



# 760 Tapping Machine

Sizes: 3" through 16" Model 760B



T. D. Williamson, Inc.

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## ■ 760 Tapping Machine

### Description

Tapping machines are used for making connections to pipelines, tanks, and plant piping without shutdown and are used to make hot taps in preparation for plugging machine application.

Model 760B Tapping Machines can be either air or hydraulically operated and are used for making pipe and tank taps from 3" to 16" (DN 80 to DN 400). Its maximum working pressure is 1,480 psi (100 bar) at 100°F (38°C). Its operating temperature is -20°F (-29°C) to 700°F (371°C) at 700 psi (48 bar) for intermittent service. Its maximum continuous rating is 350°F (177°C) at 1,025 psi (48 bar).

This model features a split frame for lower maintenance costs and ease of packing replacement.

### Features

The basic machine includes:

- Lower-in crank
- Measuring rod
- Retainer rod pusher
- Ring gasket
- Bleeder valve and nipple
- Motor adapter
- Set of bolts and nuts
- LOCK-O-RING® bypass gauge

### Options\*

T. D. Williamson, Inc., is committed to providing you with the exact product to assist you in planning, budgeting and meeting the specifications for your individual application needs. The following options are available:

- Model 760B Tapping Machine can be either air or hydraulically operated.

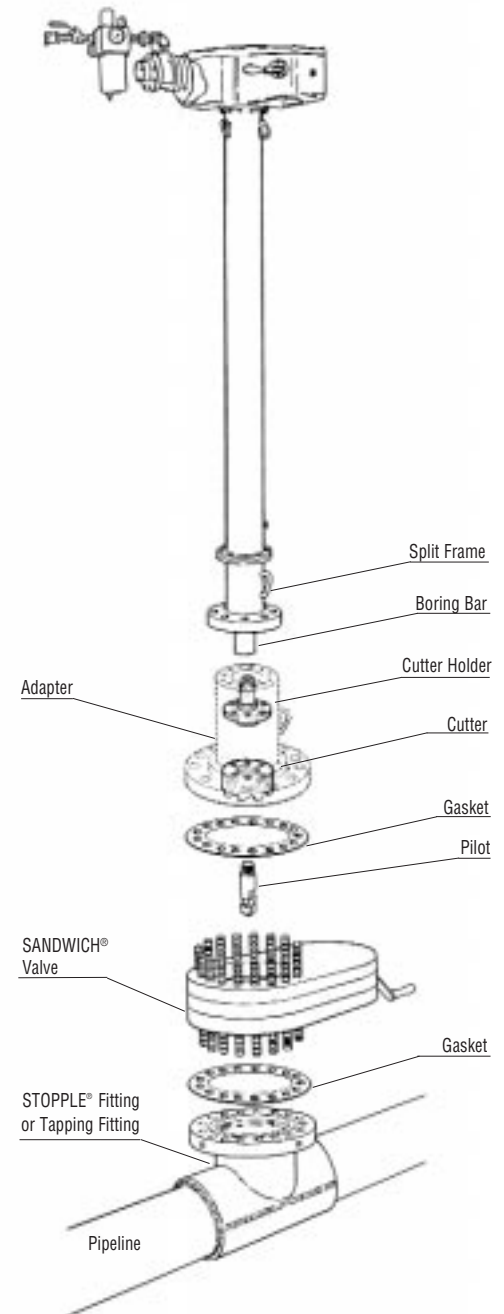
\* For design code options not listed and additional sizes, consult your sales representative.

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## ■ Typical Tapping Setup





T. D. Williamson, Inc.

## Dimensions and Part Numbers

# 760 Tapping Machine *Model 760B*

### Operating Specifications

|                              |   |
|------------------------------|---|
| Boring Bar Travel            | 66" (1,676 mm)  |
| Tank Taps*                   | 3" through 14" (80-350 mm)  |
| Pipe Taps*                   | 3" through 16" (80-400 mm)  |
| Max. Operating Pressure      | 1,480 psi (100 bar) at 100°F (38°C)   |
| Max. Operating Temperature   | 700°F (371°C) at 700 psi (48 bar)**   |
| Power                        | Hydraulic or Air Motor  |
| Feed Rate                    | Standard .005" (.127 mm) per revolution/optional .003" (.076 mm) per revolution |
| Lower-In Crank               | 4-1/2 turns per inch (5.6 mm per turn)  |
| Length without measuring rod | 88-1/2" (2,248 mm)  |
| Length with measuring rod    | 158-1/2" (4,026 mm)   |
| Meets NACE specification     | MR0175-93   |

\* See note 5 in 'Recommended Power Options' Chart.

\*\* For intermittent service only. Its maximum continuous rating is 350°F (177°C) at 1,025 psi (48 bar).

### Air Operation Model

|                          |            |            | Standard Feed (.005"/Revolution) | Slow Feed (.003"/Revolution) |
|--------------------------|------------|------------|----------------------------------|------------------------------|
|                          | Lbs.       | Kg.        | Part Number                      | Part Number                  |
| Tapping Machine          | 500        | 227        | 05-2180-0000                     | 05-2178-0000                 |
| Air Motor Drive Assembly | 40         | 18         | 05-2326-0000                     | 05-2326-0000                 |
| Skid*                    | 212        | 96         | 05-0040-0000                     | 05-0040-0000                 |
| <b>TOTAL WEIGHT</b>      | <b>752</b> | <b>341</b> |                                  |                              |

\* If skid is not purchased with the tapping machine, there will be a special crating charge; consult factory.

### Hydraulic Operation Model

|  |      |     | Standard Feed (.005"/Revolution) | Slow Feed (.003"/Revolution) |
|--|------|-----|----------------------------------|------------------------------|
|  | Lbs. | Kg. | Part Number                      | Part Number                  |
| Tapping Machine                                | 500  | 227 | 05-2180-0000                     | 05-2178-0000                 |
| Single Drive Unit & Control Valve              | 45   | 20  | 05-0006-0000                     | 05-0006-0000                 |
| Dual Drive Unit & Control Valve                | 100  | 45  | 05-0930-0000                     | 05-0930-0000                 |
| Skid*  | 212  | 96  | 05-0040-0000                     | 05-0040-0000                 |
| <b>Power Unit</b>                              |      |     |                                  |                              |
| <b>Hydraulic Power Unit and 50' Hose w/Oil</b> |      |     |                                  |                              |
| Manual Start/Diesel                            | 585  | 266 | 05-2017-0000                     | 05-2017-0000                 |
| Electric Start/Diesel                          | 600  | 272 | 05-2330-0000                     | 05-2330-0000                 |
| Manual Start/Gas                               | 533  | 242 | 05-2351-0000                     | 05-2351-0000                 |
| Electric Start/Gas                             | 550  | 250 | 05-2354-0000                     | 05-2354-0000                 |

\* If skid is not purchased with the tapping machine, there will be a special crating charge; consult factory.

#### ■ Gasoline Power Unit



#### ■ Diesel Power Unit



# 760 Tapping Machine *Model 760B*

## Standard Adapters for Gate Valves

|        |     | ASME Class 150 RF Flange |     |               | ASME Class 300 RF Flange |     |              | ASME Class 600 RF Flange |     |              |
|--------|-----|--------------------------|-----|---------------|--------------------------|-----|--------------|--------------------------|-----|--------------|
| Inches | mm  | Lbs.                     | Kg. | Part Number   | Lbs.                     | Kg. | Part Number  | Lbs.                     | Kg. | Part Number  |
| 3      | 80  | 54                       | 24  | 06-6102-0003  | 55                       | 25  | 06-6103-0003 | 57                       | 26  | 06-6105-0003 |
| 4      | 100 | 57                       | 26  | 06-6102-0004* | 65                       | 29  | 06-6103-0004 | 80                       | 36  | 06-5091-0004 |
| 6      | 150 | 70                       | 32  | 06-5088-0006* | 95                       | 43  | 06-6103-0006 | 146                      | 66  | 06-5091-0006 |
| 8      | 200 | 85                       | 39  | 06-6102-0008* | 100                      | 45  | 06-6103-0008 | 150                      | 68  | 06-6105-0008 |
| 10     | 250 | 115                      | 42  | 06-6102-0010* | 155                      | 70  | 06-6103-0010 | 200                      | 91  | 06-6105-0010 |
| 12     | 300 | 170                      | 77  | 06-6102-0012* | 215                      | 98  | 06-6103-0012 | 315                      | 143 | 06-6105-0012 |
| 14     | 350 | 191                      | 87  | 06-6102-0014  | 227                      | 103 | 06-6103-0014 | 359                      | 163 | 06-6105-0014 |
| 16**   | 400 | 300                      | 136 | 06-6102-0016  | 350                      | 160 | 06-6103-0016 | 460                      | 210 | 06-6105-0016 |

\* Will work on SHORTCUTT® Valves, Bulletin 2010.000.00

\*\* For dual hydraulic model only.

## Adapters for SANDWICH® Valves and Ball Valves

|        |     | ASME Class 300 RF Flange |     |              | ASME Class 600 RF Flange |     |              |
|--------|-----|--------------------------|-----|--------------|--------------------------|-----|--------------|
| Inches | mm  | Lbs.                     | Kg. | Part Number  | Lbs.                     | Kg. | Part Number  |
| 4      | 100 | 65                       | 29  | 06-6103-0004 | 76                       | 34  | 06-5091-0004 |
| 6      | 150 | 95                       | 43  | 06-6103-0006 | 130                      | 59  | 06-5091-0006 |
| 8      | 200 | 100                      | 45  | 06-5089-0008 | 265                      | 91  | 06-5091-0008 |
| 10     | 250 | 155                      | 70  | 06-5089-0010 | 265                      | 120 | 06-5091-0010 |
| 12     | 250 | 215                      | 97  | 06-5089-0012 | 384                      | 174 | 06-5091-0012 |
| 14     | 300 | 315                      | 143 | 06-5089-0014 | 510                      | 231 | 06-5091-0014 |
| 16*    | 350 | 415                      | 188 | 06-5089-0016 | 580                      | 262 | 06-5091-0016 |

\* For dual hydraulic model only.

### ■ Split Frame Feature

The frame assembly is split at the lower end, so that the lower section can be unbolted and removed over the drive tube and boring bar and the packing replaced.





# 760 Tapping Machine *Model 760B*

## Cutter Holders & LOCK-O-RING® Plug Holders

|        |          | Cutter Holders |     |              | LOCK-O-RING® Plug Holders |     |              |
|--------|----------|----------------|-----|--------------|---------------------------|-----|--------------|
| Inches | mm       | Lbs.           | Kg. | Part Number  | Lbs.                      | Kg. | Part Number  |
| 3 & 4  | 80 & 100 | 2.5            | 1   | 05-0054-0001 | --                        | --  | --           |
| 6-12   | 150-300  | 8              | 4   | 05-0054-0002 | --                        | --  | --           |
| 14-16  | 350-400  | 7              | 3   | 05-0054-0003 | --                        | --  | --           |
| 4-16   | 100-400  | --             | --  | --           | 3.5                       | 2   | 05-0075-0000 |

## Standard Cutters & Pilot Drills

| Nominal Tap Size |     | Actual Size |       | Cutters  |         |              | Pilot Drills |         |              | Spare U-rods |
|------------------|-----|-------------|-------|----------|---------|--------------|--------------|---------|--------------|--------------|
| Inches           | mm  | Inches      | mm    | Wt./Lbs. | Wt./Kg. | Part Number  | Wt./Lbs.     | Wt./Kg. | Part Number  | Part Number  |
| 4                | 100 | 3-7/16      | 87.3  | 2        | 0.9     | 05-0328-0004 | 1/2          | 0.2     | 05-0293-0008 | 00-1424-0012 |
| 6                | 150 | 5-15/32     | 138.9 | 5-3/4    | 3       | 05-0328-0006 | 2            | 0.9     | 05-0293-0002 | 00-1424-0003 |
| 8                | 200 | 7-5/16      | 185.8 | 14-1/2   | 7       | 05-0328-0008 | 2            | 0.9     | 05-0293-0003 | 00-1424-0003 |
| 10               | 250 | 9-1/2       | 241.3 | 22-1/2   | 10      | 05-0328-0010 | 2            | 0.9     | 05-0293-0004 | 00-1424-0003 |
| 12               | 300 | 11-1/2      | 292.1 | 36       | 16      | 05-0328-0012 | 2-1/2        | 1.0     | 05-0293-0005 | 00-1424-0008 |
| 14               | 350 | 12-3/4      | 323.9 | 42       | 19      | 05-0389-0014 | 5-1/2        | 2.5     | 05-0293-0006 | 00-1424-0008 |
| 16               | 400 | 14-5/8      | 371.5 | 61       | 28      | 05-0389-0016 | 6            | 2.7     | 05-0293-0007 | 00-1424-0008 |

## SHORTSTOPP® Cutters & Pilot Drills

|    |     |        |       |       |    |              |       |     |              |              |
|----|-----|--------|-------|-------|----|--------------|-------|-----|--------------|--------------|
| 4  | 100 | 3-7/8  | 98.4  | 3-1/4 | 1  | 05-0330-0004 | 1/2   | 0.2 | 05-0293-0008 | 00-1424-0012 |
| 6  | 150 | 5-7/8  | 149.2 | 8-3/4 | 3  | 05-0330-0006 | 2     | 0.9 | 05-0293-0002 | 00-1424-0003 |
| 8  | 200 | 7-3/4  | 196.9 | 20    | 9  | 05-0330-0008 | 2     | 0.9 | 05-0293-0003 | 00-1424-0003 |
| 10 | 250 | 9-3/4  | 247.7 | 23    | 10 | 05-0330-0010 | 2     | 0.9 | 05-0293-0004 | 00-1424-0003 |
| 12 | 300 | 11-3/4 | 298.5 | 40    | 18 | 05-0330-0012 | 2-1/2 | 1.0 | 05-0293-0005 | 00-1424-0003 |

## STOPPLE® Cutters & Pilot Drills

|    |     |          |       |        |    |              |       |     |              |              |
|----|-----|----------|-------|--------|----|--------------|-------|-----|--------------|--------------|
| 4  | 100 | 3-15/16  | 100   | 3-1/2  | 2  | 05-0329-0004 | 1/2   | 0.2 | 05-0293-0008 | 00-1424-0012 |
| 6  | 150 | 5-15/16  | 150.8 | 9      | 4  | 05-0329-0006 | 2     | 0.9 | 05-0293-0002 | 00-1424-0003 |
| 8  | 200 | 7-7/8    | 200   | 16     | 7  | 05-0329-0008 | 2     | 0.9 | 05-0293-0003 | 00-1424-0003 |
| 10 | 250 | 9-7/8    | 200.8 | 27     | 12 | 05-0329-0010 | 2     | 0.9 | 05-0293-0004 | 00-1424-0003 |
| 12 | 300 | 11-13/16 | 300.1 | 40-1/2 | 18 | 05-0329-0012 | 2-1/2 | 1   | 05-0293-0005 | 00-1424-0008 |
| 14 | 350 | 13-1/16  | 331.8 | 49     | 22 | 05-0388-0014 | 5-1/2 | 2.5 | 05-0293-0006 | 00-1424-0008 |
| 16 | 400 | 15-1/16  | 382.6 | 64     | 29 | 05-0388-0016 | 6     | 2.7 | 05-0293-0007 | 00-1424-0008 |



# 760 Tapping Machine *Model 760B*

## Recommended Power Options for Tapping Size On Size

| Feed Rate             | Cutter Size |    |    |    |     |     |     |     |
|-----------------------|-------------|----|----|----|-----|-----|-----|-----|
|                       | 3"          | 4" | 6" | 8" | 10" | 12" | 14" | 16" |
| (0.0057/REV) AIR/HYD  | A           | A  | A  | A  | A   | A   |     |     |
|                       | B           | B  | B  | B  | B   |     |     |     |
|                       | C           | C  | C  | C  |     |     |     |     |
|                       | D           | D  | D  | D  |     |     |     |     |
|                       | E           | E  | E  | E  |     |     |     |     |
|                       | F           | F  | F  | F  |     |     |     |     |
| (0.0057/REV) DUAL HYD | A           | A  | A  | A  | A   | A   | A   |     |
|                       | B           | B  | B  | B  | B   | B   | B   |     |
|                       | C           | C  | C  | C  | C   | C   |     |     |
|                       | D           | D  | D  | D  | D   | D   |     |     |
|                       | E           | E  | E  | E  | E   | E   |     |     |
|                       | F           | F  | F  | F  | F   | F   |     |     |
| (0.0037/REV) AIR/HYD  | A           | A  | A  | A  | A   | A   | A   |     |
|                       | B           | B  | B  | B  | B   | B   |     |     |
|                       | C           | C  | C  | C  | C   |     |     |     |
|                       | D           | D  | D  | D  | D   |     |     |     |
|                       | E           | E  | E  | E  | E   |     |     |     |
|                       | F           | F  | F  | F  |     |     |     |     |
| (0.0037/REV) DUAL HYD | A           | A  | A  | A  | A   | A   | A   | A   |
|                       | B           | B  | B  | B  | B   | B   | B   |     |
|                       | C           | C  | C  | C  | C   | C   | C   |     |
|                       | D           | D  | D  | D  | D   | D   | D   |     |
|                       | E           | E  | E  | E  | E   | E   | E   |     |
|                       | F           | F  | F  | F  | F   | F   | F   |     |

### Notes

- The following letters represent:
  - A = Carbon steel pipe SMYS (Specified Minimum Yield Strength) 30,000 to 50,000 psi, maximum tensile strength of 70,000 psi.
  - B = Carbon steel pipe SMYS 50,000 to 70,000 psi, maximum tensile strength of 90,000 psi.
  - C = Cast iron pipe. Cutting characteristics vary widely; hard to predict.
  - D = Chrome-moly, high temperature, steel pipe.
  - E = 300 series stainless steel pipe.
  - F = Flat plate cuts using special cutters on the materials listed above (refer to Notes 3 and 4). Pilot drill must be through before cutter tooth engages material.
- The dual hydraulic drive features an ability to shift from high speed/low torque to low speed/high torque when tapping the larger diameter pipes and/or the more difficult cutting steels.
- The table for selecting power options (above) is based on the latest TDW designs and past experience. The data should be used as a guideline. There have been, and will be, conditions which will not strictly follow the guidelines.
- Special cutters are available for flat plates, stainless steel pipe, cast iron pipe and other special conditions.
- When tapping a larger pipe or tank, the cutter will sometimes go through the flat-plate condition. For example, all teeth are cutting at the same time. This is the most power-consuming condition possible and special cutters may be required. Considering cutter size, diameter of cylinder, wall thickness, feed rates, different materials of construction, etc., the possibilities are infinite. The following table gives some examples of flat-plate conditions. Any pipe or tank with wall thicknesses greater than those shown will also be considered flat plate.

| Cutter Size | Nom. Pipe x Wall | Nom. Pipe x Wall | Nom. Pipe x Wall |
|-------------|------------------|------------------|------------------|
| 3"          | 4" x .359"       | 6" x .232"       | 8" x .176"       |
| 4"          | 6" x .481"       | 8" x .357"       | 10" x .282"      |
| 6"          | 10" x .748"      | 12" x .616"      | 14" x .556"      |
| 8"          | 18" x .776"      | 20" x .692"      | 24" x .571"      |
| 10"         | 24" x .980"      | 30" x .772"      | 48" x .475"      |
| 12"         | 36" x .943"      | 48" x .699"      | 60" x .556"      |
| 14"         | 48" x .862"      | 60" x .685"      | 72" x .569"      |
| 16"         | 56" x .980"      | 60" x .913"      | 72" x .757"      |