



Description:

A new product for the use of gun drills and other coolant feed tooling on machine tool spindles without coolant through capability. Spindles include wood or metal cutting lathes, milling machines, drill units, and other machinery that can be suitable for the use of gun drills and other coolant through tooling but do not have through spindle capability at present.

Universal Rotary Coupling, part number RC-38, supplies air, spray mist or coolant into any spindle with a through hole. Very compact, light weight, re-buildable, and simplicity are key elements of its design. Attachment is through the center of the machine tool spindle free of any involvement and/or possible contamination of the spindle bearings. The unique design rotates the coupling's housing keeping the spindle stationary, so no anti-rotation bar is required. Just one shielded ball bearing and a light contact seal generates minimal heat from friction.

Applications:

Spindles with large holes such as metal cutting lathes can be used similar to a boring mill with coolant feed drills rear tapped 1/4" NPT held in the lathe chuck. The work is advanced into the drill from the carriage. A "doughnut" made from Aluminum or other free cutting material is sized to slip fit the rear of the spindle bore. A through hole in the "doughnut" tapped 1/4" NPT from both ends threads the Rotary Coupling onto the outboard end. A 1/4" nipple of a determined length connects the inside end of the "doughnut" through the spindle bore to the rear of the coolant feed or gun drill, or to a through hole tool holder.

Lathes, mills, and drill units that have spindles with through holes may be tapped 1/4" NPT on the far end (opposite the chuck) to accept the Rotary Coupling, or adapted/fabricated by other means to provide a 1/4" NPT port for attachment of the Rotary Coupling.

Machines with suitable speed, feed and capacity to use gun drills or other coolant feed tooling but have no through hole will require machining to provide a through hole with 1/4" NPT port to accept the Rotary Coupling. We suggest that the spindle through hole be sized from 6 to 10mm in diameter. Contact Sterling Gun Drills for a drill size range based on air & coolant supply.

The Rotary Coupling is threaded into a spindle with the (included) 1/4" NPT nipple. The inlet end of the coupling includes a 1/8" NPT x 90° threaded adapter and a 1/8" x 1/4" NPT adapter to direct the incoming air or coolant connection and hold the coupling's spindle stationary.

Contact Sterling Gun Drills, Inc for more information.

RC-38 Rotary Coupling Installation Engine Lathe or similar, in use as a boring mill.

Deep hole drilling applications with air only, spraymist systems, or coolant systems to 500 psi. Metal drilling applications may require modification to the lathe feed drive to achieve a suitable in./rev.

Determine the "X" dimension from front of chuck to rear of spindle. Fabricate a "doughnut" about 2" long to slip fit into the I.D. of the lathe spindle. Tap both end of this "doughnut" 1/4" NPT. Thread on the RC-38 Rotary Coupling on the outward end. Determine the length of a 1/4" NPT nipple and purchase (or make) one to suit the "X" dimension. Thread this nipple into the inside end of the "doughnut" and the other end into the drill or toolholder for the drill also tapped 1/4" NPT. The assembled gun drill, nipple and "doughnut" should be even with the chuck jaws in the front and (somewhat close to) even with the rear of the spindle bore. The air or coolant line feeding through the 90° connector on the RC-38 Rotary Coupling acts as an anti-rotation bar. Fit a 1/8" M x 1/4" NPT F hex bushing (included) if needed to connect suitable air, spraymist, or coolant supply. Add a slide, ball, or solenoid valve in the supply line to control from the point of use.

