



Here, we introduce the knowledge and various knowledge about the product TAKAMAZ a variety of machine tools. I hope you will help the daily work of customers

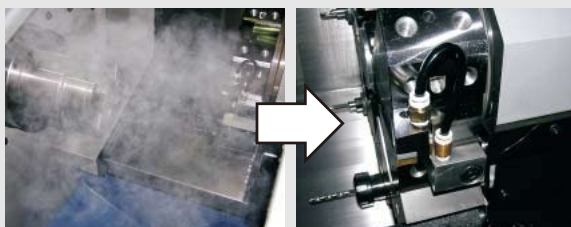
The 6th SEMI-DRY CUTTING INTRODUCTION CHAPTER 1



As known from the protocol adopted at the Kyoto conference and the agreement made at the Heiligendamm Summit held in 2007, anti global warming momentum is gathering in world scale. We believe that Japanese machine tool builders, as world

leaders of machine tool industries, can make a contribution to global warming countermeasures by supplying highly efficient, energy saving machines to customers. As a part of countermeasures, this chapter provides information on semi-dry cutting (MQL: Minimum Quantity Lubrication). Semi-dry cutting was first introduced at JIMTOF 1988, and nine years have passed since; however, this is not prevailing in turning operation due to various problems. Recently, substantial data in turning operation has been collected to solve the problems and this method is gradually being put into practical use.

Some people may already know about semi-dry cutting. This is a brief introduction. Semi-dry cutting is very close to dry cutting but supplies a very small quantity of coolant (2 to 30 cc per hour) to the point of cutting. Due to the nature of this cutting method, differently from conventional methods with flood coolant or mist coolant, it is essential to supply requisite minimum quantity of coolant in the required state (drop diameter) accurately with agility, according to the type of cutting.



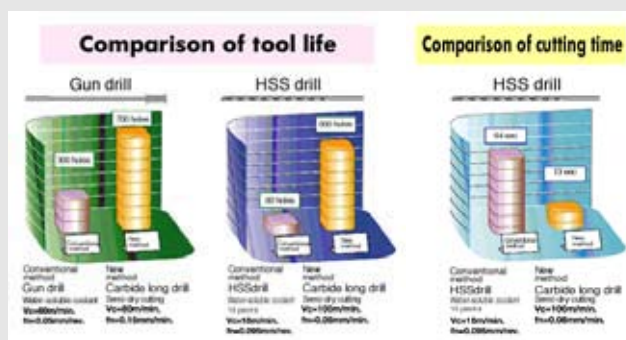
[Cutting with oil-based coolant] generated due to heat generated from cutting.

[Cutting with mist-hole tools] Small quantity of mist is supplied to the point of cutting.

Bluebe's coolant for semi-dry cutting is vegetable oil based coolant. This is safe for humans and the environment and can contribute to environmental benefit of biomass*. However, introduction of semi-dry cutting without careful evaluation could rather burden the environment since semi-dry coolant supply systems use compressed air, which may increase energy consumption if not used appropriately. Furthermore, even if the coolant itself is safe to humans, inhaling large volumes of coolant mist can be harmful. Accordingly, it is recommended to install a mist collector or similar equipment taking into consideration the workplace environment. * "Biomass" is renewable and recyclable biological energy. The total amount of solar energy and energy produced by plant biomass is estimated to be 10 times the amount of primary energy.

Advantages of Semi-dry Cutting

Compared with conventional cutting methods for small-diameter deep hole drilling on crankshafts (HSS drill + peck drilling on special machines or gun-drilling with high-pressure coolant), semi-dry cutting increases efficiency and reduces total investment costs. Taking these advantages into consideration, many automobile manufacturers are introducing semi-dry cutting in their production plants. Now, semi-dry cutting is considered a method for realizing high efficiency and reducing costs as well as an environmental countermeasure.



To Introduce Semi-dry Cutting

Changing the cutting method to semi-dry is not easy only by individual effort and cooperation of various fields is indispensable. If you have a problem in introducing semi-dry cutting method, please contact our Sales Engineering Section. Reference document: Document released by Fuji BC Engineering Co., Ltd.