 | 117 | 75 | 10 | 22746 | 5,21 | | |
| 8,50 | 117 | 75 | 10 | 19298 | 4,07 | 12912 | 9,70 |
| 8,60 | 125 | 81 | 10 | 22752 | 6,63 | | |
| 8,70 | 125 | 81 | 10 | 22755 | 6,63 | | |
| 8,75 | 125 | 81 | 10 | 22758 | 6,26 | | |
| 8,80 | 125 | 81 | 10 | 22761 | 6,63 | 17791 | 12,19 |
| 8,90 | 125 | 81 | 10 | 22764 | 6,63 | | |
| 9,00 | 125 | 81 | 10 | 20358 | 5,19 | 12914 | 10,75 |
| 9,10 | 125 | 81 | 10 | 22768 | 7,35 | 17794 | 12,92 |
| 9,20 | 125 | 81 | 10 | 22771 | 7,35 | | |
| 9,25 | 125 | 81 | 10 | 22774 | 6,92 | | |
| 9,30 | 125 | 81 | 10 | 22777 | 7,35 | 17797 | 12,92 |
| 9,40 | 125 | 81 | 10 | 22780 | 7,35 | | |
| 9,50 | 125 | 81 | 10 | 20545 | 5,38 | 12915 | 10,93 |
| 9,60 | 133 | 87 | 10 | 22784 | 8,65 | | |
| 9,70 | 133 | 87 | 10 | 23567 | 8,65 | | |
| 9,75 | 133 | 87 | 10 | 26697 | 8,16 | | |
| 9,80 | 133 | 87 | 10 | 26809 | 8,65 | | |
| 9,90 | 133 | 87 | 10 | 27121 | 8,65 | | |
| 10,00 | 133 | 87 | 10 | 27291 | 5,91 | 12917 | 11,48 |
| 10,10 | 133 | 87 | 5 | 27318 | 9,93 | | |
| 10,20 | 133 | 87 | 5 | 27541 | 8,37 | 12896 | 19,77 |
| 10,25 | 133 | 87 | 5 | 27544 | 10,30 | 17805 | 21,69 |
| 10,30 | 133 | 87 | 5 | 27585 | 9,93 | 17806 | 21,28 |
| 10,40 | 133 | 87 | 5 | 27682 | 9,93 | | |
| 10,50 | 133 | 87 | 5 | 27685 | 8,37 | 12918 | 19,77 |
| 10,60 | 133 | 87 | 5 | 27690 | 11,55 | | |
| 10,70 | 142 | 94 | 5 | 27693 | 11,55 | | |
| 10,75 | 142 | 94 | 5 | 27696 | 11,99 | | |
| 10,80 | 142 | 94 | 5 | 27699 | 11,55 | | |
| 10,90 | 142 | 94 | 5 | 27702 | 11,55 | | |
| 11,00 | 142 | 94 | 5 | 27705 | 9,25 | 12919 | 20,60 |
| 11,10 | 142 | 94 | 5 | 27708 | 13,15 | | |

| D mm | L mm | I mm | | N° Art. 5% Co | € | N° Art. TIALSIN | € |
|---------|---------|---------|---|------------------|-------|--------------------|-------|
| 11,20 | 142 | 94 | 5 | 27711 | 13,15 | | |
| 11,25 | 142 | 94 | 5 | 27714 | 13,65 | 17816 | 24,47 |
| 11,30 | 142 | 94 | 5 | 27717 | 13,15 | | |
| 11,40 | 142 | 94 | 5 | 27720 | 13,15 | | |
| 11,50 | 142 | 94 | 5 | 19307 | 11,06 | 12932 | 21,87 |
| 11,60 | 142 | 94 | 5 | 27724 | 13,61 | | |
| 11,70 | 142 | 94 | 5 | 27727 | 13,61 | | |
| 11,75 | 142 | 94 | 5 | 27730 | 14,12 | | |
| 11,80 | 142 | 94 | 5 | 27733 | 13,61 | | |
| 11,90 | 151 | 101 | 5 | 27736 | 13,61 | | |
| 12,00 | 151 | 101 | 5 | 19311 | 11,83 | 12920 | 22,61 |
| 12,10 | 151 | 101 | 5 | 27742 | 15,77 | | |
| 12,20 | 151 | 101 | 5 | 27745 | 15,77 | | |
| 12,25 | 151 | 101 | 5 | 19313 | 16,37 | | |
| 12,30 | 151 | 101 | 5 | 27749 | 15,77 | | |
| 12,40 | 151 | 101 | 5 | 27752 | 15,77 | | |
| 12,50 | 151 | 101 | 5 | 27755 | 14,41 | 12921 | 27,93 |
| 12,60 | 151 | 101 | 5 | 27758 | 16,47 | | |
| 12,70 | 151 | 101 | 5 | 27761 | 16,47 | | |
| 12,75 | 151 | 101 | 5 | 19316 | 17,10 | | |
| 12,80 | 151 | 101 | 5 | 27765 | 16,47 | | |
| 12,90 | 151 | 101 | 5 | 27768 | 16,47 | | |
| 13,00 | 151 | 101 | 5 | 27771 | 14,76 | 12923 | 28,40 |
| 13,25 | 160 | 108 | 1 | 27777 | 20,40 | | |
| 13,50 | 160 | 108 | 1 | 27774 | 16,25 | 12924 | 29,81 |
| 13,75 | 160 | 108 | 1 | 27780 | 20,40 | | |
| 14,00 | 160 | 108 | 1 | 27783 | 16,08 | 12927 | 29,65 |
| 14,25 | 169 | 114 | 1 | 27786 | 26,81 | | |
| 14,50 | 169 | 114 | 1 | 27789 | 22,79 | 12929 | 35,92 |
| 14,75 | 169 | 114 | 1 | 27792 | 26,81 | | |
| 15,00 | 169 | 114 | 1 | 27795 | 23,14 | 12930 | 36,38 |
| 15,25 | 178 | 120 | 1 | 27798 | 37,02 | | |
| 15,50 | 178 | 120 | 1 | 27801 | 26,78 | | |
| 15,75 | 178 | 120 | 1 | 27804 | 37,02 | | |
| 16,00 | 178 | 120 | 1 | 27807 | 27,74 | 15084 | 38,48 |
| 16,50 | 184 | 125 | 1 | 27811 | 31,71 | | |
| 17,00 | 184 | 125 | 1 | 27814 | 31,71 | | |
| 17,50 | 191 | 130 | 1 | 27817 | 35,15 | | |
| 18,00 | 191 | 130 | 1 | 27820 | 38,28 | 15252 | 50,52 |
| 18,50 | 198 | 135 | 1 | 27823 | 42,29 | | |
| 19,00 | 198 | 135 | 1 | 27826 | 42,29 | | |
| 19,50 | 205 | 140 | 1 | 27829 | 46,89 | | |
| 20,00 | 205 | 140 | 1 | 27832 | 50,22 | | |

Ref. **1020**

BROCA MANGO CILÍNDRICO INOX. SERIE CORTA

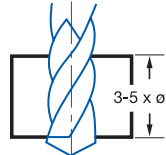
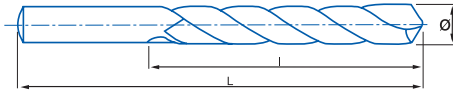
Stainless Steel Straight Shank Twist Drill. Jobber Series

Foret Queue Cylindrique Inoxydable. Serie Courte



SPEED MAX

| | | | | | | | |
|--------------|--------------|------|-----|-------------------------|--------------------------------------|---|--------------|
| HSSE 5%Co | DIN 338 W | 135° | 40° | DIN 1412 C ≥ 2 mm | Chapa Sheets Tôle < 5 mm | Blanca Bright Finish Finition Blanc | Tol. D h8 |
|--------------|--------------|------|-----|-------------------------|--------------------------------------|---|--------------|



| Material | | Vc | Avances mm/rev. Feed / Pas | | | | | | | | | |
|----------|-------|-------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| Grupo | Sub. | 5% Co | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | |
| 2 | 2.1 | 6-12 | 0,030 | 0,040 | 0,050 | 0,060 | 0,070 | 0,090 | 0,100 | 0,120 | 0,150 | |
| | 6.1 | 60-80 | 0,080 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 | 0,380 | |
| 6.2 | 0,080 | | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 | 0,380 | | |
| 6.3 | 40-50 | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 | | |

Vc= m/min.

$$\text{r.p.m.} = \frac{Vc \times 1.000}{\pi \times \phi}$$

| D mm | L mm | I mm | | Nº Art. 5% Co | € | D mm | L mm | I mm | | Nº Art. 5% Co | € |
|---------|---------|---------|----|------------------|------|---------|---------|---------|----|------------------|-------|
| 1,00 | 34 | 12 | 10 | 14115 | 1,77 | 5,25 | 86 | 52 | 10 | 16297 | 3,01 |
| 1,25 | 38 | 16 | 10 | 14116 | 2,10 | 5,50 | 93 | 57 | 10 | 16298 | 3,27 |
| 1,50 | 40 | 18 | 10 | 14117 | 1,69 | 5,70 | 93 | 57 | 10 | 25134 | 4,02 |
| 2,00 | 49 | 24 | 10 | 21615 | 1,69 | 5,75 | 93 | 57 | 10 | 16299 | 3,64 |
| 2,25 | 53 | 27 | 10 | 21616 | 2,05 | 6,00 | 93 | 57 | 10 | 16302 | 3,47 |
| 2,50 | 57 | 30 | 10 | 21618 | 1,69 | 6,25 | 101 | 63 | 10 | 21627 | 3,98 |
| 2,75 | 61 | 33 | 10 | 21625 | 2,05 | 6,50 | 101 | 63 | 10 | 16304 | 4,05 |
| 2,80 | 61 | 33 | 10 | 12964 | 2,21 | 6,75 | 109 | 69 | 10 | 21628 | 4,75 |
| 3,00 | 61 | 33 | 10 | 16283 | 1,66 | 6,80 | 109 | 69 | 10 | 16306 | 4,75 |
| 3,10 | 65 | 36 | 10 | 17970 | 2,04 | 7,00 | 109 | 69 | 10 | 16307 | 4,42 |
| 3,20 | 65 | 36 | 10 | 16284 | 2,04 | 7,25 | 109 | 69 | 10 | 21631 | 6,06 |
| 3,25 | 65 | 36 | 10 | 16285 | 2,04 | 7,50 | 109 | 69 | 10 | 16309 | 4,71 |
| 3,30 | 65 | 36 | 10 | 16286 | 2,04 | 8,00 | 117 | 75 | 10 | 16311 | 5,51 |
| 3,50 | 70 | 39 | 10 | 16287 | 2,01 | 8,25 | 117 | 75 | 5 | 21633 | 6,99 |
| 3,70 | 70 | 39 | 10 | 14120 | 2,65 | 8,50 | 117 | 75 | 5 | 16313 | 5,75 |
| 3,75 | 70 | 39 | 10 | 16288 | 2,40 | 9,00 | 125 | 81 | 5 | 16314 | 7,32 |
| 3,80 | 75 | 43 | 10 | 12507 | 2,65 | 9,10 | 125 | 81 | 5 | 14023 | 10,23 |
| 4,00 | 75 | 43 | 10 | 16289 | 2,16 | 9,50 | 125 | 81 | 5 | 16316 | 7,58 |
| 4,10 | 75 | 43 | 10 | 16290 | 2,40 | 10,00 | 133 | 87 | 5 | 16318 | 8,37 |
| 4,20 | 75 | 43 | 10 | 16291 | 2,40 | 10,20 | 133 | 87 | 5 | 14248 | 11,28 |
| 4,25 | 75 | 43 | 10 | 16292 | 2,40 | 10,25 | 133 | 87 | 5 | 21634 | 14,69 |
| 4,30 | 80 | 47 | 10 | 14122 | 2,65 | 10,50 | 133 | 87 | 5 | 16320 | 11,28 |
| 4,50 | 80 | 47 | 10 | 16293 | 2,40 | 11,00 | 142 | 94 | 5 | 16321 | 12,46 |
| 4,75 | 80 | 47 | 10 | 16294 | 2,68 | 11,50 | 142 | 94 | 5 | 16322 | 14,33 |
| 4,80 | 86 | 52 | 10 | 14123 | 2,95 | 12,00 | 151 | 101 | 5 | 16323 | 15,37 |
| 5,00 | 86 | 52 | 10 | 16295 | 2,58 | 12,50 | 151 | 101 | 5 | 16324 | 17,10 |
| 5,10 | 86 | 52 | 10 | 16296 | 3,06 | 13,00 | 151 | 101 | 5 | 16325 | 17,36 |
| 5,20 | 86 | 52 | 10 | 28626 | 3,19 | | | | | | |

Ref. **1021**

BROCA MANGO CILÍNDRICO MULTI INOX. SERIE CORTA

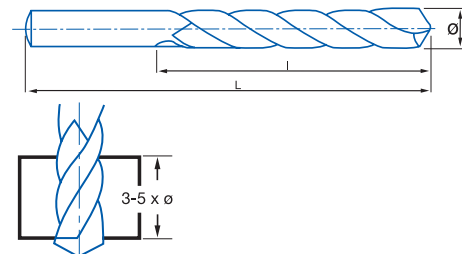
Multi-STAINLESS Steel Straight Shank Twist Drill. Jobber Series

Foret Queue Cylindrique Multi INOX. Serie Courte



BOROA

| | | | | | | | | | | | |
|--------------|--------------|------|-----|--|-------------------------|--|-------|--|-----------------------------------|--------------------------------|--------------|
| HSSE 5%Co | DIN 338 W | 135° | 40° | | DIN 1412 C ≥ 2 mm | | ≥0.04 | | Chapa Sheets Tôle < 5 mm | Blue+ Gold Finish ≥ 3 mm | Tol. D h8 |
|--------------|--------------|------|-----|--|-------------------------|--|-------|--|-----------------------------------|--------------------------------|--------------|



| Material | | Vc | Avances mm/rev. Feed / Pas | | | | | | | |
|----------|-------|-------|----------------------------|-------|-------|-------|-------|-------|-------|-------|
| Grupo | Sub. | 5% Co | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
| 1 | 1.1 | 30-35 | 0,045 | 0,055 | 0,070 | 0,080 | 0,100 | 0,120 | 0,150 | 0,160 |
| | 2.1 | 6-12 | 0,030 | 0,040 | 0,050 | 0,060 | 0,070 | 0,090 | 0,100 | 0,120 |
| 2 | 2.2 | 8-12 | 0,030 | 0,040 | 0,050 | 0,060 | 0,070 | 0,090 | 0,100 | 0,120 |
| | 5.1 | 30-40 | 0,050 | 0,070 | 0,080 | 0,100 | 0,120 | 0,140 | 0,170 | 0,200 |
| 5.2 | 0,060 | | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | |
| 6 | 6.1 | 60-80 | 0,080 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 |
| | 6.2 | | 0,080 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 |
| | 6.3 | 40-50 | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 |

Vc= m/min.

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$



Ángulo de Punta 135°:

- Especial taladro mano.
- Aguzado de gran precisión.
- Menor fuerza de corte.
- Buen centrado superficies curvas.

135° Point Angle:

- Special portable drilling machine.
- High PRECISIÓN Split Point.
- Lower cutting-forces.
- Good centering on concave surfaces.

Angle de pointe 135°:

- Perçuses à main
- Affûtage PRECISIÓN
- Force de coupe inferieure
- Autocentrage surfaces courbes



Hélice 40°:

- Excelente evacuación de viruta.
- Taladro más rápido y estable.
- Agujeros precisos hasta el final.

40° Helix:

- Excellent chip removal.
- Faster & stable drilling.
- Accurate holes right to the end.

Helix 40°:

- Excellente évacuation copeaux
- Perçage plus rapide et stable
- Trous précis jusqu'au bout



Mango De 3 Planos:

- Optimo agarre y sujeción.
- Menor esfuerzo.
- Evita que se resbale la broca.
- Inmejorable transmisión de la energía.

3-Flat Shank:

- Optimum fixing.
- Low effort.
- No spinning in the drill-chuck.
- Ideal energy-transmission.

Queue 3 plans:

- Fixation optimale
- Effort inférieur
- Pas de glissement du foret
- Transmission d'énergie parfait

| D mm | L mm | I mm | | Nº Art. 5% Co | € |
|---------|---------|---------|----|------------------|-------|
| 1,00 | 34 | 12 | 10 | 25641 | 2,32 |
| 1,50 | 40 | 18 | 10 | 25644 | 2,21 |
| 2,00 | 49 | 24 | 10 | 25645 | 2,21 |
| 2,50 | 57 | 30 | 10 | 25647 | 2,21 |
| 3,00 | 61 | 33 | 10 | 25650 | 2,16 |
| 3,20 | 65 | 36 | 10 | 25710 | 2,66 |
| 3,25 | 65 | 36 | 10 | 25728 | 2,66 |
| 3,30 | 65 | 36 | 10 | 25730 | 2,66 |
| 3,50 | 70 | 39 | 10 | 25733 | 2,61 |
| 4,00 | 75 | 43 | 10 | 25744 | 2,84 |
| 4,20 | 75 | 43 | 10 | 25751 | 3,15 |
| 4,25 | 75 | 43 | 10 | 25756 | 3,15 |
| 4,50 | 80 | 47 | 10 | 25762 | 3,15 |
| 5,00 | 86 | 52 | 10 | 25769 | 3,38 |
| 5,20 | 86 | 52 | 10 | 25774 | 3,95 |
| 5,50 | 93 | 57 | 10 | 25780 | 4,28 |
| 6,00 | 93 | 57 | 10 | 25788 | 4,55 |
| 6,50 | 101 | 63 | 10 | 25793 | 5,32 |
| 6,80 | 109 | 69 | 10 | 25798 | 6,22 |
| 7,00 | 109 | 69 | 10 | 25801 | 5,80 |
| 7,50 | 109 | 69 | 10 | 25805 | 6,17 |
| 8,00 | 117 | 75 | 10 | 25807 | 7,22 |
| 8,50 | 117 | 75 | 5 | 25811 | 7,54 |
| 9,00 | 125 | 81 | 5 | 25813 | 9,60 |
| 9,50 | 125 | 81 | 5 | 25815 | 9,93 |
| 10,00 | 133 | 87 | 5 | 25817 | 10,96 |
| 10,20 | 133 | 87 | 1 | 32666 | 14,78 |
| 10,50 | 133 | 87 | 1 | 25821 | 14,78 |
| 11,00 | 142 | 94 | 1 | 25823 | 16,32 |
| 11,50 | 142 | 94 | 1 | 25825 | 18,77 |
| 12,00 | 151 | 101 | 1 | 25827 | 20,13 |
| 12,50 | 151 | 101 | 1 | 25829 | 22,41 |
| 13,00 | 151 | 101 | 1 | 25831 | 22,74 |

Ref. **1027**

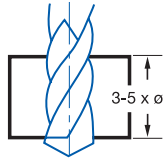
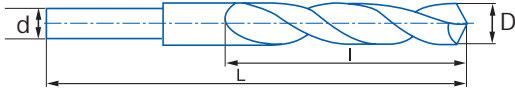
BROCA MANGO REBAJADO MATERIALES DUROS. SERIE CORTA

Hard Materials Reduced Shank Twist Drill. Jobber Series

Foret Queue Réduit Matériaux Durs. Serie Courte



| | | | | | | | | | | | |
|--------------|--------------|------|--|--|--|--|-------------------------|---|---------------------------------------|-------|--------------|
| HSSE 5%Co | DIN 338 N | 135° | | | | | DIN 1412 C ≥ 2 mm | Blanca Bright Finish Finition Blanc | Rectificado Ground Taillé Meulé | 30 mm | Tol. D h8 |
|--------------|--------------|------|--|--|--|--|-------------------------|---|---------------------------------------|-------|--------------|



| Material | | Vc | Avances mm/rev. Feed / Pas | | |
|----------|------|-------|----------------------------|-------|-------|
| Grupo | Sub. | 5% Co | Ø 12 | Ø 16 | Ø 20 |
| 1 | 1.3 | 8-15 | 0,100 | 0,120 | 0,160 |
| 2 | 2.2 | 8-12 | 0,120 | 0,150 | 0,170 |
| 4 | | 10-15 | 0,100 | 0,120 | 0,140 |

Vc= m/min.

$$\text{r.p.m.} = \frac{Vc \times 1.000}{\pi \times \phi}$$

| D | d | L | l | | Nº Art. | € |
|-------|-------|-----|-----|---|---------|-------|
| mm | mm | mm | mm | | 5% Co | |
| 10,50 | 10,00 | 133 | 87 | 1 | 54954 | 10,88 |
| 11,00 | 10,00 | 142 | 94 | 1 | 54955 | 12,03 |
| 11,50 | 10,00 | 142 | 94 | 1 | 54956 | 14,38 |
| 12,00 | 10,00 | 151 | 101 | 1 | 22346 | 15,39 |
| 12,50 | 10,00 | 151 | 101 | 1 | 54957 | 18,73 |
| 13,00 | 10,00 | 151 | 101 | 1 | 22347 | 19,75 |
| 13,50 | 12,70 | 160 | 108 | 1 | 49200 | 21,13 |
| 14,00 | 12,70 | 160 | 108 | 1 | 22344 | 21,53 |
| 14,50 | 12,70 | 169 | 114 | 1 | 49201 | 29,63 |
| 15,00 | 12,70 | 169 | 114 | 1 | 22348 | 30,96 |
| 15,50 | 12,70 | 178 | 120 | 1 | 49223 | 34,81 |
| 16,00 | 12,70 | 178 | 120 | 1 | 22349 | 35,71 |
| 16,50 | 12,70 | 184 | 125 | 1 | 54979 | 41,22 |
| 17,00 | 12,70 | 184 | 125 | 1 | 22350 | 40,82 |
| 17,50 | 12,70 | 191 | 130 | 1 | 54958 | 45,70 |
| 18,00 | 12,70 | 191 | 130 | 1 | 22351 | 49,29 |
| 18,50 | 12,70 | 198 | 135 | 1 | 54959 | 54,98 |
| 19,00 | 12,70 | 198 | 135 | 1 | 22353 | 54,43 |
| 19,50 | 12,70 | 205 | 140 | 1 | 54960 | 60,96 |
| 20,00 | 12,70 | 205 | 140 | 1 | 22354 | 64,63 |

Ref. **1000**

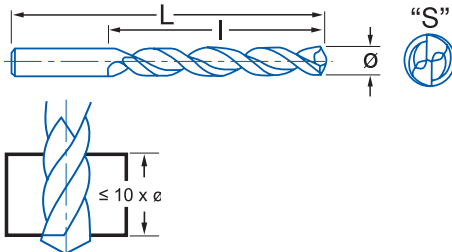
BROCA M. CILÍNDRICO AGUJEROS TOL. IT8-9. SERIE CORTA

IT8-9 Tolerance Hole Straight Shank Twist Drill. Jobber Series

Foret Queue Cylindrique Trous Tolérance IT8-9. Serie Courte



| | | | | | | | |
|-----------|---------------------|-----------|------|--|-----|---------------------------------------|-----------|
| HSSE 5%Co | HSSE 5%Co + TIALSIN | DIN 338TS | 135° | Filo Corregido "U" Convex Edge "U" Filets Corrigés "U" | "S" | Rectificado Ground Taillé Meulé | Tol. D h8 |
|-----------|---------------------|-----------|------|--|-----|---------------------------------------|-----------|



| Material | | Vc | | Avances mm/rev. Feed / Pas | | | | | | | | |
|----------|------|-------|---------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Grupo | Sub. | 5% Co | TIALSIN | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 |
| 1 | 1.1 | 20-25 | 28-35 | 0,035 | 0,045 | 0,050 | 0,060 | 0,080 | 0,100 | 0,120 | 0,130 | 0,160 |
| | 1.3 | 8-15 | 12-20 | 0,020 | 0,035 | 0,045 | 0,050 | 0,060 | 0,070 | 0,090 | 0,100 | 0,120 |
| 3 | 3.1 | 30-35 | 36-42 | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 |
| | 3.2 | 25-30 | 30-36 | 0,050 | 0,070 | 0,080 | 0,100 | 0,120 | 0,140 | 0,170 | 0,200 | 0,240 |
| 6 | 6.3 | 40-50 | 56-70 | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 |
| 7 | 7.1 | 35-45 | 40-58 | 0,080 | 0,130 | 0,150 | 0,170 | 0,190 | 0,250 | 0,290 | 0,310 | 0,360 |

Vc= m/min.

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$



| D mm | L mm | I mm | 5% | Nº Art. 5% Co | € | TIALSIN | Nº Art. TIALSIN | € |
|------|------|------|----|---------------|------|---------|-----------------|------|
| 2,00 | 49 | 24 | 10 | 22232 | 2,81 | 1 | 13524 | 4,14 |
| 2,10 | 49 | 24 | 10 | 14496 | 3,30 | 1 | 21550 | 4,65 |
| 2,30 | 53 | 27 | 10 | 14497 | 3,30 | 1 | 21552 | 4,65 |
| 2,50 | 57 | 30 | 10 | 22233 | 2,81 | 1 | 13527 | 4,14 |
| 2,70 | 61 | 33 | 10 | 14500 | 3,26 | 1 | 24854 | 4,60 |
| 2,75 | 61 | 33 | 10 | 14455 | 3,46 | 1 | 24855 | 4,80 |
| 3,00 | 61 | 33 | 10 | 22234 | 2,74 | 1 | 13530 | 4,08 |
| 3,10 | 65 | 36 | 10 | 14502 | 3,34 | 1 | 14599 | 5,06 |
| 3,20 | 65 | 36 | 10 | 22235 | 3,34 | 1 | 13533 | 5,06 |
| 3,25 | 65 | 36 | 10 | 14457 | 3,34 | 1 | 14479 | 5,06 |
| 3,30 | 65 | 36 | 10 | 14503 | 3,34 | 1 | 14601 | 5,06 |
| 3,50 | 70 | 39 | 10 | 22236 | 3,31 | 1 | 13536 | 5,03 |
| 3,60 | 70 | 39 | 10 | 14925 | 3,85 | 1 | 24856 | 5,57 |
| 3,70 | 70 | 39 | 10 | 14508 | 3,85 | 1 | 24857 | 5,57 |
| 3,75 | 70 | 39 | 10 | 14458 | 3,94 | 1 | 24858 | 5,66 |
| 3,90 | 75 | 43 | 10 | 14634 | 4,20 | 1 | 24859 | 5,90 |
| 4,00 | 75 | 43 | 10 | 22237 | 3,55 | 1 | 13539 | 5,28 |
| 4,10 | 75 | 43 | 10 | 14511 | 3,94 | 1 | 14605 | 5,66 |
| 4,20 | 75 | 43 | 10 | 22238 | 3,94 | 1 | 13542 | 5,66 |
| 4,25 | 75 | 43 | 10 | 14461 | 3,94 | 1 | 14482 | 5,66 |
| 4,30 | 80 | 47 | 10 | 14514 | 4,20 | 1 | 14607 | 6,09 |
| 4,40 | 80 | 47 | 10 | 14635 | 4,20 | 1 | 24860 | 5,93 |
| 4,50 | 80 | 47 | 10 | 22239 | 4,06 | 1 | 13545 | 5,77 |
| 4,70 | 80 | 47 | 10 | 14637 | 4,68 | 1 | 24861 | 6,40 |
| 4,75 | 80 | 47 | 10 | 14464 | 4,42 | 1 | 24862 | 6,14 |
| 4,80 | 86 | 52 | 10 | 14641 | 4,68 | 1 | 24863 | 6,40 |
| 5,00 | 86 | 52 | 10 | 22240 | 4,25 | 1 | 13548 | 5,97 |
| 5,10 | 86 | 52 | 10 | 22241 | 5,06 | 1 | 13551 | 6,72 |

| D mm | L mm | I mm | 5% | Nº Art. 5% Co | € | TIALSIN | Nº Art. TIALSIN | € |
|-------|------|------|----|---------------|-------|---------|-----------------|-------|
| 5,20 | 86 | 52 | 10 | 14517 | 5,06 | 1 | 24864 | 6,79 |
| 5,25 | 86 | 52 | 10 | 14466 | 5,02 | 1 | 14485 | 6,74 |
| 5,30 | 86 | 52 | 10 | 14643 | 5,06 | 1 | 24865 | 6,79 |
| 5,50 | 93 | 57 | 10 | 22242 | 5,38 | 1 | 13554 | 7,10 |
| 5,60 | 93 | 57 | 10 | 14646 | 6,41 | 1 | 24866 | 8,13 |
| 5,75 | 93 | 57 | 10 | 14467 | 6,05 | 1 | 24867 | 7,78 |
| 5,80 | 93 | 57 | 10 | 14523 | 6,41 | 1 | 24868 | 8,13 |
| 5,90 | 93 | 57 | 10 | 14647 | 6,41 | 1 | 24869 | 8,13 |
| 6,00 | 93 | 57 | 10 | 22243 | 5,74 | 1 | 13557 | 7,46 |
| 6,20 | 101 | 63 | 5 | 14526 | 7,10 | 1 | 24870 | 11,71 |
| 6,50 | 101 | 63 | 5 | 22244 | 6,89 | 1 | 13560 | 11,50 |
| 6,80 | 109 | 69 | 5 | 14527 | 8,02 | 1 | 14610 | 12,64 |
| 7,00 | 109 | 69 | 5 | 22245 | 7,51 | 1 | 13563 | 12,30 |
| 7,20 | 109 | 69 | 5 | 14649 | 10,59 | 1 | 24871 | 15,39 |
| 7,50 | 109 | 69 | 5 | 14529 | 8,02 | 1 | 14611 | 12,82 |
| 8,00 | 117 | 75 | 5 | 22246 | 9,38 | 1 | 13566 | 14,17 |
| 8,20 | 117 | 75 | 5 | 14533 | 12,67 | 1 | 24872 | 18,26 |
| 8,50 | 117 | 75 | 5 | 22247 | 9,77 | 1 | 13569 | 15,35 |
| 8,80 | 125 | 81 | 5 | 14653 | 15,61 | 1 | 24873 | 21,22 |
| 9,00 | 125 | 81 | 5 | 22248 | 12,46 | 1 | 13572 | 18,07 |
| 9,50 | 125 | 81 | 5 | 14535 | 12,91 | 1 | 14613 | 18,52 |
| 9,80 | 133 | 87 | 5 | 14655 | 19,57 | 1 | 24874 | 25,17 |
| 10,00 | 133 | 87 | 5 | 22249 | 14,18 | 1 | 14363 | 19,77 |
| 10,50 | 133 | 87 | 1 | 14659 | 20,09 | 1 | 14676 | 31,40 |
| 11,00 | 142 | 94 | 1 | 22250 | 22,20 | 1 | 14364 | 33,52 |
| 11,50 | 142 | 94 | 1 | 14664 | 26,54 | 1 | 14677 | 37,42 |
| 12,00 | 151 | 101 | 1 | 22251 | 28,39 | 1 | 14365 | 39,28 |
| 13,00 | 151 | 101 | 1 | 22252 | 35,42 | 1 | 14366 | 49,20 |

Ref. **1015**

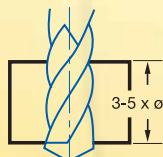
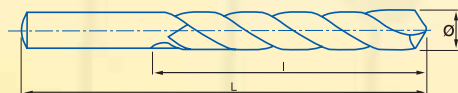
BROCA MANGO CILÍNDRICO ZIRKONIO. SERIE CORTA

Zirkonio Straight Shank Twist Drill. Jobber Series

Foret Queue Cylindrique Zirkonio. Serie Courte



| | | | | | | |
|-----|----------|-----------|------|--|--|-----------|
| HSS | Zirkonio | DIN 338 N | 130° | | | Tol. D h8 |
|-----|----------|-----------|------|--|--|-----------|



| Material | Vc | Avances mm/rev. Feed / Pas | | | | | | | | | |
|----------|-----|----------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | Zirkonio | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 |
| 1 | 1.1 | 33-40 | 0,045 | 0,055 | 0,070 | 0,080 | 0,100 | 0,120 | 0,150 | 0,160 | 0,180 |
| | 3 | 3.1 | 40-45 | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 |
| 3 | 3.2 | 33-40 | 0,050 | 0,070 | 0,080 | 0,100 | 0,120 | 0,140 | 0,170 | 0,200 | 0,240 |
| | 6 | 6.1 | 80-105 | 0,080 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 |
| 6 | 6.2 | 80-105 | 0,080 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 | 0,380 |
| | 6.3 | 50-65 | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 |

Vc= m/min.

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$



Angulo punta 130°

- Autocentradora
- Ideal taladro portátil
- Geometría especial diseñada para reducir el esfuerzo de corte

130° Point Angle

- Autocentering
- Ideal Portable Drilling Machine
- Special Geometry designed for reducing cutting effort

Angle Pointe 130°

- Autocentreur
- Perçuse à main
- Géométrie pour réduire l'effort de coupe



Nuevo recubrimiento Zirkonio de última generación por PVD

- Basado en ZRN
- Bajo coeficiente de fricción
- Muy resistente a la corrosión
- Adecuado para materiales no férricos
- Evita la adherencia de material en el filo de corte

Latest generation Zirkonio coating by PVD

- Based on ZRN
- Low Friction Coefficient
- Very Corrosion Resistant
- Appropriate for Non Ferrous Materials
- Built-Up Edge avoided

Nouveau revêtement Zirkonio dernière génération par PVD

- Base ZRN
- Faible coefficient friction
- Résistant à l'usure
- Recommandé pour aciers ferreux
- Évite l'adhérence sur les filets de coupe

| D mm | L mm | I mm | | N° Art. Zirkonio | € | D mm | L mm | I mm | | N° Art. Zirkonio | € |
|------|------|------|----|------------------|------|-------|------|------|----|------------------|-------|
| 1,00 | 34 | 12 | 10 | 59101 | 1,30 | 6,50 | 101 | 63 | 10 | 59148 | 2,84 |
| 1,50 | 40 | 18 | 10 | 59103 | 1,17 | 6,80 | 109 | 69 | 10 | 59149 | 3,31 |
| 2,00 | 49 | 24 | 10 | 59100 | 1,22 | 7,00 | 109 | 69 | 10 | 59151 | 3,10 |
| 2,50 | 57 | 30 | 10 | 59104 | 1,22 | 7,50 | 109 | 69 | 10 | 59155 | 3,31 |
| 3,00 | 61 | 33 | 10 | 59115 | 1,19 | 8,00 | 117 | 75 | 10 | 59157 | 3,87 |
| 3,20 | 65 | 36 | 10 | 59118 | 1,45 | 8,50 | 117 | 75 | 5 | 59158 | 4,03 |
| 3,25 | 65 | 36 | 10 | 59121 | 1,45 | 9,00 | 125 | 81 | 5 | 59161 | 5,14 |
| 3,30 | 65 | 36 | 10 | 59124 | 1,45 | 9,50 | 125 | 81 | 5 | 59163 | 5,33 |
| 3,50 | 70 | 39 | 10 | 59127 | 1,44 | 10,00 | 133 | 87 | 5 | 59164 | 5,85 |
| 4,00 | 75 | 43 | 10 | 59131 | 1,55 | 10,20 | 133 | 87 | 1 | 59166 | 8,29 |
| 4,20 | 75 | 43 | 10 | 59133 | 1,62 | 10,50 | 133 | 87 | 1 | 59167 | 8,29 |
| 4,25 | 75 | 43 | 10 | 59134 | 1,62 | 11,00 | 142 | 94 | 1 | 59170 | 9,16 |
| 4,50 | 80 | 47 | 10 | 59137 | 1,67 | 11,50 | 142 | 94 | 1 | 59172 | 10,95 |
| 5,00 | 86 | 52 | 10 | 58831 | 1,75 | 12,00 | 151 | 101 | 1 | 59173 | 11,71 |
| 5,20 | 86 | 52 | 10 | 59139 | 2,09 | 12,50 | 151 | 101 | 1 | 59176 | 14,27 |
| 5,50 | 93 | 57 | 10 | 59140 | 2,22 | 13,00 | 151 | 101 | 1 | 59179 | 14,61 |
| 6,00 | 93 | 57 | 10 | 59145 | 2,37 | | | | | | |

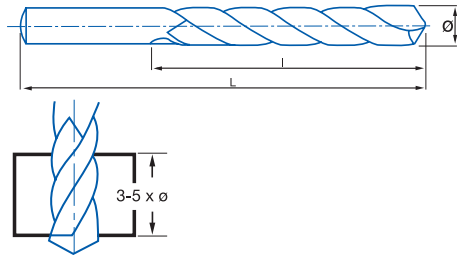
Ref. **1010**

BROCA MANGO CILÍNDRICO USO GENERAL HSS. SERIE CORTA

HSS General Purpose Straight Shank Twist Drill. Jobber Series
Foret Queue Cylindrique Utilisation Générale HSS. Serie Courte



| | | | | | | |
|-----|-----------|-----------|------|-------------|-----------------------------------|-----------|
| HSS | HSS + TIN | DIN 338 N | 118° | Blue Finish | Rectificado Ground / Taillé Meulé | Tol. D h8 |
|-----|-----------|-----------|------|-------------|-----------------------------------|-----------|



| Material | | Vc | | Avances mm/rev. Feed / Pas | | | | | | | | | |
|----------|------|-------|-------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Grupo | Sub. | HSS | TIN | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 20 |
| 1 | 1.1 | 25-30 | 30-35 | 0,045 | 0,055 | 0,070 | 0,080 | 0,100 | 0,120 | 0,150 | 0,160 | 0,180 | 0,250 |
| | 3.1 | 30-35 | 36-42 | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 | 0,360 |
| 3 | 3.2 | 25-30 | 30-36 | 0,050 | 0,070 | 0,080 | 0,100 | 0,120 | 0,140 | 0,170 | 0,200 | 0,240 | 0,280 |
| | 6.1 | 60-80 | 72-96 | 0,080 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 | 0,380 | 0,450 |
| 6 | 6.2 | 40-50 | 48-60 | 0,080 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 | 0,380 | 0,450 |
| | 6.3 | 40-50 | 48-60 | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 | 0,360 |

Vc= m/min.

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$



| D mm | L mm | I mm | IZAR | Nº Art. HSS | € | Nº Art. TIN | € | D mm | L mm | I mm | IZAR | Nº Art. HSS | € | Nº Art. TIN | € |
|------|------|------|------|-------------|------|-------------|------|------|------|------|------|-------------|------|-------------|------|
| 0,30 | 19 | 4 | 10 | 17996 | 1,64 | | | 2,20 | 53 | 28 | 10 | 10043 | 0,69 | 18338 | 1,56 |
| 0,35 | 19 | 4 | 10 | 17999 | 1,68 | | | 2,25 | 53 | 29 | 10 | 10046 | 0,64 | 18341 | 1,51 |
| 0,40 | 20 | 5 | 10 | 18002 | 1,64 | | | 2,30 | 53 | 30 | 10 | 10049 | 0,80 | 18344 | 1,67 |
| 0,45 | 20 | 5 | 10 | 18005 | 1,64 | | | 2,35 | 53 | 31 | 10 | 18080 | 0,80 | | |
| 0,50 | 22 | 6 | 10 | 18008 | 1,14 | | | 2,40 | 57 | 30 | 10 | 10052 | 0,80 | 18347 | 1,67 |
| 0,55 | 24 | 7 | 10 | 18011 | 1,46 | | | 2,45 | 57 | 30 | 10 | 18083 | 0,80 | | |
| 0,60 | 24 | 7 | 10 | 18014 | 1,46 | | | 2,50 | 57 | 30 | 10 | 10055 | 0,67 | 18350 | 1,57 |
| 0,65 | 26 | 8 | 10 | 18017 | 1,46 | | | 2,55 | 57 | 30 | 10 | 18086 | 0,82 | | |
| 0,70 | 28 | 9 | 10 | 18020 | 1,46 | | | 2,60 | 57 | 30 | 10 | 10058 | 0,82 | 18353 | 1,68 |
| 0,75 | 28 | 9 | 10 | 18023 | 1,06 | | | 2,65 | 57 | 30 | 10 | 18089 | 0,82 | | |
| 0,80 | 30 | 10 | 10 | 18026 | 1,09 | | | 2,70 | 61 | 33 | 10 | 10061 | 0,82 | 27166 | 1,68 |
| 0,85 | 30 | 10 | 10 | 18029 | 1,09 | | | 2,75 | 61 | 33 | 10 | 10064 | 0,70 | 18356 | 1,63 |
| 0,90 | 32 | 11 | 10 | 18032 | 1,09 | | | 2,80 | 61 | 33 | 10 | 10067 | 0,82 | 18359 | 1,68 |
| 0,95 | 32 | 11 | 10 | 18035 | 1,09 | | | 2,85 | 61 | 33 | 10 | 18092 | 0,82 | | |
| 1,00 | 34 | 12 | 10 | 10001 | 0,84 | 18305 | 1,72 | 2,90 | 61 | 33 | 10 | 10070 | 0,82 | 27088 | 1,68 |
| 1,05 | 34 | 12 | 10 | 18038 | 0,93 | | | 2,95 | 61 | 33 | 10 | 18095 | 0,82 | | |
| 1,10 | 36 | 14 | 10 | 10004 | 0,93 | 15056 | 1,75 | 3,00 | 61 | 33 | 10 | 10073 | 0,61 | 18362 | 1,48 |
| 1,15 | 36 | 14 | 10 | 18041 | 0,93 | | | 3,05 | 65 | 36 | 10 | 18098 | 0,79 | | |
| 1,20 | 38 | 16 | 10 | 10007 | 0,93 | 18308 | 1,75 | 3,10 | 65 | 36 | 10 | 10076 | 0,70 | 18365 | 1,87 |
| 1,25 | 38 | 16 | 10 | 10010 | 0,73 | 27087 | 1,63 | 3,15 | 65 | 36 | 10 | 27343 | 0,79 | 29078 | 1,91 |
| 1,30 | 38 | 16 | 10 | 10013 | 0,82 | 18311 | 1,68 | 3,20 | 65 | 36 | 10 | 10079 | 0,70 | 18368 | 1,87 |
| 1,35 | 40 | 18 | 10 | 18050 | 0,82 | | | 3,25 | 65 | 36 | 10 | 10082 | 0,70 | 18371 | 1,87 |
| 1,40 | 40 | 18 | 10 | 10016 | 0,82 | 27337 | 1,68 | 3,30 | 65 | 36 | 10 | 10085 | 0,70 | 18374 | 1,87 |
| 1,45 | 40 | 18 | 10 | 18053 | 0,82 | | | 3,35 | 65 | 36 | 10 | 27345 | 0,90 | | |
| 1,50 | 40 | 18 | 10 | 10019 | 0,64 | 18314 | 1,48 | 3,40 | 70 | 39 | 10 | 10088 | 0,91 | 27322 | 2,00 |
| 1,55 | 43 | 20 | 10 | 18059 | 0,79 | | | 3,45 | 70 | 39 | 10 | 27346 | 0,91 | | |
| 1,60 | 43 | 20 | 10 | 10022 | 0,79 | 18317 | 1,66 | 3,50 | 70 | 39 | 10 | 10091 | 0,69 | 18377 | 1,84 |
| 1,65 | 43 | 20 | 10 | 18062 | 0,79 | | | 3,55 | 70 | 39 | 10 | 18101 | 0,94 | | |
| 1,70 | 43 | 20 | 10 | 10025 | 0,79 | 18320 | 1,66 | 3,60 | 70 | 39 | 10 | 10094 | 0,94 | 27323 | 2,02 |
| 1,75 | 46 | 22 | 10 | 10028 | 0,70 | 18323 | 1,61 | 3,65 | 70 | 39 | 10 | 18104 | 0,94 | | |
| 1,80 | 46 | 22 | 10 | 10031 | 0,70 | 18326 | 1,57 | 3,70 | 70 | 39 | 10 | 10097 | 0,94 | 18380 | 2,02 |
| 1,85 | 46 | 22 | 10 | 18068 | 0,70 | | | 3,75 | 70 | 39 | 10 | 10100 | 0,80 | 18383 | 1,96 |
| 1,90 | 46 | 22 | 10 | 10034 | 0,70 | 18329 | 1,57 | 3,80 | 75 | 43 | 10 | 10103 | 0,97 | 18386 | 2,05 |
| 1,95 | 49 | 24 | 10 | 18071 | 0,70 | | | 3,85 | 75 | 43 | 10 | 18107 | 0,97 | | |
| 2,00 | 49 | 24 | 10 | 10037 | 0,61 | 18332 | 1,48 | 3,90 | 75 | 43 | 10 | 10106 | 0,97 | 27165 | 2,05 |
| 2,05 | 49 | 24 | 10 | 18074 | 0,69 | | | 3,95 | 75 | 43 | 10 | 18110 | 0,97 | | |
| 2,10 | 49 | 24 | 10 | 10040 | 0,69 | 18335 | 1,56 | 4,00 | 75 | 43 | 10 | 10109 | 0,78 | 18389 | 1,93 |
| 2,15 | 53 | 27 | 10 | 18077 | 0,69 | | | 4,05 | 75 | 43 | 10 | 27349 | 0,97 | | |

Ref. **1010**

BROCA MANGO CILÍNDRICO USO GENERAL HSS. SERIE CORTA

HSS General Purpose Straight Shank Twist Drill. Jobber Series

Foret Queue Cylindrique Utilisation Générale HSS. Serie Courte

| D mm | L mm | I mm |  | Nº Art. HSS | € | Nº Art. TIN | € | D mm | L mm | I mm |  | Nº Art. HSS | € | Nº Art. TIN | € |
|---------|---------|---------|---|----------------|------|----------------|------|---------|---------|---------|---|----------------|------|----------------|------|
| 4,10 | 75 | 43 | 10 | 10112 | 0,87 | 18392 | 2,00 | 7,10 | 109 | 69 | 10 | 10220 | 2,87 | 18491 | 5,76 |
| 4,15 | 75 | 43 | 10 | 27350 | 0,97 | | | 7,15 | 109 | 69 | 10 | 27364 | 2,87 | | |
| 4,20 | 75 | 43 | 10 | 10115 | 0,87 | 18395 | 2,00 | 7,20 | 109 | 69 | 10 | 10223 | 2,87 | 18494 | 5,76 |
| 4,25 | 75 | 43 | 10 | 10118 | 0,87 | 18398 | 2,00 | 7,25 | 109 | 69 | 10 | 10226 | 2,36 | 18497 | 5,37 |
| 4,30 | 80 | 47 | 10 | 10121 | 1,15 | 18401 | 2,22 | 7,30 | 109 | 69 | 10 | 10229 | 2,87 | 18500 | 5,76 |
| 4,35 | 80 | 47 | 10 | 18113 | 1,15 | | | 7,35 | 109 | 69 | 10 | 27365 | 2,87 | | |
| 4,40 | 80 | 47 | 10 | 10124 | 1,15 | 18404 | 2,22 | 7,40 | 109 | 69 | 10 | 10232 | 2,87 | 27150 | 5,76 |
| 4,45 | 80 | 47 | 10 | 18116 | 1,15 | | | 7,45 | 109 | 69 | 10 | 27366 | 2,94 | | |
| 4,50 | 80 | 47 | 10 | 10127 | 0,90 | 18407 | 2,03 | 7,50 | 109 | 69 | 10 | 10235 | 1,96 | 18503 | 5,01 |
| 4,55 | 80 | 47 | 10 | 27288 | 1,16 | | | 7,55 | 117 | 75 | 10 | 27369 | 3,40 | | |
| 4,60 | 80 | 47 | 10 | 10130 | 1,16 | 18410 | 2,24 | 7,60 | 117 | 75 | 10 | 10238 | 3,40 | 27313 | 6,31 |
| 4,65 | 80 | 47 | 10 | 27352 | 1,16 | | | 7,65 | 117 | 75 | 10 | 27368 | 3,40 | | |
| 4,70 | 80 | 47 | 10 | 10133 | 1,16 | 18413 | 2,24 | 7,70 | 117 | 75 | 10 | 10241 | 3,40 | 18506 | 6,31 |
| 4,75 | 80 | 47 | 10 | 10136 | 1,04 | 18416 | 2,16 | 7,75 | 117 | 75 | 10 | 10244 | 2,63 | 27272 | 5,71 |
| 4,80 | 86 | 52 | 10 | 10139 | 1,30 | 18419 | 2,37 | 7,80 | 117 | 75 | 10 | 10247 | 3,44 | 18509 | 6,33 |
| 4,85 | 86 | 52 | 10 | 18119 | 1,27 | | | 7,85 | 117 | 75 | 10 | 27370 | 3,44 | | |
| 4,90 | 86 | 52 | 10 | 10142 | 1,27 | 18422 | 2,33 | 7,90 | 117 | 75 | 10 | 10250 | 3,44 | 18512 | 6,33 |
| 4,95 | 86 | 52 | 10 | 18122 | 1,27 | | | 7,95 | 117 | 75 | 10 | 27372 | 3,44 | | |
| 5,00 | 86 | 52 | 10 | 10145 | 0,96 | 18425 | 2,07 | 8,00 | 117 | 75 | 10 | 10253 | 2,24 | 18515 | 5,27 |
| 5,05 | 86 | 52 | 10 | 18125 | 1,31 | | | 8,05 | 117 | 75 | 10 | 27373 | 3,50 | | |
| 5,10 | 86 | 52 | 10 | 10148 | 1,31 | 18428 | 2,36 | 8,10 | 117 | 75 | 10 | 10256 | 3,50 | 26675 | 6,93 |
| 5,15 | 86 | 52 | 10 | 27330 | 1,31 | | | 8,15 | 117 | 75 | 10 | 27374 | 3,50 | | |
| 5,20 | 86 | 52 | 10 | 10151 | 1,31 | 18431 | 2,36 | 8,20 | 117 | 75 | 10 | 10259 | 3,50 | 26678 | 6,93 |
| 5,25 | 86 | 52 | 10 | 10154 | 1,23 | 18434 | 2,34 | 8,25 | 117 | 75 | 10 | 10262 | 2,63 | 18518 | 6,24 |
| 5,30 | 86 | 52 | 10 | 10157 | 1,62 | 18437 | 2,67 | 8,30 | 117 | 75 | 10 | 10265 | 3,66 | 27311 | 7,08 |
| 5,35 | 93 | 57 | 10 | 18131 | 1,62 | | | 8,35 | 117 | 75 | 10 | 27376 | 3,66 | | |
| 5,40 | 93 | 57 | 10 | 10160 | 1,62 | 27292 | 2,67 | 8,40 | 117 | 75 | 10 | 10268 | 3,66 | 26681 | 7,08 |
| 5,45 | 93 | 57 | 10 | 27354 | 1,62 | | | 8,45 | 117 | 75 | 10 | 27377 | 3,66 | | |
| 5,50 | 93 | 57 | 10 | 10163 | 1,28 | 18440 | 2,39 | 8,50 | 117 | 75 | 10 | 10271 | 2,42 | 18521 | 5,96 |
| 5,55 | 93 | 57 | 10 | 27356 | 1,72 | | | 8,55 | 125 | 81 | 10 | 27378 | 4,59 | | |
| 5,60 | 93 | 57 | 10 | 10166 | 1,72 | 18443 | 2,78 | 8,60 | 125 | 81 | 10 | 10274 | 4,59 | 18524 | 7,97 |
| 5,65 | 93 | 57 | 10 | 18134 | 1,72 | | | 8,65 | 125 | 81 | 10 | 27379 | 4,59 | | |
| 5,70 | 93 | 57 | 10 | 10169 | 1,72 | 18446 | 2,78 | 8,70 | 125 | 81 | 10 | 10277 | 4,59 | 18527 | 7,97 |
| 5,75 | 93 | 57 | 10 | 10172 | 1,66 | 18449 | 2,76 | 8,75 | 125 | 81 | 10 | 10280 | 3,52 | 18530 | 7,09 |
| 5,80 | 93 | 57 | 10 | 10175 | 1,62 | 18452 | 2,67 | 8,80 | 125 | 81 | 10 | 10283 | 4,61 | 18533 | 7,98 |
| 5,85 | 93 | 57 | 10 | 27357 | 1,62 | | | 8,85 | 125 | 81 | 10 | 27381 | 4,61 | | |
| 5,90 | 93 | 57 | 10 | 10178 | 1,62 | 18455 | 2,67 | 8,90 | 125 | 81 | 10 | 10286 | 4,61 | 18536 | 7,98 |
| 5,95 | 93 | 57 | 10 | 27358 | 1,62 | | | 8,95 | 125 | 81 | 10 | 27383 | 4,61 | | |
| 6,00 | 93 | 57 | 10 | 10181 | 1,32 | 18458 | 2,42 | 9,00 | 125 | 81 | 10 | 10289 | 2,95 | 18539 | 6,45 |
| 6,05 | 101 | 63 | 10 | 27359 | 1,86 | | | 9,05 | 125 | 81 | 10 | 27382 | 4,64 | | |
| 6,10 | 101 | 63 | 10 | 10184 | 1,86 | 18461 | 4,81 | 9,10 | 125 | 81 | 10 | 10292 | 4,64 | 26684 | 8,01 |
| 6,15 | 101 | 63 | 10 | 27360 | 1,86 | | | 9,15 | 125 | 81 | 10 | 27385 | 4,64 | | |
| 6,20 | 101 | 63 | 10 | 10187 | 1,86 | 18464 | 4,81 | 9,20 | 125 | 81 | 10 | 10295 | 4,64 | 27553 | 8,01 |
| 6,25 | 101 | 63 | 10 | 10190 | 1,77 | 18467 | 4,81 | 9,25 | 125 | 81 | 10 | 10298 | 3,55 | 27273 | 7,12 |
| 6,30 | 101 | 63 | 10 | 10193 | 1,97 | 27324 | 4,88 | 9,30 | 125 | 81 | 10 | 10301 | 4,33 | 18542 | 7,71 |
| 6,35 | 101 | 63 | 10 | 27361 | 1,97 | | | 9,40 | 125 | 81 | 10 | 10304 | 4,33 | 27149 | 7,71 |
| 6,40 | 101 | 63 | 10 | 10196 | 2,02 | 18470 | 4,97 | 9,45 | 125 | 81 | 10 | 27387 | 4,33 | | |
| 6,45 | 101 | 63 | 10 | 18137 | 1,97 | | | 9,50 | 125 | 81 | 10 | 10307 | 3,21 | 18545 | 6,72 |
| 6,50 | 101 | 63 | 10 | 10199 | 1,53 | 18473 | 4,59 | 9,55 | 133 | 87 | 10 | 27389 | 5,54 | | |
| 6,55 | 101 | 63 | 10 | 18140 | 2,46 | | | 9,60 | 133 | 87 | 10 | 10310 | 5,54 | 26687 | 8,87 |
| 6,60 | 101 | 63 | 10 | 10202 | 2,46 | 18476 | 5,36 | 9,65 | 133 | 87 | 10 | 27390 | 5,54 | | |
| 6,65 | 101 | 63 | 10 | 27362 | 2,46 | | | 9,70 | 133 | 87 | 10 | 10313 | 5,54 | 27151 | 8,87 |
| 6,70 | 101 | 63 | 10 | 10205 | 2,46 | 27333 | 5,36 | 9,75 | 133 | 87 | 10 | 10316 | 4,01 | 18548 | 7,55 |
| 6,75 | 109 | 69 | 10 | 10208 | 1,85 | 18479 | 4,90 | 9,80 | 133 | 87 | 10 | 10319 | 5,43 | 18551 | 8,77 |
| 6,80 | 109 | 69 | 10 | 10211 | 1,85 | 18482 | 4,90 | 9,85 | 133 | 87 | 10 | 27391 | 5,43 | | |
| 6,85 | 109 | 69 | 10 | 18143 | 2,72 | | | 9,90 | 133 | 87 | 10 | 10322 | 5,43 | 18554 | 8,77 |
| 6,90 | 109 | 69 | 10 | 10214 | 2,72 | 18485 | 5,59 | 9,95 | 133 | 87 | 10 | 27393 | 5,43 | | |
| 6,95 | 109 | 69 | 10 | 27316 | 2,72 | | | 10,00 | 133 | 87 | 10 | 10325 | 3,46 | 18557 | 6,96 |
| 7,00 | 109 | 69 | 10 | 10217 | 1,85 | 18488 | 4,90 | 10,10 | 133 | 87 | 5 | 10328 | 4,64 | | |
| 7,05 | 109 | 69 | 10 | 27363 | 2,87 | | | 10,20 | 133 | 87 | 5 | 10331 | 4,31 | | |

BROCA MANGO CILÍNDRICO USO GENERAL HSS. SERIE CORTA

HSS General Purpose Straight Shank Twist Drill. Jobber Series
Foret Queue Cylindrique Utilisation Générale HSS. Serie Courte



| D mm | L mm | I mm | | Nº Art. HSS | € | Nº Art. TIN | € | D mm | L mm | I mm | | Nº Art. HSS | € | Nº Art. TIN | € |
|---------|---------|---------|---|----------------|-------|----------------|-------|---------|---------|---------|----|----------------|-------|----------------|-------|
| 10,25 | 133 | 87 | 5 | 10334 | 4,83 | 27274 | 12,31 | 13,90 | 160 | 108 | 1 | 10451 | 13,89 | | |
| 10,30 | 133 | 87 | 5 | 10337 | 5,41 | 29151 | 12,59 | 14,00 | 160 | 108 | 1 | 10454 | 10,34 | 29007 | 19,91 |
| 10,40 | 133 | 87 | 5 | 10340 | 5,41 | | | 14,10 | 169 | 114 | 1 | 18179 | 14,80 | | |
| 10,50 | 133 | 87 | 5 | 10343 | 4,31 | 18563 | 11,53 | 14,20 | 169 | 114 | 1 | 18185 | 14,80 | | |
| 10,60 | 133 | 87 | 5 | 10346 | 5,95 | 29154 | 12,80 | 14,25 | 169 | 114 | 1 | 10457 | 12,12 | 29194 | 21,61 |
| 10,70 | 142 | 94 | 5 | 10349 | 5,95 | | | 14,30 | 169 | 114 | 1 | 18188 | 15,08 | | |
| 10,75 | 142 | 94 | 5 | 10352 | 5,59 | 27277 | 12,74 | 14,40 | 169 | 114 | 1 | 18191 | 15,08 | | |
| 10,80 | 142 | 94 | 5 | 10355 | 6,60 | 29157 | 13,43 | 14,50 | 169 | 114 | 1 | 10460 | 11,14 | 29198 | 20,66 |
| 10,90 | 142 | 94 | 5 | 10358 | 6,60 | | | 14,60 | 169 | 114 | 1 | 18194 | 15,35 | | |
| 11,00 | 142 | 94 | 5 | 10361 | 5,04 | 18566 | 12,21 | 14,70 | 169 | 114 | 1 | 18197 | 15,35 | | |
| 11,10 | 142 | 94 | 5 | 10364 | 6,72 | | | 14,75 | 169 | 114 | 1 | 10463 | 12,12 | 29202 | 21,61 |
| 11,20 | 142 | 94 | 5 | 10367 | 6,72 | | | 14,80 | 169 | 114 | 1 | 18200 | 14,80 | | |
| 11,25 | 142 | 94 | 5 | 10370 | 5,70 | 26801 | 12,84 | 14,90 | 169 | 114 | 1 | 18203 | 14,80 | | |
| 11,30 | 142 | 94 | 5 | 10373 | 6,60 | | | 15,00 | 169 | 114 | 1 | 10466 | 11,27 | 29205 | 20,80 |
| 11,40 | 142 | 94 | 5 | 10376 | 6,60 | | | 15,20 | 178 | 120 | 1 | 18209 | 19,44 | | |
| 11,50 | 142 | 94 | 5 | 10379 | 5,38 | 18569 | 12,54 | 15,25 | 178 | 120 | 1 | 10469 | 16,54 | 29209 | 25,83 |
| 11,60 | 142 | 94 | 5 | 10382 | 6,60 | | | 15,50 | 178 | 120 | 1 | 10472 | 13,18 | 29213 | 22,63 |
| 11,70 | 142 | 94 | 5 | 10385 | 6,60 | | | 15,60 | 178 | 120 | 1 | 18218 | 22,74 | | |
| 11,75 | 142 | 94 | 5 | 10388 | 5,70 | 27275 | 12,84 | 15,70 | 178 | 120 | 1 | 18221 | 22,74 | | |
| 11,80 | 142 | 94 | 5 | 10391 | 7,22 | | | 15,75 | 178 | 120 | 1 | 10475 | 16,76 | | |
| 11,90 | 151 | 101 | 5 | 10394 | 7,22 | | | 15,80 | 178 | 120 | 1 | 18224 | 21,23 | | |
| 12,00 | 151 | 101 | 5 | 10397 | 5,99 | 18572 | 13,12 | 15,90 | 178 | 120 | 1 | 18227 | 21,23 | | |
| 12,10 | 151 | 101 | 5 | 10400 | 8,43 | 29169 | 16,98 | 16,00 | 178 | 120 | 1 | 10478 | 13,73 | 29220 | 23,14 |
| 12,20 | 151 | 101 | 5 | 10403 | 8,43 | | | 16,20 | 184 | 125 | 1 | 27289 | 29,05 | | |
| 12,25 | 151 | 101 | 5 | 10406 | 7,43 | 18578 | 16,38 | 16,25 | 184 | 125 | 1 | 10481 | 24,70 | | |
| 12,30 | 151 | 101 | 5 | 10409 | 7,93 | | | 16,50 | 184 | 125 | 1 | 10484 | 15,97 | | |
| 12,40 | 151 | 101 | 5 | 10412 | 7,93 | | | 16,75 | 184 | 125 | 1 | 10487 | 25,81 | | |
| 12,50 | 151 | 101 | 5 | 10415 | 6,58 | 18581 | 15,55 | 16,80 | 184 | 125 | 1 | 27676 | 39,02 | | |
| 12,60 | 151 | 101 | 5 | 10418 | 8,23 | | | 17,00 | 184 | 125 | 1 | 10490 | 15,97 | | |
| 12,70 | 151 | 101 | 5 | 10421 | 8,23 | | | 17,25 | 191 | 130 | 1 | 10493 | 26,80 | | |
| 12,75 | 151 | 101 | 5 | 10424 | 7,32 | 27276 | 16,28 | 17,50 | 191 | 130 | 1 | 10496 | 18,36 | | |
| 12,80 | 151 | 101 | 5 | 10427 | 9,18 | | | 17,75 | 191 | 130 | 1 | 10499 | 29,68 | | |
| 12,90 | 151 | 101 | 5 | 10430 | 9,18 | | | 18,00 | 191 | 130 | 1 | 10502 | 19,42 | | |
| 13,00 | 151 | 101 | 5 | 10433 | 6,81 | 18584 | 15,79 | 18,25 | 198 | 135 | 1 | 10505 | 29,11 | | |
| 13,10 | 151 | 101 | 1 | 10436 | 9,38 | | | 18,50 | 198 | 135 | 1 | 10508 | 21,56 | | |
| 13,20 | 151 | 101 | 1 | 18164 | 9,38 | | | 18,75 | 198 | 135 | 1 | 10511 | 29,95 | | |
| 13,25 | 160 | 108 | 1 | 10439 | 10,70 | 29180 | 20,26 | 19,00 | 198 | 135 | 1 | 10514 | 21,56 | | |
| 13,30 | 160 | 108 | 1 | 18167 | 14,52 | | | 19,25 | 205 | 140 | 1 | 10517 | 39,17 | | |
| 13,40 | 160 | 108 | 1 | 18170 | 14,52 | | | 19,50 | 205 | 140 | 1 | 10520 | 23,12 | | |
| 13,50 | 160 | 108 | 1 | 10442 | 9,64 | 29184 | 19,24 | 19,75 | 205 | 140 | 1 | 10523 | 38,00 | | |
| 13,60 | 160 | 108 | 1 | 18173 | 14,52 | | | 20,00 | 205 | 140 | 10 | 10526 | 26,34 | | |
| 13,70 | 160 | 108 | 1 | 10445 | 14,52 | | | | | | | | | | |
| 13,75 | 160 | 108 | 1 | 10448 | 10,85 | | | | | | | | | | |
| 13,80 | 160 | 108 | 1 | 18176 | 13,89 | | | | | | | | | | |

Ref. **1013**

BROCA MANGO CILÍNDRICO AGUZADA. SERIE CORTA

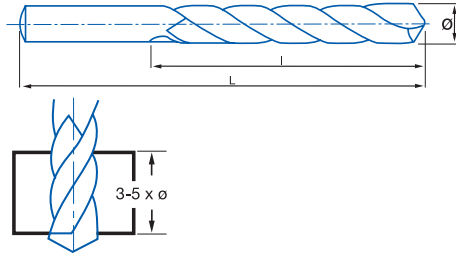
Split Point Straight Shank Twist Drill. Jobber Series

Foret Queue Cylindrique Affutage en Croix. Serie Courte



SPEED POINT

| | | | | | | | | |
|-----|---------------|-----------|------|-------------------|-------------------------------------|---------------------------------|-------------------|-----------|
| HSS | HSS + TIALSIN | DIN 338 N | 130° | DIN 1412 C ≥ 2 mm | Blanca Bright Finish Finition Blanc | Rectificado Ground Taillé Meulé | Chapa Sheets Tôle | Tol. D h8 |
|-----|---------------|-----------|------|-------------------|-------------------------------------|---------------------------------|-------------------|-----------|



| Material | | Vc | | Avances mm/rev. Feed / Pas | | | | | | | | |
|----------|------|-------|---------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Grupo | Sub. | HSS | TIALSIN | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 |
| 1 | 1.1 | 25-30 | 33-40 | 0,045 | 0,055 | 0,070 | 0,080 | 0,100 | 0,120 | 0,150 | 0,160 | 0,180 |
| | 3.1 | 30-35 | 40-45 | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 |
| 3 | 3.2 | 25-30 | 33-40 | 0,050 | 0,070 | 0,080 | 0,100 | 0,120 | 0,140 | 0,170 | 0,200 | 0,240 |
| | 6.1 | 60-80 | 80-105 | 0,080 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 | 0,380 |
| 6 | 6.2 | 60-80 | 80-105 | 0,080 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 | 0,380 |
| | 6.3 | 40-50 | 50-65 | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 |

Vc= m/min.

r.p.m. = $\frac{Vc \times 1.000}{\pi \times \phi}$



| D mm | L mm | I mm | Icon | N° Art. HSS | € | N° Art. TIALSIN | € | D mm | L mm | I mm | Icon | N° Art. HSS | € | N° Art. TIALSIN | € |
|------|------|------|------|-------------|------|-----------------|------|------|------|------|------|-------------|------|-----------------|------|
| 1,00 | 34 | 12 | 10 | 17673 | 0,95 | 37620 | 2,24 | 4,25 | 75 | 43 | 10 | 10777 | 0,97 | | |
| 1,10 | 36 | 14 | 10 | 10650 | 1,04 | | | 4,30 | 80 | 47 | 10 | 10779 | 1,30 | | |
| 1,20 | 38 | 16 | 10 | 10656 | 1,04 | | | 4,40 | 80 | 47 | 10 | 10780 | 1,30 | | |
| 1,30 | 38 | 16 | 10 | 10662 | 0,92 | | | 4,50 | 80 | 47 | 10 | 10782 | 1,00 | 37627 | 2,73 |
| 1,40 | 40 | 18 | 10 | 10663 | 0,92 | | | 4,60 | 80 | 47 | 10 | 10783 | 1,32 | | |
| 1,50 | 40 | 18 | 10 | 10666 | 0,70 | 37621 | 2,01 | 4,70 | 80 | 47 | 10 | 10786 | 1,32 | | |
| 1,60 | 43 | 20 | 10 | 10669 | 0,88 | | | 4,75 | 80 | 47 | 10 | 10787 | 1,17 | | |
| 1,70 | 43 | 20 | 10 | 10670 | 0,88 | | | 4,80 | 86 | 52 | 10 | 10789 | 1,44 | | |
| 1,75 | 46 | 22 | 10 | 10671 | 0,79 | | | 4,90 | 86 | 52 | 10 | 10792 | 1,42 | | |
| 1,80 | 46 | 22 | 10 | 10672 | 0,78 | | | 5,00 | 86 | 52 | 10 | 10793 | 1,08 | 17442 | 2,81 |
| 1,90 | 46 | 22 | 10 | 10674 | 0,78 | | | 5,10 | 86 | 52 | 10 | 10795 | 1,45 | | |
| 2,00 | 49 | 24 | 10 | 10675 | 0,67 | 37497 | 1,96 | 5,20 | 86 | 52 | 10 | 10797 | 1,45 | | |
| 2,10 | 49 | 24 | 10 | 10677 | 0,77 | | | 5,25 | 86 | 52 | 10 | 10798 | 1,39 | | |
| 2,20 | 53 | 27 | 10 | 13596 | 0,77 | | | 5,30 | 86 | 52 | 10 | 10799 | 1,82 | | |
| 2,25 | 53 | 27 | 10 | 10679 | 0,70 | | | 5,40 | 93 | 57 | 10 | 10800 | 1,82 | | |
| 2,30 | 53 | 27 | 10 | 13608 | 0,91 | | | 5,50 | 93 | 57 | 10 | 10801 | 1,43 | 37628 | 3,16 |
| 2,40 | 57 | 30 | 10 | 10683 | 0,91 | | | 5,60 | 93 | 57 | 10 | 10802 | 1,91 | | |
| 2,50 | 57 | 30 | 10 | 10684 | 0,75 | 37622 | 2,05 | 5,70 | 93 | 57 | 10 | 10804 | 1,91 | | |
| 2,60 | 57 | 30 | 10 | 10685 | 0,92 | | | 5,75 | 93 | 57 | 10 | 10807 | 1,87 | | |
| 2,70 | 61 | 33 | 10 | 10686 | 0,92 | | | 5,80 | 93 | 57 | 10 | 10808 | 1,82 | | |
| 2,75 | 61 | 33 | 10 | 10687 | 0,78 | | | 5,90 | 93 | 57 | 10 | 10810 | 1,82 | | |
| 2,80 | 61 | 33 | 10 | 10690 | 0,92 | | | 6,00 | 93 | 57 | 10 | 10811 | 1,47 | 32677 | 3,21 |
| 2,90 | 61 | 33 | 10 | 10692 | 0,92 | | | 6,10 | 101 | 63 | 10 | 10813 | 2,10 | | |
| 3,00 | 61 | 33 | 10 | 10693 | 0,67 | 37623 | 1,96 | 6,20 | 101 | 63 | 10 | 10814 | 2,10 | | |
| 3,10 | 65 | 36 | 10 | 10695 | 0,78 | | | 6,25 | 101 | 63 | 10 | 10815 | 1,97 | | |
| 3,20 | 65 | 36 | 10 | 10696 | 0,78 | 32571 | 2,51 | 6,30 | 101 | 63 | 10 | 10816 | 2,21 | | |
| 3,25 | 65 | 36 | 10 | 10698 | 0,78 | | | 6,40 | 101 | 63 | 10 | 10819 | 2,25 | | |
| 3,30 | 65 | 36 | 10 | 10699 | 0,78 | 37624 | 2,51 | 6,50 | 101 | 63 | 10 | 10822 | 1,72 | 36558 | 6,52 |
| 3,40 | 70 | 39 | 10 | 10701 | 1,01 | | | 6,60 | 101 | 63 | 10 | 11145 | 2,76 | | |
| 3,50 | 70 | 39 | 10 | 10702 | 0,77 | 37625 | 2,50 | 6,70 | 101 | 63 | 10 | 11154 | 2,76 | | |
| 3,60 | 70 | 39 | 10 | 10704 | 1,05 | | | 6,75 | 109 | 69 | 10 | 11157 | 2,09 | | |
| 3,70 | 70 | 39 | 10 | 10705 | 1,05 | | | 6,80 | 109 | 69 | 10 | 11163 | 2,09 | 37629 | 6,89 |
| 3,75 | 70 | 39 | 10 | 10708 | 0,91 | | | 6,90 | 109 | 69 | 10 | 11166 | 3,03 | | |
| 3,80 | 75 | 43 | 10 | 10710 | 1,10 | | | 7,00 | 109 | 69 | 10 | 11172 | 2,09 | 36559 | 6,89 |
| 3,90 | 75 | 43 | 10 | 10719 | 1,10 | | | 7,10 | 109 | 69 | 10 | 11175 | 3,23 | | |
| 4,00 | 75 | 43 | 10 | 10770 | 0,87 | 32572 | 2,60 | 7,20 | 109 | 69 | 10 | 13066 | 3,23 | | |
| 4,10 | 75 | 43 | 10 | 10774 | 0,97 | | | 7,25 | 109 | 69 | 10 | 11184 | 2,64 | | |
| 4,20 | 75 | 43 | 10 | 10776 | 0,97 | 36557 | 2,69 | 7,30 | 109 | 69 | 10 | 11190 | 3,23 | | |

Ref. **1013****BROCA MANGO CILÍNDRICO AGUZADA. SERIE CORTA**

Split Point Straight Shank Twist Drill. Jobber Series

Foret Queue Cylindrique Affutage en Croix. Serie Courte



| D mm | L mm | I mm |  | N° Art. HSS | € | N° Art. TIALSIN | € | D mm | L mm | I mm |  | N° Art. HSS | € | N° Art. TIALSIN | € |
|---------|---------|---------|---|----------------|------|--------------------|------|---------|---------|---------|--|----------------|-------|--------------------|-------|
| 7,40 | 109 | 69 | 10 | 11202 | 3,23 | | | 9,60 | 133 | 87 | 5 | 11318 | 6,20 | | |
| 7,50 | 109 | 69 | 10 | 11217 | 2,19 | 37630 | 6,99 | 9,70 | 133 | 87 | 5 | 13440 | 6,20 | | |
| 7,60 | 117 | 75 | 10 | 14362 | 3,81 | | | 9,75 | 133 | 87 | 5 | 11321 | 4,52 | | |
| 7,70 | 117 | 75 | 10 | 11226 | 3,81 | | | 9,80 | 133 | 87 | 5 | 11322 | 6,11 | | |
| 7,75 | 117 | 75 | 10 | 11229 | 2,94 | | | 9,90 | 133 | 87 | 5 | 11323 | 6,11 | | |
| 7,80 | 117 | 75 | 10 | 11230 | 3,85 | | | 10,00 | 133 | 87 | 5 | 11324 | 3,87 | 36147 | 9,43 |
| 7,90 | 117 | 75 | 10 | 11251 | 3,85 | | | 10,10 | 133 | 87 | 5 | 22341 | 5,20 | | |
| 8,00 | 117 | 75 | 10 | 11268 | 2,51 | 36560 | 7,31 | 10,20 | 133 | 87 | 5 | 17648 | 4,83 | 37633 | 15,65 |
| 8,10 | 117 | 75 | 5 | 11269 | 3,92 | | | 10,30 | 133 | 87 | 5 | 17506 | 6,07 | | |
| 8,20 | 117 | 75 | 5 | 11287 | 3,92 | | | 10,50 | 133 | 87 | 5 | 17613 | 4,83 | 38088 | 15,65 |
| 8,25 | 117 | 75 | 5 | 11290 | 2,94 | | | 10,70 | 142 | 94 | 5 | 22342 | 6,66 | | |
| 8,30 | 117 | 75 | 5 | 11297 | 4,10 | | | 11,00 | 142 | 94 | 5 | 13783 | 5,64 | 37635 | 16,45 |
| 8,40 | 117 | 75 | 5 | 11302 | 4,10 | | | 11,50 | 142 | 94 | 5 | 17609 | 6,04 | 37636 | 16,85 |
| 8,50 | 117 | 75 | 5 | 11303 | 2,72 | 37498 | 8,27 | 11,70 | 142 | 94 | 5 | 19657 | 7,40 | | |
| 8,60 | 125 | 81 | 5 | 11304 | 5,15 | | | 12,00 | 151 | 101 | 5 | 17611 | 6,72 | 37637 | 17,54 |
| 8,70 | 125 | 81 | 5 | 11305 | 5,15 | | | 12,30 | 151 | 101 | 5 | 22343 | 8,89 | | |
| 8,75 | 125 | 81 | 5 | 11306 | 3,95 | | | 12,50 | 151 | 101 | 5 | 17615 | 7,36 | 37638 | 21,00 |
| 8,80 | 125 | 81 | 5 | 11307 | 5,18 | | | 12,70 | 151 | 101 | 5 | 17081 | 9,24 | | |
| 8,90 | 125 | 81 | 5 | 11308 | 5,18 | | | 13,00 | 151 | 101 | 5 | 16556 | 7,64 | 36556 | 21,28 |
| 9,00 | 125 | 81 | 5 | 11310 | 3,31 | 37631 | 8,87 | 13,50 | 160 | 108 | 1 | 22833 | 10,82 | | |
| 9,10 | 125 | 81 | 5 | 14378 | 5,20 | | | 14,00 | 160 | 108 | 1 | 19224 | 11,61 | | |
| 9,20 | 125 | 81 | 5 | 14304 | 5,20 | | | 14,50 | 169 | 114 | 1 | 24941 | 12,48 | | |
| 9,25 | 125 | 81 | 5 | 11313 | 4,00 | | | 15,00 | 169 | 114 | 1 | 19227 | 12,63 | | |
| 9,30 | 125 | 81 | 5 | 14305 | 4,84 | | | 16,00 | 178 | 120 | 1 | 22306 | 15,39 | | |
| 9,40 | 125 | 81 | 5 | 13007 | 4,84 | | | | | | | | | | |
| 9,50 | 125 | 81 | 5 | 11317 | 3,60 | 37632 | 9,16 | | | | | | | | |

Ref. **1012**

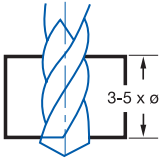
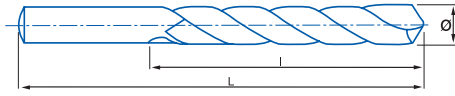
BROCA MANGO CILÍNDRICO COBRE/LATÓN. SERIE CORTA

Copper/Brass Straight Shank Twist Drill. Jobber Series

Foret Queue Cylindrique Cuivre/Laiton. Serie Courte



| | | | | | | | | |
|-----|-----------|------|--|--|--|---|---------------------------------------|--------------|
| HSS | DIN 338 H | 118° | | | | Blanca Bright Finish Finition Blanc | Rectificado Ground Taillé Meulé | Tol. D h8 |
|-----|-----------|------|--|--|--|---|---------------------------------------|--------------|



| Material | | Vc | Avances mm/rev. Feed / Pas | | | | | | | | | |
|----------|------|-------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| Grupo | Sub. | HSS | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | |
| 5 | 5.1 | 30-40 | 0,050 | 0,070 | 0,080 | 0,100 | 0,120 | 0,140 | 0,170 | 0,200 | 0,240 | |
| | 5.2 | | 0,060 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 | |

Vc= m/min.

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$

| D mm | L mm | I mm | | Nº Art. HSS | € |
|---------|---------|---------|----|----------------|------|
| 1,00 | 34 | 12 | 10 | 10586 | 2,19 |
| 1,25 | 38 | 16 | 10 | 27590 | 2,47 |
| 1,50 | 40 | 18 | 10 | 10589 | 2,17 |
| 2,00 | 49 | 24 | 10 | 10592 | 1,96 |
| 2,25 | 53 | 27 | 10 | 18908 | 2,29 |
| 2,50 | 57 | 30 | 10 | 10595 | 1,98 |
| 2,75 | 61 | 33 | 10 | 18917 | 2,69 |
| 3,00 | 61 | 33 | 10 | 10598 | 2,19 |
| 3,25 | 65 | 36 | 10 | 18932 | 2,69 |
| 3,50 | 70 | 39 | 10 | 10601 | 2,35 |
| 3,75 | 70 | 39 | 10 | 18941 | 3,49 |
| 4,00 | 75 | 43 | 10 | 10604 | 2,56 |
| 4,25 | 75 | 43 | 10 | 18953 | 3,80 |
| 4,50 | 80 | 47 | 10 | 10607 | 3,13 |
| 4,75 | 80 | 47 | 10 | 18968 | 4,27 |
| 5,00 | 86 | 52 | 10 | 10610 | 3,39 |
| 5,25 | 86 | 52 | 10 | 18977 | 5,11 |
| 5,50 | 93 | 57 | 10 | 10613 | 4,12 |
| 5,75 | 93 | 57 | 10 | 18980 | 6,26 |
| 6,00 | 93 | 57 | 10 | 10616 | 4,46 |
| 6,25 | 101 | 63 | 10 | 18986 | 6,26 |
| 6,50 | 101 | 63 | 10 | 10619 | 4,97 |
| 6,75 | 109 | 69 | 10 | 18998 | 7,54 |
| 7,00 | 109 | 69 | 10 | 10622 | 5,24 |

| D mm | L mm | I mm | | Nº Art. HSS | € |
|---------|---------|---------|----|----------------|-------|
| 7,25 | 109 | 69 | 10 | 19013 | 9,98 |
| 7,50 | 109 | 69 | 10 | 10625 | 6,17 |
| 8,00 | 117 | 75 | 10 | 10628 | 6,56 |
| 8,25 | 117 | 75 | 10 | 19031 | 12,30 |
| 8,50 | 117 | 75 | 10 | 10631 | 7,61 |
| 9,00 | 125 | 81 | 10 | 10634 | 8,01 |
| 9,50 | 125 | 81 | 10 | 10637 | 9,38 |
| 10,00 | 133 | 87 | 10 | 10640 | 9,78 |
| 10,50 | 133 | 87 | 5 | 10643 | 11,72 |
| 11,00 | 142 | 94 | 5 | 10646 | 13,08 |
| 11,50 | 142 | 94 | 5 | 10649 | 15,82 |
| 12,00 | 151 | 101 | 5 | 10652 | 17,05 |
| 12,50 | 151 | 101 | 5 | 10655 | 19,33 |
| 13,00 | 151 | 101 | 5 | 10658 | 20,72 |
| 14,00 | 160 | 108 | 1 | 18863 | 31,63 |
| 14,50 | 169 | 114 | 1 | 46846 | 45,42 |
| 15,00 | 169 | 114 | 1 | 54158 | 46,76 |
| 16,00 | 178 | 120 | 1 | 46847 | 49,71 |
| 16,50 | 184 | 125 | 1 | 46848 | 51,12 |
| 17,00 | 184 | 125 | 1 | 46849 | 52,69 |
| 18,00 | 191 | 130 | 1 | 54159 | 55,93 |
| 18,50 | 198 | 135 | 1 | 46851 | 57,40 |
| 19,00 | 198 | 135 | 1 | 46852 | 59,20 |
| 20,00 | 205 | 140 | 1 | 46850 | 62,50 |

Ref. **1007**

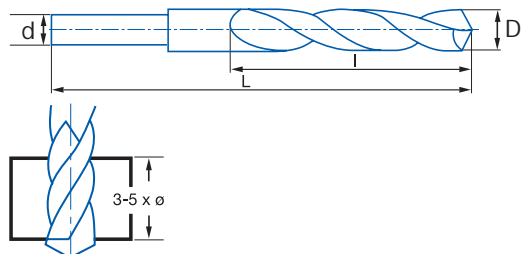
BROCA MANGO REBAJADO HSS. SERIE CORTA

HSS Reduced Shank Twist Drill. Jobber Series

Foret Queue Réduit HSS. Serie Courte



| | | | | | | | | | |
|-----|-----------|------|--|--|--|-------------|------------------------------------|-------|-----------|
| HSS | DIN 338 N | 118° | | | | Blue Finish | Rectificado Ground Taillé Meulé | 30 mm | Tol. D h8 |
|-----|-----------|------|--|--|--|-------------|------------------------------------|-------|-----------|



| Material | | Vc | Avances mm/rev. Feed / Pas | | | |
|----------|------|-------|----------------------------|-------|-------|-------|
| Grupo | Sub. | HSS | Ø 12 | Ø 16 | Ø 20 | Ø 25 |
| 1 | 1.1 | 25-30 | 0,160 | 0,180 | 0,250 | 0,430 |
| | 3.1 | 30-35 | 0,250 | 0,300 | 0,360 | 0,360 |
| 3 | 3.2 | 25-30 | 0,200 | 0,240 | 0,280 | 0,340 |
| | 6.1 | 60-80 | 0,320 | 0,380 | 0,450 | 0,540 |
| 6 | 6.2 | 60-80 | 0,320 | 0,380 | 0,450 | 0,540 |
| | 6.3 | 40-50 | 0,250 | 0,300 | 0,360 | 0,430 |

Vc= m/min.

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$

| D mm | d mm | L mm | l mm | | N° Art. HSS | € |
|-------|-------|------|------|---|-------------|-------|
| 10,50 | 10,00 | 133 | 87 | 1 | 15976 | 6,42 |
| 11,00 | 10,00 | 142 | 94 | 1 | 15977 | 7,26 |
| 11,50 | 10,00 | 142 | 94 | 1 | 15978 | 7,68 |
| 12,00 | 10,00 | 151 | 101 | 1 | 15979 | 8,37 |
| 12,50 | 10,00 | 151 | 101 | 1 | 15980 | 9,08 |
| 13,00 | 10,00 | 151 | 101 | 1 | 15981 | 9,33 |
| 13,50 | 12,70 | 160 | 108 | 1 | 15982 | 12,62 |
| 14,00 | 12,70 | 160 | 108 | 1 | 15984 | 13,40 |
| 14,50 | 12,70 | 169 | 114 | 1 | 15985 | 14,31 |
| 15,00 | 12,70 | 169 | 114 | 1 | 15987 | 14,46 |
| 15,50 | 12,70 | 178 | 120 | 1 | 15988 | 16,67 |
| 16,00 | 12,70 | 178 | 120 | 1 | 15989 | 17,29 |
| 16,50 | 12,70 | 184 | 125 | 1 | 15990 | 19,39 |
| 17,00 | 12,70 | 184 | 125 | 1 | 15991 | 19,39 |

| D mm | d mm | L mm | l mm | | N° Art. HSS | € |
|-------|-------|------|------|---|-------------|-------|
| 17,50 | 12,70 | 191 | 130 | 1 | 15992 | 22,06 |
| 18,00 | 12,70 | 191 | 130 | 1 | 15993 | 23,23 |
| 18,50 | 12,70 | 198 | 135 | 1 | 15994 | 25,62 |
| 19,00 | 12,70 | 198 | 135 | 1 | 15995 | 25,62 |
| 19,50 | 12,70 | 205 | 140 | 1 | 15996 | 27,92 |
| 20,00 | 12,70 | 205 | 140 | 1 | 15997 | 32,17 |
| 21,00 | 12,70 | 205 | 145 | 1 | 17071 | 34,03 |
| 22,00 | 12,70 | 210 | 150 | 1 | 17072 | 37,53 |
| 23,00 | 12,70 | 210 | 150 | 1 | 36364 | 41,06 |
| 24,00 | 12,70 | 220 | 160 | 1 | 36365 | 45,30 |
| 25,00 | 12,70 | 220 | 160 | 1 | 36366 | 49,40 |

Ref. **1025**

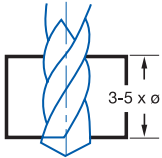
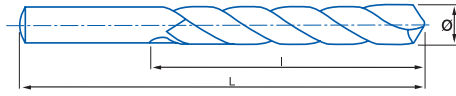
BROCA MANGO CILÍNDRICO CORTE IZQUIERDA. SERIE CORTA

Left Hand Straight Shank Twist Drill. Jobber Series

Foret Queue Cylindrique Coupe à Gauche



| | | | | | | | | |
|-----|-----------|--|--|--|--|-------------|------------------------------------|-----------|
| HSS | DIN 338 N | | | | | Blue Finish | Rectificado Ground Taillé Meulé | Tol. D h8 |
|-----|-----------|--|--|--|--|-------------|------------------------------------|-----------|



| Material | | Vc | Avances mm/rev. Feed / Pas | | | | | |
|----------|------|-------|----------------------------|-------|-------|-------|-------|-------|
| Grupo | Sub. | HSS | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 |
| 1 | 1.1 | 25-30 | 0,055 | 0,070 | 0,080 | 0,100 | 0,120 | 0,150 |
| | 3.1 | 30-35 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 |
| 3 | 3.2 | 25-30 | 0,070 | 0,080 | 0,100 | 0,120 | 0,140 | 0,170 |
| | 6.1 | 60-80 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 |
| 6 | 6.2 | 60-80 | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 |
| | 6.3 | 40-50 | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 |

Vc= m/min.

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$

| D mm | L mm | I mm | | Nº Art. HSS | € |
|---------|---------|---------|----|----------------|-------|
| 3,00 | 61 | 33 | 10 | 10569 | 2,22 |
| 3,50 | 70 | 39 | 10 | 11121 | 2,59 |
| 4,00 | 75 | 43 | 10 | 11566 | 2,92 |
| 4,50 | 80 | 47 | 10 | 11811 | 3,32 |
| 5,00 | 86 | 52 | 10 | 11817 | 3,60 |
| 5,50 | 93 | 57 | 10 | 11820 | 4,77 |
| 6,00 | 93 | 57 | 10 | 12001 | 4,92 |
| 6,50 | 101 | 63 | 10 | 12330 | 5,73 |
| 7,00 | 109 | 69 | 10 | 12336 | 6,95 |
| 7,50 | 109 | 69 | 10 | 12339 | 7,32 |
| 8,00 | 117 | 75 | 10 | 12345 | 8,37 |
| 8,50 | 117 | 75 | 10 | 12348 | 9,04 |
| 9,00 | 125 | 81 | 10 | 12399 | 11,00 |
| 9,50 | 125 | 81 | 10 | 12408 | 12,00 |
| 10,00 | 133 | 87 | 10 | 12417 | 12,91 |