TYPES AVAILABLE

The No. 16 Drill is manufactured in 3 sizes, 8", 12", or 15" overhang.

The 8" model is available in the Bench, Pedestal or Round Column Floor type; the 12" and 15" models in Bench and Pedestal types only.

Choice of a Sensitive or Power Feed Spindle is provided in all sizes and types of #16 Drilling Machines.

ROUND COLUMN, FLOOR TYPE - Featured is a combination table having a machined skirt on one side. The table may be tilted to any angle or swiveled about the column. This simplifies set-ups. When swung out of the way, it enables use of the machined base for extra high work or heavy jigs. A safety collar prevents the table dropping when unclamped. A crank operated table raising screw is available as an optional extra.

PEDESTAL TYPE - Arrangements of 1 to 0 spindles sensitive or 1 to 6 spindles power feed are available. The heads are directly and rigidly supported on a box frame pedestal. Tables have a built in coolant trough and are accurately machined and fitted to the dove-tail pedestal ways. A T-slot wear plate is available at extra cost. The table is adjusted by means of a crank and telescoping screw. A clamping mechanism is provided. The wider machines also have guides and stabilizing screws at the outside ends of the pedestals. The base features a built-in coolant sump.

BENCH TYPE - Heads are mounted directly on a one piece heavy cast iron table which features a large oil trough rim. Arrangements are available with 1 to 8 spindles sensitive or 1 to 6 spindles power feed, and can be equipped with a 2 T-slot wear plate, bench legs, and a coolant system.
These machines are truly quality tools, simple to operate and built to give dependable service and long life.

MULTIPLE SPINDLE PEDESTAL MODELS, a 3-spindle machine with 12" overhang and power feed is shown.

ROUND COLUMN, Floor type, Sensitive spindle arrangement shown.

PEDESTAL TYPE, a single spindle machine with 12" overhang, power feed, and a 2T-slat wear plate is shown.
Details of Head Construction

1. COLUMN provides a rigid backbone for the machine. It consists of a heavy wall steel tube, 4" nominal diameter, turned and ground true from base to head.

2. SLIDING HEAD is keyed to the column and quickly positioned vertically. A quarter turn clamp screw releases the sliding head for adjustment within its 8" of travel. The Spindle and Quill is counter-balanced by a coiled spring with adjustable tension to compensate for special tooling or tapping attachment. The sliding head is counter balanced by a weight suspended within the column.

3. SPINDLE SLEEVE (QUILL) has 4" of bearing length in the sliding head. It is graduated in 1/16". A depth stop collar is supplied. The sleeve is of alloy steel with rack teeth, cut integrally, and eliminates the conventional large and clumsy combination key and rack. The key is separate and prevents lateral motion of the spindle sleeve. Ball bearings in oversize cages are mounted at the ends of the sleeve.

4. SPINDLE is 15/16" diameter, precision ground with accurately hobbed spline. Spindle nose has No. 3 Morse taper as standard; No. 2 as optional. The spindle is indicated at assembly and held to a maximum of .002" run out at the end of a 6" test arbor.

5. HEAD FRAME is clamped to the column. It carries the spindle driving sleeve in two large ball bearings. The spindle pulley is keyed to the sleeve and drives the spindle through six splines. The motor bracket, projecting from the rear of the head, may be conveniently adjusted for belt tension through rack pinion and locking screw. No belt forces are directly transmitted to the spindle.

6. DRIVE consists of 5-step cast iron V-belt pulleys, balanced for vibration free operation. A V-belt delivers full motor horsepower quietly and efficiently. A half belt guard is provided at the operators' end. Fully enclosed belt guards are available as an extra.

7. POWER FEED is available on all sizes and models. A selector knob allows the operator to determine the feed, .003", .006", .009" or .012". Selection can be made while the machine is operating at low speed. The feed handle advances the spindle to the work and automatically engages the power feed. A reverse motion of the feed handle will disengage the power feed prior to the depth stop knockout. The power feed can be locked out for sensitive drilling. Further details are shown on page 6 and 7.
Specifications and Capacities

Capacity (in mild steel) ....................... 7/8"
Motor H. P. ...................................... 1/2-3/4
Spindle Diameter ............................... .937
Spindle Nose Diameter ....................... 1.875
Spindle Sleeve Diameter (minimum) ........ 1.875
Spindle Nose Morse Taper (No. 2 optional)  No. 3
Spindle Speeds (1800 R.P.M. Motor) 400-670-1100-1800-3000 R.P.M.
Spindle Speeds (1200 R.P.M. Motor) 265-460-750-1200-2000 R.P.M.
Spindle Speeds (900 R.P.M. Motor) 200-335-550-900-1500 R.P.M.
Column Diameter ............................... 4"
Spindle Travel (Power Feed) ................ 6"
Spindle Travel - Sensitive with Depth Stop 5 1/4"
Spindle Travel - Sensitive without Depth Stop 6 3/4"
Range Adjustment of Sliding Head (Power Feed) 7 3/4"
Range Adjustment of Sliding Head (Sensitive) 8 3/4"
Power Feed per R.P.M. ....................... 003"-.006"-.009"-.012"

Complete Belt Guard

Pressed steel clamshell type belt guard for 8" overhang sensitive and power feed models is available as an extra.

BUFFALO FORGE COMPANY / BUFFALO, NEW YORK 14205 5
POWER FEED (optional extra)

Increases the versatility and widens the application for the #16 Drill. This substantial positive gear drive and positive clutch type power feed has what it takes to drill up to 7/6" in mild steel on a production basis.

Design is simple, positive, sturdy and accurate without belts, friction members or complicated mechanisms.

No adjustments are necessary. Occasional lubrication is all that is required.

Fool-Proof

Feed engaged by feed motion of handle
Feed disengaged by upward motion of handle
Feed is positive, no adjustment
Feed “take-off” is fully geared
Depth dial reads from front of drill
Depth control set from front
Feed dial read from front
Feed change made while machine is idling at low speed

All these features are incorporated in the #16 Power Feed Unit.

Details of Construction

High speed bearings are double row ball bearings. Slow speed shafts operate in bronze bushings. Worm is hardened alloy steel mounted in combination radial-thrust ball bearings. Positive drive clutch members are of heat treated chrome nickel alloy steel. They practically never wear out or require adjustment. Individual hand assembly is your assurance of permanent accuracy and extended trouble free service.

Simple and Safe Operation

The feed clutch cam is held out of engagement by spring pressure in a manner which allows the spindle to be run up or down manually until the drill meets the work. When contact is made, the clutch cams engage the power feed with the quill pinion. When the feed advances to the required depth the cam hub is released by a pin on the indicator dial and disengages the feed. A coiled spring within the sliding head returns the spindle and quill to its original position. A safety stop and overload shear pin protect the feed mechanism.

A left hand feed handle is keyed to the quill pinion to enable engagement with the power feed before contacting the work piece. This prevents small drills from breaking when being used.
This cross-section shows the rugged, all-gear construction of the #16 Power Feed. Features worth noting are:
1. Ball bearing mounting of the high speed drive.
2. Hardened inserts in the selective gear train.
3. Triple grease seals to prevent leakage.

TAPPING DEVICES (optional extra)

The three types available are: 1. Friction type attachment. 2. Motor reverse control operating from a manual selector switch or off-forward-reverse push button and 3. Motor reverse control, automatically actuated by the feed handle.

Motor reverse tapping is available either on Sensitive or Power Feed machines. The Power Feed is interlocked in a neutral position when tapping. Standard duty 3-phase motors are satisfactory for occasional tapping. For production tapping high-torque, high-slip reversing motors must be used. For continuous production the maximum number of motor reversals is 10 per minute.

Taps under \( \frac{3}{8} \)" are best tapped with a friction type tapping attachment. The tapping capacity is \( \frac{3}{4} " \) in cast iron and \( \frac{7}{8} " \) in mild steel.

This cross-section is through the feed hub, clutch, worm gear and feed pinion. All operating members are heat treated tool steel. No wear, no adjustments, no trick mechanisms. Construction is simple, practical and durable.

Automatic feed handle reverse tapping control. Shown with power feed, it is also available for sensitive operation.
### Combinations & Specifications

<table>
<thead>
<tr>
<th>SYMBOLS: S = SENSITIVE P = POWER FEED</th>
<th>WORKING SURFACE OF TABLE OR BASE</th>
<th>CENTER OF SPINDLES</th>
<th>WEIGHTS OVERHANG</th>
</tr>
</thead>
<tbody>
<tr>
<td>O. Round Column</td>
<td>8' x 10'</td>
<td>12'</td>
<td>12'</td>
</tr>
<tr>
<td>P.</td>
<td>14' x 14'</td>
<td>23' x 18'</td>
<td>23' x 18'</td>
</tr>
<tr>
<td>S.</td>
<td>14' x 14'</td>
<td>23' x 18'</td>
<td>23' x 18'</td>
</tr>
<tr>
<td>S.S.</td>
<td>14' x 26'</td>
<td>23' x 30'</td>
<td>23' x 30'</td>
</tr>
<tr>
<td>S.P.</td>
<td>14' x 26'</td>
<td>23' x 30'</td>
<td>23' x 30'</td>
</tr>
<tr>
<td>P.S.</td>
<td>14' x 31'</td>
<td>23' x 42'</td>
<td>23' x 42'</td>
</tr>
<tr>
<td>P.P.</td>
<td>14' x 42'</td>
<td>23' x 46'</td>
<td>23' x 46'</td>
</tr>
<tr>
<td>S.S.S.</td>
<td>14' x 38½&quot;</td>
<td>23' x 42&quot;</td>
<td>23' x 42&quot;</td>
</tr>
<tr>
<td>S.S.P.</td>
<td>14' x 38½&quot;</td>
<td>23' x 42&quot;</td>
<td>23' x 42&quot;</td>
</tr>
<tr>
<td>S.P.S.</td>
<td>14' x 46&quot;</td>
<td>23' x 54&quot;</td>
<td>23' x 54&quot;</td>
</tr>
<tr>
<td>P.S.S.</td>
<td>14' x 46&quot;</td>
<td>23' x 54&quot;</td>
<td>23' x 54&quot;</td>
</tr>
<tr>
<td>P.P.S.</td>
<td>14' x 54&quot;</td>
<td>23' x 58&quot;</td>
<td>23' x 58&quot;</td>
</tr>
<tr>
<td>S.S.S.S.</td>
<td>14' x 50½&quot;</td>
<td>23' x 54&quot;</td>
<td>23' x 54&quot;</td>
</tr>
<tr>
<td>S.S.S.P.</td>
<td>14' x 50½&quot;</td>
<td>23' x 58&quot;</td>
<td>23' x 58&quot;</td>
</tr>
<tr>
<td>P.P.P.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>S.S.S.S.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>S.S.S.P.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>S.P.P.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>P.S.P.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>S.P.P.S.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>P.S.P.S.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>S.P.P.P.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>P.S.P.P.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>S.S.S.S.S.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>S.S.S.S.S.S.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
<tr>
<td>S.S.S.S.S.S.S.</td>
<td>14' x 46&quot;</td>
<td>23' x 77&quot;</td>
<td>23' x 77&quot;</td>
</tr>
</tbody>
</table>
| Listed above are the possible combinations of No. 16 Sensitive and Power Feed Machines, together with specification data, which is intended to impart needed information. Each combination has been assigned a model number to simplify ordering.

- 12" center of spindles for 8" O.H.
- 15" center of spindles for 8" O.H.

8
NUMBER 16 DRILLS / SENSITIVE MODELS

8" BENCH, SENSITIVE
(See Dimensions Page 11)

12" BENCH, SENSITIVE
(See Dimensions Page 11)

15" BENCH, SENSITIVE
(See Dimensions Page 11)

8" PEDESTAL, SENSITIVE
(See Dimensions Page 11)

12" PEDESTAL, SENSITIVE
(See Dimensions Page 11)

15" PEDESTAL, SENSITIVE
(See Dimensions Page 11)
NUMBER 16 DRILLS / POWER FEED MODELS

8" BENCH, POWER FEED
(See Dimensions Page 11)

12" PEDESTAL, POWER FEED
(See Dimensions Page 11)

15" BENCH, POWER FEED
(See Dimensions Page 11)

8" PEDESTAL, POWER FEED
(See Dimensions Page 11)

12" PEDESTAL, POWER FEED
(See Dimensions Page 11)

15" PEDESTAL, POWER FEED
(See Dimensions Page 11)
## NUMBER 16 DRILLS
### Table of Dimensions

<table>
<thead>
<tr>
<th>SYMBOLS:</th>
<th>S = SENSITIVE</th>
<th>P.F. = POWER FEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENSITIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POWER FEED</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### BENCH TYPES

<table>
<thead>
<tr>
<th></th>
<th>8&quot; OVERHANG</th>
<th>12&quot; OVERHANG</th>
<th>15&quot; OVERHANG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SPINDLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>15</td>
<td>27</td>
<td>39\frac{1}{2}</td>
</tr>
<tr>
<td>B</td>
<td>18\frac{1}{4}</td>
<td>18\frac{3}{4}</td>
<td>18\frac{1}{4}</td>
</tr>
<tr>
<td>C</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>D</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>E</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

### PEDESTAL TYPES

|          | 1 | 2 | 3 | 4 | 6 | 0 | 1 | 2 | 3 | 4 | 6 | 0 | 1 | 2 | 3 | 4 | 6 | 0 |
| SPINDLES | A | 19\frac{1}{4} | 19\frac{1}{4} | 29\frac{1}{4} | 39\frac{1}{4} | 60 | 106 | A | 19\frac{1}{4} | 19\frac{1}{4} | 29\frac{1}{4} | 39\frac{1}{4} | 60 | 106 | A | 19\frac{1}{4} | 19\frac{1}{4} | 29\frac{1}{4} | 39\frac{1}{4} | 60 | 106 |
| B        | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| SPINDLES | A | 19\frac{1}{4} | 20\frac{1}{4} | 47\frac{1}{4} | 66\frac{1}{4} | 106 | A | 19\frac{1}{4} | 20\frac{1}{4} | 47\frac{1}{4} | 66\frac{1}{4} | 106 | A | 19\frac{1}{4} | 20\frac{1}{4} | 47\frac{1}{4} | 66\frac{1}{4} | 106 |
| B        | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |

(8-Spindle power feed models not available)

*BUFFALO FORGE COMPANY / BUFFALO, NEW YORK*
OTHER POPULAR "BUFFALO" DRILLING MACHINES

No. 15 — A versatile tool. Standard Heavy Duty models available in Bench, Floor and Multiple Bench Types; Production models in Bench and Pedestal types, 1 to 6 spindles. Ask for Bulletin 4024.

No. 18 — Offers a series of nineteen models in customized designs to meet the needs of your specific applications. Both Bench and Floor types are available. Single and Multi Spindle arrangements. Ask for Bulletin 3123.

No. 20 — Floor, Bench and Pedestal models . . . 1 to 6 spindles . . . with capacity of 1" in Mild Steel. Power feed or sensitive hand feed, 5-step pulley drive (or optional variable speed drive). Ask for Bulletin 4229.

No. 22 — Sensitive or Power Feed models. Handles as fast and smoothly as a regular sensitive drill on light work. Round column type shown. Also in Pedestal and Multi-Spindle models. Ask for Bulletin 3080.

No. 1A RPMster — An infinitely variable production drilling machine — 1" capacity — 13" overhang — 1 1/2 HP rating — 100 to 3000 RPM. Available in round column or 1 6 spindle pedestal type, sensitive or power feed. Ask for Bulletin 3967.

No. 30 RPMster — The ultimate in a production drill. Round column or 3-6 spindle pedestal type available. 2 1/2" capacity with 2 1/2 HP, infinitely variable 30 to 2000 RPM. Deck gears and power feed are standard. Hollow spindles available. For complete details and other accessory features see Bulletin 3257.

MACIIINE TOOL DIVISION
BUFFALO FORGE COMPANY, BUFFALO, N.Y. 14205
CANADIAN BLOWER & FORGE CO., LTD., KITCHENER, ONTARIO

Printed in U.S.A.