

## 6. BROCAS

### 6.1 Brocas de Diamantes Impregnados

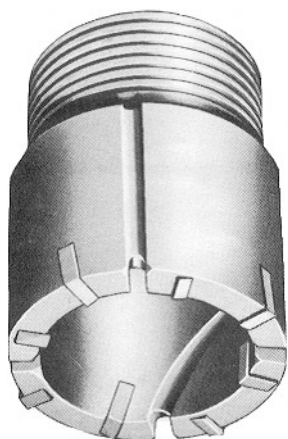


Es fácil de afilar, puede perforar con menos agua, facilita la perforación a cualquier combinación de parámetros. Es un a broca suave adecuada para formaciones duras a muy duras y pulidas.

| Rock Type  | Tipos Rochas  | Rock Characteristics  | Atlas Copco          | Boart Long-year            | CND. Hooffman   | Craelius           | Diaset        | Dimatec            | Fordia                   | Pilot              | American Diamond Tool      |
|--|---|---|----------------------|----------------------------|-----------------|--------------------|---------------|--------------------|--------------------------|--------------------|----------------------------|
| Chert<br>Jasperite<br>Glassy<br>Quartzite<br>Rhyolite                | Chert<br>Jaspelito<br>Quartzito<br>silicificado<br>Riólito          | Extremely Hard<br>Non-abrasive<br>Very fine Grained<br>Competent                          | 14-15<br>or<br>12-14 | SERIES<br>10               | H10<br>or<br>H9 | SS<br>or<br>KS     | HR60          | MX12<br>or<br>MX10 | SHARK<br>10              | 10-G<br>WHITE      | 1410<br>12A0<br>10A0       |
| Diorite<br>Granite<br>Gneiss<br>Quartzite                            | Diorito<br>Granito<br>Gnaise<br>Quartzito                           | Very Hard<br>Non-abrasive<br>Fine Grained<br>Competent                                    | 10<br>9<br>or<br>8   | SERIES<br>9<br>SERIES<br>8 | H9<br>or<br>H8  | KS                 | HR40          | GX8                | SHARK 9<br>or<br>SHARK 8 | 146<br>GOLD        | 9A0<br>8A0<br>8-D2         |
| Granite<br>Pegmatite<br>Quartz<br>Silicified Vol-<br>canics<br>Skarn | Granito<br>Pegmatito<br>Quartzo<br>Rocha<br>vulc. Silicif.<br>Skarn | Hard<br>Moderately Abrasive<br>Fine to Medium Grain<br>Competent to Fractured             | 8<br>or<br>7         | SERIES<br>8                | H8<br>or<br>H7  | KX(C8)<br>or<br>KM | 8<br>or<br>8F | GX7                | SHARK 7                  | 146<br>GOLD        | 8-D2<br>8A0<br>7A0<br>7-AA |
| Basalt<br>Diorite<br>Diabase<br>Gabbro                               | Basalto<br>Diorito<br>Diabásio<br>Gabro                             | Medium Hard<br>Moderately Abrasive<br>Medium to Coarse<br>Grain<br>Competent to Fractured | 7<br>or<br>6         | SERIES<br>7<br>SERIES<br>6 | H7<br>or<br>H6  | KH                 | 7             | MX7<br>or<br>MX6   | SHARK 6                  | 10A<br>SIL-<br>VER | 6-E4<br>6A0<br>5A0         |
| Dolomite<br>Weathered<br>Granite<br>Serpentine<br>Peridotite         | Dolomito<br>Granito<br>alterado<br>Serpentinito<br>Peridotito       | Medium Soft<br>Abrasive<br>Medium to Coarse<br>Grain<br>Competent to Fractured            | 4<br>or<br>3         | SERIES<br>2                | H6<br>or<br>H5  | HM                 | 6             | MX4                | SHARK 2                  | 115<br>BLUE        | 4A0                        |
| Conglomerates<br>Hard Shales<br>Limestone<br>Sandstone               | Conglomerados<br>Xistos Duros<br>Calcarío<br>Arenito                | Very Abrasive<br>Coarse Grain<br>Highly Fractured<br>Abrasive                             | 2<br>or<br>1         | SERIES<br>1                | H2<br>or<br>H1  | HH                 | 4             | MX2                | SHARK 1                  | P-67<br>BLACK      | 2A0<br>1A0                 |

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### 6.2 Brocas de Diamante Montado



| Tamaño | No. de Tiras | O.D.  |      | Peso |      | No. de Parte |
|--------|--------------|-------|------|------|------|--------------|
|        |              | Inch. | mm.  | lb.  | kg.  |              |
| EWM    | 3            | 1.485 | 37.7 | 0.6  | 0.23 | 002017       |
| AWM    | 4            | 1.89  | 48   | 0.9  | 0.34 | 002018       |
| BWM    | 4            | 2.36  | 59.9 | 1    | 0.45 | 002019       |
| NWM    | 4            | 2.98  | 75.7 | 1.4  | 0.62 | 002020       |

| Tubo Sencilo |              |      |      |
|--------------|--------------|------|------|
| Tamaño       | No. de Parte | Peso |      |
|              |              | lb.  | Kg.  |
| EWG          | 180389-01    | 0.4  | 0.23 |
| AWG          | 180389-02    | 0.75 | 0.34 |
| BWG          | 180389-03    | 1.1  | 0.49 |
| NWG          | 180389-04    | 1.9  | 0.65 |

| Tubo Doble |              |      |      |
|------------|--------------|------|------|
| Tamaño     | No. de Parte | Peso |      |
|            |              | lb.  | Kg.  |
| EWM        | 180390-01    | 0.5  | 0.23 |
| AWM        | 180390-02    | 1    | 0.45 |
| BWM        | 180390-03    | 1.25 | 0.56 |
| NWM        | 180390-04    | 1.9  | 0.73 |

| Diseño Flush |              |               |      |      |
|--------------|--------------|---------------|------|------|
| Tamaño       | No. de Parte | No. de Zapata | Peso |      |
|              |              |               | lb.  | Kg.  |
| EW           | 180393-02    | 180392-02     | 0.4  | 0.23 |
| AW           | 180393-03    | 180392-03     | 0.6  | 0.26 |
| BW           | 180393-04    | 180392-04     | 1.2  | 0.54 |
| NW           | 180393-05    | 180392-05     | 1.6  | 0.74 |
| HW           | 180393-06    | 180392-06     | 2    | 0.91 |

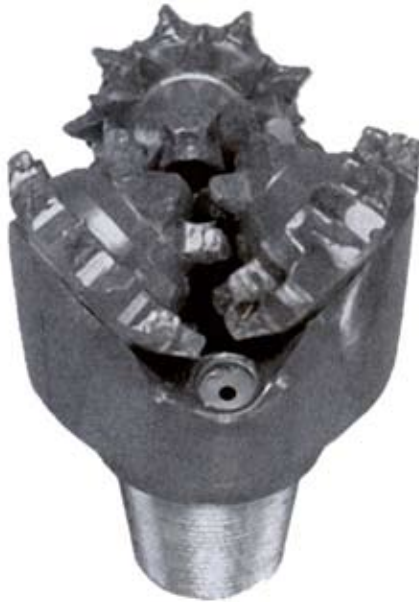
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### 6.3 Brocas Triconicas Dientes de Acero



| Tipo Cono |     |         |         |           |      |      |              |
|-----------|-----|---------|---------|-----------|------|------|--------------|
| Diámetro  |     | 2-Conos | 3-Conos | ROD       | Peso |      | No. de Parte |
| Inch.     | mm. |         |         |           | lb.  | mm   |              |
| 2 7/8     | 73  | -       | D       | NW        | 3    | 1.5  | 006728       |
| 2 15/16   | 75  | -       | D       | NW        | 3    | 1.5  | 006729       |
| 3 1/8     | 79  | -       | D       | NW        | 4    | 1.8  | 006730       |
| 3 1/4     | 83  | -       | D       | NW        | 5    | 2.3  | 006731       |
| 3 1/2     | 89  | -       | D       | 2 3/8 API | 4    | 1.8  | 005746       |
| 3 3/4     | 95  | -       | D       | 2 3/8 API | 6    | 2.7  | 001525       |
| 3 7/8     | 98  | -       | D       | 2 3/8 API | 6    | 2.7  | 005747       |
| 4 1/4     | 108 | A       | -       | 2 3/8 API | 8    | 3.6  | 005748       |
| 4 1/4     | 108 | -       | D       | 2 3/8 API | 9    | 4.1  | 001526       |
| 4 1/2     | 114 | A       | -       | 2 3/8 API | 8    | 3.6  | 005749       |
| 4 1/2     | 114 | -       | D       | 2 3/8 API | 10   | 4.5  | 005750       |
| 4 3/4     | 121 | A       | -       | 2 7/8 API | 11   | 5.0  | 005751       |
| 4 3/4     | 121 | -       | D       | 2 7/8 API | 14   | 6.4  | 001527       |
| 5 5/8     | 143 | -       | D       | 3 1/2 API | 21   | 9.5  | 001528       |
| 6 1/4     | 159 | -       | D       | 3 1/2 API | 26   | 11.8 | 001529       |

## 6. BROCAS



**FORMACIONES:** Calizas blandas, arcillas, lutitas blandas, arcillas esquistosas blandas y otras formaciones de relativamente baja resistencia a la compresión.

**RESISTENCIA A LA COMPRESIÓN** 500 to 2,000 psi

**VELOCIDAD DE ROTACIÓN** 80 to 150 rpm.

**CON CIRCULACION A CHORRO** tamaños 5 1/8" y mayores

**PESO SOBRE BARRENA:**(en libras por pulgada de diámetro de barrena.)

4 1/2" a 4 3/4" 1,000 a 3,000 lbs.

5" a 9" 2,000 a 4,000 lbs.

9 5/8" a 12 1/4" 2,000 a 6,000 lbs.

**DIENTES DE CALIBRE** Tipo "A"

**CARACTERISTICAS:** Dientes largos y delgados muy espaciados. Todos los dientes llevan recubrimiento de material duro. Alto grado de penetración por acción sesgada de los conos.



**FORMACIONES:** Medias de mayor dureza que para el tipo V2, tales como calizas semi-duras, dolomitas, pizarras, etc.

**RESISTENCIA A LA COMPRESIÓN** 4,000 a 10,000 psi

**VELOCIDAD DE ROTACIÓN** 40 to 90 rpm.

**CON CIRCULACION A CHORRO** 5 1/8" y mayor

**PESO SOBRE BARRENA:**(en libras por pulgada de diámetro de barrena.)

2 7/8" a 4 3/4" 2,000 a 4,000 lbs.

5" a 9" 2,000 a 5,000 lbs.

9 5/8" a 22" 2,000 a 6,000 lbs.

**DIENTES DE CALIBRE** Tipo "T"

**CARACTERISTICAS:** Dientes robustos moderadamente espaciados con material duro en uno de los flancos. Diseño de conos medio sesgados. Dientes de calibre en forma de "T" para mayor protección de esta superficie.

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### 6.4 Brocas Triconicas con Insetos de Tungsteno (TCI)



| Diámetro |     | ROD       | Peso |      | Líquido de vaciado |                |                | Aire de vaciado |                |                |
|----------|-----|-----------|------|------|--------------------|----------------|----------------|-----------------|----------------|----------------|
| pulg.    | mm. |           | lb.  | Kg.  | Cinzel             | Cúpula mediana | Cúpula pequeña | Cinzel          | Cúpula mediana | Cúpula pequeña |
| 2 15/16  | 75  | NW        | 3    | 1.4  | 180379-01          | 180380-01      | 180381-01      | 180382-01       | 180383-01      | 180384-01      |
| 3        | 76  | NW        | 3    | 1.4  | 180379-02          | 180380-02      | 180381-02      | 180382-02       | 180383-02      | 180384-02      |
| 3 1/8    | 79  | NW        | 4    | 1.8  | 180379-03          | 180380-03      | 180381-03      | 180382-03       | 180383-03      | 180384-03      |
| 3 1/4    | 83  | NW        | 4    | 1.8  | 180379-04          | 180380-04      | 180381-04      | 180382-04       | 180383-04      | 180384-04      |
| 3 1/2    | 89  | 2 3/8 API | 4    | 1.8  | 180379-05          | 180380-05      | 180381-05      | 180382-05       | 180383-05      | 180384-05      |
| 3 3/4    | 95  | 2 3/8 API | 6    | 2.7  | 180379-06          | 180380-06      | 180381-06      | 180382-06       | 180383-06      | 180384-06      |
| 3 7/8    | 98  | 2 3/8 API | 6    | 2.7  | 180379-07          | 180380-07      | 180381-07      | 180382-07       | 180383-07      | 180384-07      |
| 4        | 102 | 2 3/8 API | 8    | 3.6  | 180379-08          | 180380-08      | 180381-08      | 180382-08       | 180383-08      | 180384-08      |
| 4 1/8    | 105 | 2 3/8 API | 8    | 3.6  | 180379-09          | 180380-09      | 180381-09      | 180382-09       | 180383-09      | 180384-09      |
| 4 1/4    | 108 | 2 3/8 API | 9    | 4.1  | 180379-10          | 180380-10      | 180381-10      | 180382-10       | 180383-10      | 180384-10      |
| 4 1/2    | 114 | 2 3/8 API | 9    | 4.1  | 180379-11          | 180380-11      | 180381-11      | 180382-11       | 180383-11      | 180384-11      |
| 4 3/4    | 121 | 2 7/8 API | 11   | 5.0  | 180379-12          | 180380-12      | 180381-12      | 180382-12       | 180383-12      | 180384-12      |
| 4 7/8    | 124 | 2 7/8 API | 14   | 6.4  | 180379-13          | 180380-13      | 180381-13      | 180382-13       | 180383-13      | 180384-13      |
| 5        | 127 | 2 7/8 API | 19   | 8.7  | 180379-14          | 180380-14      | 180381-14      | 180382-14       | 180383-14      | 180384-14      |
| 5 1/8    | 130 | 2 7/8 API | 21   | 9.5  | 180379-15          | 180380-15      | 180381-15      | 180382-15       | 180383-15      | 180384-15      |
| 5 5/8    | 143 | 3 1/2 API | 22   | 10.0 | 180379-16          | 180380-16      | 180381-16      | 180382-16       | 180383-16      | 180384-16      |
| 6        | 152 | 3 1/2 API | 23   | 10.4 | 180379-17          | 180380-17      | 180381-17      | 180382-17       | 180383-17      | 180384-17      |
| 6 1/8    | 156 | 3 1/2 API | 24   | 10.9 | 180379-18          | 180380-18      | 180381-18      | 180382-18       | 180383-18      | 180384-18      |
| 6 1/4    | 159 | 3 1/2 API | 26   | 11.8 | 180379-19          | 180380-19      | 180381-19      | 180382-19       | 180383-19      | 180384-19      |

## 6. BROCAS



**FORMACIONES:** Demasiado duras como ser horsteno, taconita, hermatita y otras rocas de extremada resistencia.

**RESISTENCIA A LA COMPRESIÓN** más de 20,000 psi

**VELOCIDAD DE ROTACIÓN** 35 a 60 rpm.

**CON CIRCULACION A CHORRO** 7 7/8" y mayor

**PESO SOBRE BARRENA:** (en libras por pulgada de diámetro de barrena.)

7 7/8" a 9" 4,000 a 7,000 lbs.

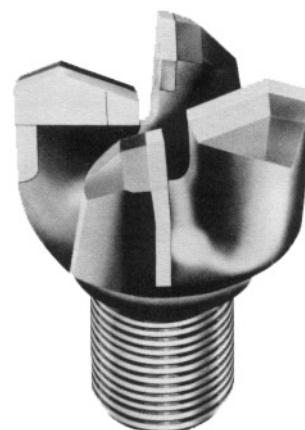
9 5/8" a 15" 5,000 a 9,000 lbs.

**CALIBRE** Tipo QMC

**CARACTERISTICAS:** Todos los insertos son de forma ovoide y están distribuidos-sobre la superficie del cono de tal manera de darle la mayor protección posible tanto en la nariz del cono, como en la superficie que corta la pared del pozo.

## 6. BROCAS

### 6.5 Brocas Drag



| CS de 3 Vías Tipo Chevron |           |      |      |              |
|---------------------------|-----------|------|------|--------------|
| Tamaño                    | ROD       | Peso |      | No. de Parte |
|                           |           | lb.  | Kg.  |              |
| 2"                        | AW        | 1.5  | .7   | 005725       |
| 2 1/4"                    | AW        | 2.3  | 1.0  | 005726       |
| 2 1/2"                    | AW        | 2.75 | 1.3  | 005727       |
| 2 3/4"                    | AW        | 3.5  | 1.6  | 005728       |
| 3"                        | NW        | 4    | 1.8  | 006720       |
| 3 1/4"                    | NW        | 5    | 2.3  | 006721       |
| 3 1/2"                    | NW        | 5.5  | 2.5  | 006722       |
| 3 3/4"                    | NW        | 6    | 2.7  | 006723       |
| 4"                        | 2 3/8 API | 6.5  | 3.0  | 005733       |
| 4 1/4"                    | 2 3/8 API | 7    | 3.2  | 005734       |
| 4 1/2"                    | 2 3/8 API | 7.5  | 3.4  | 005735       |
| 4 3/4"                    | 2 3/8 API | 9    | 4.1  | 006650       |
| 5"                        | 2 3/8 API | 14   | 6.4  | 006651       |
| 5 1/4"                    | 3 1/2 API | 15.5 | 7.0  | 006652       |
| 5 1/2"                    | 3 1/2 API | 17   | 7.7  | 006653       |
| 5 5/8"                    | 3 1/2 API | 18   | 8.2  | 006654       |
| 6"                        | 3 1/2 API | 19   | 8.6  | 006655       |
| 6 1/8"                    | 3 1/2 API | 20   | 9.1  | 006656       |
| 6 1/4"                    | 3 1/2 API | 21   | 9.5  | 006657       |
| 6 1/2"                    | 3 1/2 API | 22   | 10.0 | 006658       |

| CB de 4 Vías Tipo Chevron |           |      |      |              |
|---------------------------|-----------|------|------|--------------|
| Tamaño                    | ROD       | Peso |      | No. de Parte |
|                           |           | lb.  | Kg.  |              |
| 2"                        | AW        | 1.8  | .8   | 005708       |
| 2 1/4"                    | AW        | 2.5  | 1.1  | 005709       |
| 2 1/2"                    | AW        | 3    | 1.4  | 005710       |
| 2 3/4"                    | AW        | 3.8  | 1.7  | 005711       |
| 3"                        | NW        | 4.5  | 2.0  | 006724       |
| 3 1/4"                    | NW        | 5.5  | 2.5  | 006725       |
| 3 1/2"                    | NW        | 6    | 2.7  | 006726       |
| 3 3/4"                    | NW        | 6.5  | 3.0  | 006727       |
| 4"                        | 2 3/8 API | 7.5  | 3.4  | 005716       |
| 4 1/4"                    | 2 3/8 API | 9    | 4.1  | 005717       |
| 4 1/2"                    | 2 3/8 API | 10   | 4.5  | 005718       |
| 4 3/4"                    | 2 3/8 API | 11   | 5.0  | 006661       |
| 5"                        | 2 3/8 API | 17   | 7.7  | 006662       |
| 5 1/4"                    | 3 1/2 API | 19   | 8.6  | 006663       |
| 5 1/2"                    | 3 1/2 API | 19   | 8.6  | 006664       |
| 5 5/8"                    | 3 1/2 API | 20   | 9.1  | 006665       |
| 6"                        | 3 1/2 API | 21   | 9.5  | 006666       |
| 6 1/8"                    | 3 1/2 API | 22   | 10.0 | 006667       |
| 6 1/4"                    | 3 1/2 API | 23   | 10.4 | 006668       |
| 6 1/2"                    | 3 1/2 API | 24   | 10.9 | 006669       |

## 6. BROCAS



CC DE 3 VIAS TIPO STEP

Estas barrenas de acero forjado con cuchillas de una pieza de carburo de tungsteno con usadas principalmente en exploración. El tipo CC es para formaciones suaves mientras que el tipo CD se utiliza en formaciones algo más duras. Las barrenas de cuchillas pueden suministrarse con aberturas para aire o agua en los siguientes tamaños:

CC DE 3 VIAS: 3 7/8" a 5 1/8" (98.4mm a 130.2 mm)

CS DE 3 VIAS: 4 1/4" a 5 5/8" (108.0 mm a 142.9 mm)

Tamaños mayores, disponibles con pedido especial.

La barrera de cuchillas tipo CB es usada generalmente en minería y construcción para perforar en formaciones de media dureza.

DISPONIBILIDAD:

CB DE 3 VIAS: 1 5/8" a 2 7/8" (41.3 mm a 73.0mm)

CB DE 4 VIAS: 3" a 4" (76.2 mm a 101.6 mm)



| Dedos      |      |      |     |                    |        |             |               |
|------------|------|------|-----|--------------------|--------|-------------|---------------|
| Tamaño     | PIN  | Peso |     | Parte de la Cabeza | W/BITS | No. de BITS | D-P BIT PUNCH |
|            |      | lb.  | Kg. |                    |        |             |               |
| 4 1/2"     | AWML | 8    | 3.6 | 006290             | 004627 | 5           | 004626        |
| (114.3 MM) |      |      |     |                    |        |             |               |
| 6"         | AWML | 16   | 7.3 | 006292             | 004627 | 5           | 004626        |
| (152.4MM)  |      |      |     |                    |        |             |               |
| 4 1/2"     | NWML | 9    | 4.1 | 006291             | 004627 | 7           | 004626        |
| (114.3MM)  |      |      |     |                    |        |             |               |
| 6"         | NWML | 17   | 7.7 | 006293             | 004627 | 7           | 004626        |
| (152.4MM)  |      |      |     |                    |        |             |               |