



## ***High Speed Steel Bi-Metal Hole Saws***

### ***Instructions***

Constructed with the highest grade of steel with M42 Bi-Metal Construction, with 8% industrial grade cobalt content for longer life than traditional M3 Bi-Metal Hole Saws. The High Speed Steel Bi-Metal Hole Saws offer:

- Reduce cutting time with 1-7/8" depth of cut.
- Solid back plate for cleaner, truer holes and longer tool life.
- Unique fleem ground teeth geometry resulting in improved performance and efficient chip removal.
- 4/6 variable tooth configuration for faster cutting and longer life.
- Diamond side provides quick plug removal, available on 7/8 in. to 6 in. hole saws
- Cat eye openings on solid back plate provide line of sight and aid in plug removal, available on 2 in. to 6 in. hole saws.

### **Safety First!**

- Always wear eye protection when using this product.
- Wear appropriate working clothes and shoes as needed.
- Wear hearing protection while using this product.
- Utilize a cap to keep long hair away from moving drill.
- Reduce pressure when hole saw is close to drilling through object. Be cautious of foot position as substrates may be hot once ejected from hole saw.
- When alternating hole saw sizes, disconnect power to drill and allow hole saw to cool down before touching hole saw.
- Do not touch object or pick up chips immediately after cutting as high heat is generated that can cause a burn.
- Do not modify hole saw for any other purpose. Any inappropriate modification of the hole saw may cause an accident and result in personal injury.

### **Guidelines for Best Hole Saw Operation**

- Choose the appropriate size of hole saw as per application and cutting edge.
- Choose drill with adjustable speed function to avoid damage on cutting edge.
- Ensure pilot bit and arbor are firmly attached to drill. Drive pins should be fully engaged in drive pin holes.
- Pilot bit should extend at a minimum anywhere from 3/16" to 1/4" from end of tooth points - enough to establish and hold center.

- Keep hole saw vertical with cutting object when in use in corded or cordless drill.
- For best performance, follow the recommended RPM based on selected material per table below.
- If drilling through metal, we highly recommend the use of good grade of cutting oil to assure cleaner cut and extend the life of the hole saw.
- Do not turn off power during drilling. Sudden loss of power may cause damage to the cutting edge of hole saw.
- When drilling with larger hole saw reduce your drilling force and drilling speed.
- Operator should feed the saw in and out to allow for material shavings to clear out of hole being cut.

### Pipe Tap & Pipe Entrance References







Pipe taps are leveraged for threading holes created by bi-metal hole saws to receive a threaded pipe. Reference the product charts for proper selection of bi-metal hole saw for pipe tap.

Pipe entrance is the diameter for the hole through which the pipe of given diameter will pass through during installation or repair.

Pipe size is defined as the inside diameter.

Tubing size is defined by the outside diameter. To cut an entrance hole of a given tubing diameter, the same diameter hole saw should be used.

### Bi-Metal Hole Saw Operating Speeds (RPM Table)

| Diameter |    | Pipe Tap Diameter |    | Pipe Entrance Diameter |    |  |  |  |  |  |  |
|----------|----|-------------------|----|------------------------|----|---|---|---|---|---|---|
| Inches   | MM | Inches            | MM | Inches                 | MM | Mild Steel  | Tool S.S.   | Cast Iron   | Brass   | Aluminum  | Wood  |
| 9/16     | 14 |                   |    |                        |    | 580   | 300   | 400   | 790   | 900   | 3000  |
| 5/8      | 16 |                   |    |                        |    | 550   | 275   | 365   | 730   | 825   | 3000  |
| 11/16    | 17 |                   |    |                        |    | 500   | 250   | 330   | 665   | 750   | 3000  |
| 3/4      | 19 | 1/2               | 13 | 3/8                    | 10 | 460   | 230   | 300   | 600   | 690   | 3000  |
| 13/16    | 21 |                   |    |                        |    | 390   | 195   | 260   | 520   | 585   | 3000  |
| 7/8      | 22 | 3/4               | 19 | 1/2                    | 13 | 390   | 195   | 260   | 520   | 585   | 3000  |
| 15/16    | 24 |                   |    |                        |    | 350   | 175   | 235   | 470   | 525   | 2700  |
| 1        | 25 |                   |    |                        |    | 350   | 175   | 235   | 470   | 525   | 2700  |
| 1-1/16   | 27 |                   |    |                        |    | 325   | 160   | 215   | 435   | 480   | 2700  |

| Diameter |    | Pipe Tap Diameter |    | Pipe Entrance Diameter |    | Mild Steel | Tool S.S. | Cast Iron | Brass | Aluminum | Wood |
|----------|----|-------------------|----|------------------------|----|------------|-----------|-----------|-------|----------|------|
| Inches   | MM | Inches            | MM | Inches                 | MM |            |           |           |       |          |      |
| 1-1/4    | 32 |                   |    |                        |    | 275        | 140       | 180       | 360   | 410      | 2400 |
| 1-5/16   | 33 |                   |    |                        |    | 260        | 135       | 175       | 345   | 390      | 2400 |
| 1-3/8    | 35 |                   |    |                        |    | 250        | 125       | 165       | 330   | 375      | 2400 |
| 1-7/16   | 37 |                   |    |                        |    | 240        | 120       | 160       | 315   | 360      | 2400 |
| 1-1/2    | 38 | 1-1/4             | 32 |                        |    | 230        | 115       | 150       | 300   | 345      | 2400 |
| 1-9/16   | 40 |                   |    |                        |    | 220        | 110       | 145       | 290   | 330      | 2100 |
| 1-5/8    | 41 |                   |    |                        |    | 210        | 105       | 140       | 280   | 315      | 2100 |
| 1-11/16  | 43 |                   |    |                        |    | 205        | 100       | 135       | 270   | 305      | 2100 |
| 1-3/4    | 44 | 1-1/2             | 38 | 1-1/4                  | 32 | 195        | 95        | 130       | 260   | 295      | 2100 |
| 1-13/16  | 46 |                   |    |                        |    | 190        | 95        | 125       | 250   | 285      | 2100 |
| 1-7/8    | 48 |                   |    |                        |    | 180        | 90        | 120       | 240   | 270      | 2100 |
| 2        | 51 |                   |    | 1-1/2                  | 38 | 170        | 85        | 115       | 230   | 255      | 2000 |
| 2-1/16   | 52 |                   |    |                        |    | 165        | 80        | 110       | 220   | 245      | 2000 |
| 2-1/8    | 54 |                   |    |                        |    | 160        | 80        | 105       | 210   | 240      | 2000 |
| 2-1/4    | 57 | 2                 | 51 |                        |    | 150        | 75        | 100       | 200   | 225      | 2000 |
| 2-5/16   | 59 |                   |    |                        |    | 145        | 75        | 95        | 195   | 225      | 2000 |
| 2-3/8    | 60 |                   |    |                        |    | 140        | 70        | 90        | 190   | 220      | 2000 |
| 2-1/2    | 64 |                   |    | 2                      | 51 | 135        | 65        | 85        | 180   | 205      | 1850 |
| 2-9/16   | 65 |                   |    |                        |    | 130        | 65        | 85        | 175   | 200      | 1850 |
| 2-5/8    | 67 | 2-1/2             | 64 |                        |    | 130        | 65        | 85        | 170   | 195      | 1800 |
| 2-3/4    | 70 |                   |    |                        |    | 125        | 60        | 80        | 160   | 185      | 1800 |
| 2-7/8    | 73 |                   |    |                        |    | 120        | 60        | 75        | 160   | 180      | 1800 |
| 3        | 76 |                   |    | 2-1/2                  | 64 | 115        | 55        | 70        | 150   | 170      | 1800 |
| 3-1/8    | 79 |                   |    |                        |    | 110        | 55        | 70        | 140   | 165      | 1500 |
| 3-1/4    | 83 | 3                 | 76 |                        |    | 105        | 50        | 65        | 140   | 155      | 1500 |

| Diameter |     | Pipe Tap Diameter |     | Pipe Entrance Diameter |     | Mild Steel | Tool S.S. | Cast Iron | Brass | Aluminum | Wood |
|----------|-----|-------------------|-----|------------------------|-----|------------|-----------|-----------|-------|----------|------|
| Inches   | MM  | Inches            | MM  | Inches                 | MM  |            |           |           |       |          |      |
| 3-5/8    | 92  |                   |     | 3                      | 76  | 90         | 45        | 60        | 120   | 140      | 1200 |
| 3-3/4    | 95  | 3-1/2             | 89  |                        |     | 90         | 45        | 60        | 120   | 135      | 1200 |
| 3-7/8    | 98  |                   |     |                        |     | 90         | 45        | 60        | 120   | 135      | 1200 |
| 4        | 102 |                   |     |                        |     | 85         | 40        | 55        | 110   | 130      | 1000 |
| 4-1/8    | 104 |                   |     | 3-1/2                  | 89  | 80         | 40        | 55        | 110   | 120      | 1000 |
| 4-1/4    | 108 | 4                 | 102 |                        |     | 80         | 40        | 55        | 110   | 120      | 900  |
| 4-3/8    | 111 |                   |     |                        |     | 80         | 40        | 50        | 100   | 120      | 900  |
| 4-1/2    | 114 |                   |     |                        |     | 75         | 35        | 50        | 100   | 105      | 900  |
| 4-3/4    | 121 | 4-1/2             | 114 | 4                      | 102 | 75         | 35        | 50        | 92    | 95       | 900  |
| 5        | 127 |                   |     |                        |     | 65         | 30        | 45        | 90    | 90       | 800  |
| 5-1/2    | 140 |                   |     | 5                      | 127 | 60         | 25        | 40        | 85    | 85       | 800  |
| 5-3/4    | 146 |                   |     |                        |     | 55         | 25        | 35        | 75    | 75       | 800  |
| 6        | 152 |                   |     |                        |     | 55         | 25        | 35        | 75    | 75       | 800  |



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