AMERICAN NATIONAL STANDARD

Spade Drill Blades and Spade Drill Holders

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FOREWORD

Flat type drills have been used to produce holes since the dawn of recorded history. In recent times a flat drill commonly called a spade drill, has been used for producing larger size holes. Generally above 26mm diameter.

The type of spade drill presently in use was first introduced commercially in 1945 and was called a "Z" type. In 1947 a three hole blade, called "X" type, and a single bolt hole, called "Y" type, spade drills were introduced. During 1948 a second concern introduced a two bolt hole design along with a single bolt hole design that was not completely compatible with the other single hole blade.

This situation did not create a problem as long as there were very few producers of spade drills. During the next two decades the use of spade drills increased along with the number of suppliers. A Department of Commerece report in 1965 stated that there were 42 suppliers of spade drills. There was much confusion among users regarding interchangeability between the different types and between the same types of spade drill blades and holders from the various suppliers.

Technical Committee 18 was established during the 1970 Annual Meeting of the American National Standards Institute Committee B94 to develop an American Standard for Spade Drill Blades and Spade Drill Holders. The first meeting of TC-18 was held in April 1971. Because the two hole, three hole, "Z", and other types of spade drills were not universally used it was decided that only the single bolt hole spade drill blade and holder would be considered for this standard.

The draft of the completed standard for Spade Drill Blades and Spade Drill Holders was submitted to the Secretariat, The American Society of Mechanical Engineers, for review in June 1974.

This document was adopted as an American National Standard on September 10, 1975.

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Standardization of Cutting Tools, Holders, Drivers and Bushings

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AMERICAN NATIONAL STANDARD

SPADE DRILL BLADES AND SPADE DRILL HOLDERS

1. SCOPE

This standard covers nomenclature, definitions, sizes and tolerances for spade drill blades and spade drill holders insofar as the holder locates and holds the spade drill blade. All dimensions are in inches. Conversion tables from inch to millimetre are given in Appendix A.

2. SPADE DRILL BLADE–NOMENCLATURE AND DEFINITION

2.1 Spade Drill Blade

A flat end cutting tool, having two cutting faces used for producing, enlarging, or finishing holes. The blade is located in and driven by a suitable tool holder.

2.2 Axis

The imaginary straight line which forms the longitudinal centerline of the blade.

2.3 Back Taper

A slight decrease in cutting diameter (or width) from the outer corners of the cutting lips to the back of the blade measured as an angle or reduction in blade diameter.

2.4 Blade Diameter

The width of the blade measured across the circular od (outside diameter) land (margins) at the point.

2.5 Blade Length

The axial length of the blade measured from the chisel edge to the locating surface or seating pads on the back of the blade.

2.6 Blade Thickness

Thickness of tthe blade.

2.7 Chip Splitters

Notches or grooves produced on the front lip clearance surface (sometimes called chip breaker grooves) for splitting the chip into segments for easier removal from the workpiece. Usually staggered in location from one lip to the other.

2.8 Chisel Edge

The edge at the tip of the spade drill blade that is formed by the intersection of the two lip clearance surfaces.

2.9 Chisel Edge Angle

The angle included between the chisel edge and the cutting lip as viewed from the cutting end of the blade.

2.10 Cutting Edge Angle

The angle formed by the cutting edge and the flat portion of the blade.

2.11 Cutting Lip

The cutting edges extending from the chisel edge to the periphery.

2.12 Ear Length

The length of the locating ears beyond the seating pads.

2.13 Front Lip Clearance

The clearance angle along the cutting edge of the blade. It is measured from a projected plane tangent to the lip. (See Figure 1)