

AMERICAN NATIONAL STANDARD

Drill Drivers, Split - Sleeve, Collet Type

ANSI B94.35 - 1972

[REVISION OF ANSI B94.35-1959 (R1971)]

REAFFIRMED 1995

FOR CURRENT COMMITTEE PERSONNEL
PLEASE SEE ASME MANUAL AS-11

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SECRETARIAT

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

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FOREWORD

Throughout American industry a variety of methods and mechanisms are used to drive twist drills, reamers, etc. In the automotive and other mass production industries, the split-sleeve collet drive has proven useful. Two engineering reasons for its suitability are: (1) Multiple spindle drill heads can be designed with spindles on a very close center-to-center distance; (2) Bushing plates do not have to be moved when tools must be replaced.

The split-sleeve collet driver is designed to drive straight shanks in sizes #61 (0.0390) inch diameter and larger.

As the assembly of split sleeve collet-type driver necessitates manufacture to close tolerances, it was deemed advisable to develop an American standard to insure that collets would fit drill shanks as shown in ANSI B94.11-1967.

The required ASA approval and designation as American Standard Drill Drivers was granted on September 23, 1959, and designated ASA B5.27-1959. ASA B5.27-1959 was redesignated and reaffirmed as ANSI B94.35-1959 (R1971).

ANSI B94.35-1959 (R1971) was reviewed in relation to industry needs and revised and updated by a subcommittee of Technical Committee 7 of American National Standards Committee B94.

Sizes no longer used were eliminated from the standard. Document was reviewed for conformance with American National Standard Decimal Inch, ANSI B87.1-1965.

The current revision was approved by ANSI on May 30, 1972.

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**AMERICAN NATIONAL STANDARD
DRILL DRIVERS—SPLIT SLEEVE, COLLET TYPE**

INTRODUCTORY NOTES

1. SCOPE

1.1 This standard covers split sleeve, collet type drivers for driving straight shank drills, reamers and similar tools, without tangs from 0.0390 dia. through 0.1220 dia., and with tangs for tools from 0.1250 dia. through 0.7500 dia.

2. PURPOSE

2.1 The purpose of this standard is to make available to industry the types and sizes of drivers that will serve industry as a whole.

3. GENERAL SPECIFICATIONS

All dimensions in this standard are in inches.

Inside Diameter (A):

(0.0390) to (0.1562)

Min = nominal minus 0.0010

Max = nominal

Above (0.1562) to (0.2500), incl.

Min = nominal minus 0.0015

Max = nominal minus 0.0005

Above (0.2500) to (0.5000), incl.

Min = nominal minus 0.0020

Max = nominal minus 0.0010

Above (0.5000) to (0.750), incl.

Min = nominal

Max = nominal plus 0.0010

Concentricity of Hole (A):

The bore and shank shall be ground concentric within 0.002 in. total indicator reading, gaged at a distance equal to the projection of a standard jobbers drill from the chuck.

Concentricity of Tang Slot (E):

From 0.125 to 0.259, incl. = 0.006 total indicator reading

Above 0.259 to 0.534, incl. = 0.007 total indicator reading

Above 0.534 to 0.750, incl. = 0.008 total indicator reading

Two Place Decimal Dimensions - ± 0.04

Diameter at Gaging Notch (H):

Plus 0.002, minus 0.000 in.

Finish:

All essential surfaces must be ground, or ground and lapped.

Marking:

Size, and manufacturer's name or trade mark are to be marked on the *unground* portion of the shank.

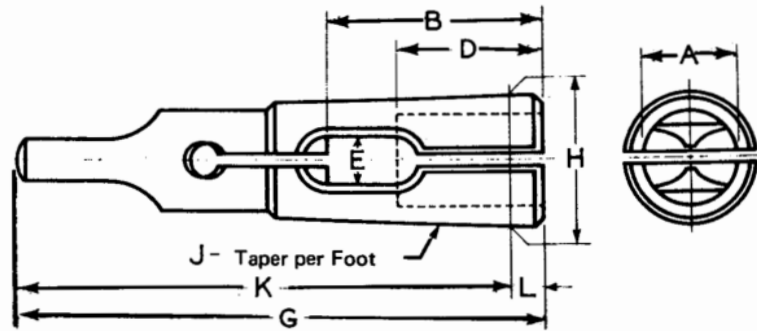


Table 1: General Dimensions of Drill Drivers¹

TAPER NUMBER	G OVER-ALL LENGTH	H DIAMETER AT GAGE LINE	J TAPER PER FOOT	K LENGTH TO GAGE LINE	L DRIVER PROJECTION
0 ²	2.38	0.356	0.62460	2.22	0.16
1	2.62	0.475	0.59858	2.44	0.19
2	3.19	0.700	0.59941	2.94	0.25
3	3.94	0.938	0.60235	3.69	0.25
4	5.00	1.231	0.62326	4.62	0.38

¹Taper rate in accordance with ANSI B5.10-1963, Machine Tapers

²Size 0 is not an American Standard but is included here to meet special needs.

See page 1 for general specifications

All dimensions are in inches.

Table 2 Dimensions of Drivers

DRIVER SIZE		STANDARD TAPER NUMBER	OPTIONAL TAPER NUMBER	OPTIONAL TAPER NUMBER	INSIDE DIAMETER		B DEPTH DRILL ENTERS DRIVER	D INSIDE DIAMETER LENGTH	E TANG SLOT WIDTH			
SIZE	DECIMAL				A				MIN	MAX	MIN	MAX
					MIN	MAX						
61	0.0390	1	0	....	0.0380	0.0390	0.44	....	....	....
60	0.0400	1	0	....	0.0390	0.0400	0.44	....	....	....
59	0.0410	1	0	....	0.0400	0.0410	0.44	....	....	....
58	0.0420	1	0	....	0.0410	0.0420	0.44	....	....	....
57	0.0430	1	0	....	0.0420	0.0430	0.44	....	....	....
1.15MM	0.0453	1	0	....	0.0443	0.0453	0.44	....	....	....
56	0.0465	1	0	....	0.0455	0.0465	0.44	....	....	....
3/64	0.0469	1	0	....	0.0459	0.0469	0.44	....	....	....
1.25MM	0.0492	1	0	....	0.0482	0.0492	0.44	....	....	....
1.30MM	0.0512	1	0	....	0.0502	0.0512	0.44	....	....	....
55	0.0520	1	0	....	0.0510	0.0520	0.44	....	....	....
1.35MM	0.0531	1	0	....	0.0521	0.0531	0.44	....	....	....
54	0.0550	1	0	....	0.0540	0.0550	0.44	....	....	....
1.45MM	0.0571	1	0	....	0.0561	0.0571	0.44	....	....	....
53	0.0595	1	0	....	0.0585	0.0595	0.44	....	....	....
1.55MM	0.0610	1	0	2	0.0600	0.0610	0.44	....	....	....
1/16	0.0625	1	0	2	0.0615	0.0625	0.44	....	....	....
1.65MM	0.0650	1	0	2	0.0640	0.0650	0.44	....	....	....
51	0.0670	1	0	2	0.0660	0.0670	0.44	....	....	....
50	0.0700	1	0	2	0.0690	0.0700	0.44	....	....	....
49	0.0730	1	0	2	0.0720	0.0730	0.44	....	....	....
48	0.0760	1	0	2	0.0750	0.0760	0.44	....	....	....
5/64	0.0781	1	0	2	0.0771	0.0781	0.44	....	....	....
47	0.0785	1	0	2	0.0775	0.0785	0.50	....	....	....
46	0.0810	1	0	2	0.0800	0.0810	0.50	....	....	....
45	0.0820	1	0	2	0.0810	0.0820	0.50	....	....	....
2.1MM	0.0827	1	0	2	0.0817	0.0827	0.50	....	....	....
44	0.0860	1	0	2	0.0850	0.0860	0.50	....	....	....
43	0.0890	1	0	2	0.0880	0.0890	0.50	....	....	....
2.3MM	0.0906	1	0	2	0.0896	0.0906	0.50	....	....	....
3/32	0.0938	1	0	2	0.0928	0.0938	0.50	....	....	....
41	0.0960	1	0	2	0.0950	0.0960	0.56	....	....	....
40	0.0980	1	0	2	0.0970	0.0980	0.56	....	....	....
39	0.0995	1	0	2	0.0985	0.0995	0.56	....	....	....
38	0.1015	1	0	2	0.1005	0.1015	0.56	....	....	....
2.6MM	0.1024	1	0	2	0.1014	0.1024	0.56	....	....	....

All dimensions are in inches.

Table 2 Dimensions of Drivers (continued)

DRIVER SIZE		STANDARD TAPER NUMBER	OPTIONAL TAPER NUMBER	OPTIONAL TAPER NUMBER	INSIDE DIAMETER		B DEPTH DRILL ENTERS DRIVER	D INSIDE DIAMETER LENGTH	E TANG SLOT WIDTH			
SIZE	DECIMAL				A				MIN	MAX	MIN	MAX
					MIN	MAX						
37	0.1040	1	0	2	0.1030	0.1040	0.56	....	....	....
36	0.1065	1	0	2	0.1055	0.1065	0.56	....	....	....
7/64	0.1094	1	0	2	0.1084	0.1094	0.56	....	....	....
35	0.1100	1	0	2	0.1090	0.1100	0.62	....	....	....
34	0.1110	1	0	2	0.1100	0.1110	0.62	....	....	....
33	0.1130	1	0	2	0.1120	0.1130	0.62	....	....	....
32	0.1160	1	0	2	0.1150	0.1160	0.62	....	....	....
31	0.1200	1	0	2	0.1190	0.1200	0.62	....	....	....
3.1MM	0.1220	1	0	2	0.1210	0.1220	0.62	....	....	....
1/8	0.1250	1	0	2	0.1240	0.1250	0.75	0.59	0.106	0.110		
30	0.1285	1	0	2	0.1275	0.1285	0.75	0.59	0.106	0.110		
3.3MM	0.1299	1	0	2	0.1289	0.1299	0.75	0.59	0.106	0.110		
3.4MM	0.1339	1	0	2	0.1329	0.1339	0.75	0.59	0.106	0.110		
29	0.1360	1	0	2	0.1350	0.1360	0.75	0.59	0.106	0.110		
3.5MM	0.1378	1	0	2	0.1368	0.1378	0.75	0.59	0.106	0.110		
9/64	0.1406	1	0	2	0.1396	0.1406	0.75	0.59	0.106	0.110		
27	0.1440	1	0	2	0.1430	0.1440	0.75	0.59	0.106	0.110		
26	0.1470	1	0	2	0.1460	0.1470	0.75	0.59	0.106	0.110		
25	0.1495	1	0	2	0.1485	0.1495	0.75	0.59	0.106	0.110		
24	0.1520	1	0	2	0.1510	0.1520	0.75	0.59	0.106	0.110		
23	0.1540	1	0	2	0.1530	0.1540	0.75	0.59	0.106	0.110		
5/32	0.1562	1	0	2	0.1552	0.1562	0.75	0.59	0.106	0.110		
22	0.1570	1	0	2	0.1555	0.1565	0.75	0.59	0.106	0.110		
21	0.1590	1	0	2	0.1575	0.1585	0.75	0.59	0.106	0.110		
20	0.1610	1	0	2	0.1595	0.1605	0.75	0.59	0.106	0.110		
19	0.1660	1	0	2	0.1645	0.1655	0.75	0.59	0.106	0.110		
18	0.1695	1	0	2	0.1680	0.1690	0.75	0.59	0.106	0.110		
11/64	0.1719	1	0	2	0.1704	0.1714	0.75	0.59	0.106	0.110		
17	0.1730	1	0	2	0.1715	0.1725	0.75	0.59	0.106	0.110		
16	0.1770	1	0	2	0.1755	0.1765	0.75	0.59	0.106	0.110		
15	0.1800	1	0	2	0.1785	0.1795	0.75	0.59	0.106	0.110		
14	0.1820	1	0	2	0.1805	0.1815	0.75	0.59	0.106	0.110		
13	0.1850	1	0	2	0.1835	0.1845	0.75	0.59	0.106	0.110		
3/16	0.1875	1	0	2	0.1860	0.1870	0.75	0.59	0.106	0.110		
12	0.1890	1	2	0	0.1875	0.1885	0.88	0.69	0.134	0.138		
11	0.1910	1	2	0	0.1895	0.1905	0.88	0.69	0.134	0.138		
10	0.1935	1	2	0	0.1920	0.1930	0.88	0.69	0.134	0.138		

All dimensions are in inches.

Table 2 Dimensions of Drivers (continued)

DRIVER SIZE		STANDARD TAPER NUMBER	OPTIONAL TAPER NUMBER	OPTIONAL TAPER NUMBER	INSIDE DIAMETER		B DEPTH DRILL ENTERS DRIVER	D INSIDE DIAMETER LENGTH	E TANG SLOT WIDTH			
SIZE	DECIMAL				A				MIN	MAX	MIN	MAX
					MIN	MAX						
9	0.1960	1	2	0	0.1945	0.1955	0.88	0.69	0.134	0.138		
8	0.1990	1	2	0	0.1975	0.1985	0.88	0.69	0.134	0.138		
7	0.2010	1	2	0	0.1995	0.2005	0.88	0.69	0.134	0.138		
13/64	0.2031	1	2	0	0.2016	0.2026	0.88	0.69	0.134	0.138		
6	0.2040	1	2	0	0.2025	0.2035	0.88	0.69	0.134	0.138		
5	0.2055	1	2	0	0.2040	0.2050	0.88	0.69	0.134	0.138		
4	0.2090	1	2	0	0.2075	0.2085	0.88	0.69	0.134	0.138		
3	0.2130	1	2	0	0.2115	0.2125	0.88	0.69	0.134	0.138		
7/32	0.2188	1	2	0	0.2173	0.2183	0.88	0.69	0.134	0.138		
2	0.2210	1	2	0	0.2195	0.2205	0.88	0.69	0.134	0.138		
5.7MM	0.2244	1	2	0	0.2229	0.2239	0.88	0.69	0.134	0.138		
1	0.2280	1	2	0	0.2265	0.2275	0.88	0.69	0.134	0.138		
A	0.2340	1	2	0	0.2325	0.2335	0.88	0.69	0.134	0.138		
15/64	0.2344	1	2	0	0.2329	0.2339	0.88	0.69	0.134	0.138		
B	0.2380	1	2	0	0.2365	0.2375	0.88	0.69	0.134	0.138		
6.1MM	0.2402	1	2	0	0.2387	0.2397	0.88	0.69	0.134	0.138		
C	0.2420	1	2	0	0.2405	0.2415	0.88	0.69	0.134	0.138		
D	0.2460	1	2	0	0.2445	0.2455	0.88	0.69	0.134	0.138		
1/4	0.2500	1	2	0	0.2485	0.2495	0.88	0.69	0.134	0.138		
6.4MM	0.2520	1	2	0	0.2500	0.2510	1.00	0.78	0.174	0.178		
F	0.2570	1	2	....	0.2550	0.2560	1.00	0.78	0.174	0.178	
G	0.2610	1	2	....	0.2590	0.2600	1.00	0.78	0.174	0.178	
17/64	0.2656	1	2	....	0.2636	0.2646	1.00	0.78	0.174	0.178	
I	0.2720	1	2	....	0.2700	0.2710	1.00	0.78	0.174	0.178	
J	0.2770	1	2	....	0.2750	0.2760	1.00	0.78	0.174	0.178	
9/32	0.2812	1	2	....	0.2792	0.2802	1.00	0.78	0.174	0.178	
7.25MM	0.2854	1	2	....	0.2834	0.2844	1.00	0.78	0.174	0.178	
L	0.2900	1	2	....	0.2880	0.2890	1.00	0.78	0.174	0.178	
7.4MM	0.2913	1	2	....	0.2893	0.2903	1.00	0.78	0.174	0.178	
M	0.2950	1	2	....	0.2930	0.2940	1.00	0.78	0.174	0.178	
19/64	0.2969	1	2	....	0.2949	0.2959	1.00	0.78	0.174	0.178	
N	0.3020	1	2	....	0.3000	0.3010	1.00	0.78	0.174	0.178	
7.8MM	0.3071	1	2	....	0.3051	0.3061	1.00	0.78	0.174	0.178	
5/16	0.3125	1	2	....	0.3105	0.3115	1.00	0.78	0.174	0.178	
O	0.3160	1	2	....	0.3140	0.3150	1.12	0.88	0.215	0.219	
P	0.3230	1	2	....	0.3210	0.3220	1.12	0.88	0.215	0.219	
21/64	0.3281	1	2	....	0.3261	0.3271	1.12	0.88	0.215	0.219	

All dimensions are in inches.

Table 2 Dimensions of Drivers (concluded)

DRIVER SIZE		STANDARD TAPER NUMBER	OPTIONAL TAPER NUMBER	OPTIONAL TAPER NUMBER	INSIDE DIAMETER A		B DEPTH DRILL ENTERS DRIVER	D INSIDE DIAMETER LENGTH	E TANG SLOT WIDTH	
SIZE	DECIMAL				MIN	MAX			MIN	MAX
Q	0.3320	1	2	....	0.3300	0.3310	1.12	0.88	0.215	0.219
R	0.3390	1	2	....	0.3370	0.3380	1.12	0.88	0.215	0.219
11/32	0.3438	1	2	....	0.3418	0.3428	1.12	0.88	0.215	0.219
S	0.3480	1	2	....	0.3460	0.3470	1.12	0.88	0.215	0.219
9.0MM	0.3543	1	2	....	0.3523	0.3533	1.12	0.88	0.215	0.219
T	0.3580	1	2	....	0.3560	0.3570	1.12	0.88	0.215	0.219
23/64	0.3594	1	2	....	0.3574	0.3584	1.12	0.88	0.215	0.219
U	0.3680	1	2	....	0.3660	0.3670	1.12	0.88	0.215	0.219
3/8	0.3750	1	2	....	0.3730	0.3740	1.12	0.88	0.215	0.219
W	0.3860	2	3	....	0.3840	0.3850	1.25	0.94	0.255	0.259
25/64	0.3906	2	3	....	0.3886	0.3896	1.25	0.94	0.255	0.259
X	0.3970	2	3	....	0.3950	0.3960	1.25	0.94	0.255	0.259
Y	0.4040	2	3	....	0.4020	0.4030	1.25	0.94	0.255	0.259
13/32	0.4062	2	3	....	0.4042	0.4052	1.25	0.94	0.255	0.259
Z	0.4130	2	3	....	0.4110	0.4120	1.25	0.94	0.255	0.259
27/64	0.4219	2	3	....	0.4199	0.4209	1.25	0.94	0.255	0.259
7/16	0.4375	2	3	....	0.4355	0.4365	1.25	0.94	0.255	0.259
29/64	0.4531	2	3	....	0.4511	0.4521	1.25	0.94	0.255	0.259
15/32	0.4688	2	3	....	0.4668	0.4678	1.25	0.94	0.255	0.259
31/64	0.4844	2	3	....	0.4824	0.4834	1.31	0.94	0.317	0.323
1/2	0.5000	2	3	....	0.4980	0.4990	1.31	0.94	0.317	0.323
33/64	0.5156	2	3	....	0.5156	0.5166	1.31	0.94	0.317	0.323
17/32	0.5312	2	3	....	0.5312	0.5322	1.31	0.94	0.317	0.323
35/64	0.5469	2	3	....	0.5469	0.5479	1.31	0.94	0.317	0.323
9/16	0.5625	2	3	....	0.5625	0.5635	1.31	0.94	0.317	0.323
37/64	0.5781	3	4	....	0.5781	0.5791	1.47	1.03	0.387	0.393
19/32	0.5938	3	4	....	0.5938	0.5948	1.47	1.03	0.387	0.393
39/64	0.6094	3	4	....	0.6094	0.6104	1.47	1.03	0.387	0.393
5/8	0.6250	3	4	....	0.6250	0.6260	1.47	1.03	0.387	0.393
41/64	0.6406	3	4	....	0.6406	0.6416	1.47	1.03	0.387	0.393
21/32	0.6562	3	4	....	0.6562	0.6572	1.47	1.03	0.387	0.393
43/64	0.6719	3	4	....	0.6719	0.6729	1.62	1.12	0.457	0.463
11/16	0.6875	3	4	....	0.6875	0.6885	1.62	1.12	0.457	0.463
45/64	0.7031	3	4	....	0.7031	0.7041	1.62	1.12	0.457	0.463
23/32	0.7188	3	4	....	0.7188	0.7198	1.62	1.12	0.457	0.463
47/64	0.7344	3	4	....	0.7344	0.7354	1.62	1.12	0.457	0.463
3/4	0.7500	3	4	....	0.7500	0.7510	1.62	1.12	0.457	0.463

All dimensions are in inches.

AMERICAN NATIONAL STANDARDS FOR MACHINE TOOLS AND CUTTING TOOLS

T-Slots, Their Bolts, Nuts, Tongues, and Cutters	B5.1—1949
Rotating Air Cylinders and Adapters	B5.5—1959
Chucks and Chuck Jaws	B5.8—1972
Spindle Noses for Tool Room Lathes, Engine Lathes, Turret Lathes, and Automatic Lathes	B5.9—1967
Machine Tapers	B5.10—1963
Spindle Noses and Adjustable Adapters for Multiple Spindle Drilling Heads	B5.11—1964
Accuracy of Engine and Tool Room Lathes	B5.16—1952 (Reaffirmed 1972)
Spindle Noses and Arbors for Milling Machines	B5.18—1960
Machine Pins	B5.20—1958
Die Sets	B5.25—1968
Mounting Dimensions of Lubricating and Coolant Pumps for Machine Tools	B5.28—1971
Designation and Working Ranges of Grinding Machines	B5.32—1953
External Cylindrical Grinding Machines — Plain	(Rev. B5.33—1953) B5.33—1970
Machine Mounting Specifications for Abrasive Discs and Plate Mounted Wheels	B5.35—1969
External Cylindrical Grinding Machines — Centerless	B5.37—1970
Spindle Noses and Tool Shanks for Horizontal Boring Machines	B5.40—1968
Quill Flanges and Spindle Ends for Upright and Horizontal Drill Spindles for Production Type Drilling Machines	B5.41—1968
External Cylindrical Grinding Machines — Universal	B5.42—1970
Modular Machine Tool Standards	B5.43—1971
Rotary Table Surface Grinding Machines	B5.44—1971
Milling Machines	B5.45—1972
Symbols For Machine Tool Indicator Plates	B5.46—1972
Blanks and Semi-Finished Blanks for Solid Carbide Taps	B94.1—1969
Reamers	B94.2—1971
Straight Cut-Off Blades for Lathes and Screw Machines	B94.3—1965
Identification System for Throw Away Inserts for Cutting Tools	B94.4—1965
Carbide Blanks and Cutting Tools	B94.5—1966
Knurling	B94.6—1966
Hobs	B94.7—1966
Inserted Blade Milling Cutter Bodies	(Rev. B5.23—1958) B94.8—1967
Taps-Cut and Ground Threads	B94.9—1971
High-Speed Steel and Cast Nonferrous Single-Point Tools and Tool Holders	(Rev. B5.29—1959) B94.10—1967
Twist Drills	(Rev. B5.12—1958) B94.11—1967
Carbide-Tipped Masonry Drills, and Blanks for Carbide-Tipped Masonry Drills.	(Rev. B82.1—1962) B94.12—1968
Blanks for Carbide Burs	(Rev. B83.1—1962) B94.13—1968
Punches-Basic Head Type	B94.14—1968
Retainers — Basic Ball-Lock Punch and Die Button, Light and Heavy Duty	B94.16—1968
Gages — Functional, Ball-Lock Punch and Die Button, Light and Heavy Duty	B94.17—1968
Punches — Basic Ball-Lock Light and Heavy Duty	B94.18—1968
Milling, Cutters and End Mills	(Rev. B5.3—1960) B94.19—1968
Specifications for Carbide Blanks for Twist Drills, Reamers, End Mills, and Random Rod	(Rev. B85.1—1963) B94.20—1968
Gear Shaper Cutters	(Rev. B5.21—1968) B94.21—1968
Punches-Variable Head Type	B94.22—1968
Punch Guide Bushings-Variable Press Fit	B94.23—1969
Heavy Duty Carbide Inserts for Cutting Tools	B94.24—1969
Indexable (Throw-Away) Inserts for Cutting Tools	(Partial Rev. B80.1—1959) B94.25—1969
Indexable (Throw-Away) Insert Holders	(Partial Rev. B80.1—1959) B94.26—1969
Die Buttons — Basic Taper Relief, Press Fit	B94.27—1970
Die Buttons — Basic Straight Relief, Press Fit	B94.28—1970
Die Buttons — Basic Ball-Lock	B94.29—1970
Die Buttons — Variable, Press Fit	B94.30—1970
Steel Rotary Slitting Knives and Steel Spacing Collars	B94.31—1969
Circular and Dovetailed Forming Tools Blanks	(Redesignation of B5.7—1954) B94.32—1954 (Reaffirmed 1971)
Jig Bushings	(Redesignation of B5.6—1962) B94.33—1962 (Reaffirmed 1971)
Life Tests of Single Point Tools	(Redesignation of B5.19—1946) B94.34—1946 (Reaffirmed 1971)
Drill Drivers, Split-Sleeve, Collet Type	B94.35—1972
Life Tests for Single-Point Tools of Sintered Carbide	(Redesignation of B5.34—1956) B94.36—1956 (Reaffirmed 1971)
Carbide Blanks and Cutting Tools, single-Point Carbide-Tipped, Roller Turner Type	(Revis

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