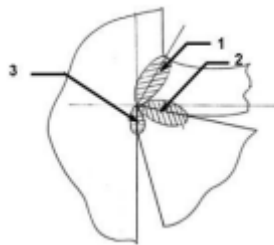


Introduction

It is known that during the transformation of work piece into chips, because of energy transformations in the cutting zone, it releases significant quantities of heat. The temperature developed is an important factor which has a dominant influence to the mechanism of transformation of the work piece machined layer into chip. Also it has effect on the phenomenon that occur in the process of cutting tool wear (abrasive, adhesive, diffusive), The development of temperature influence the magnitude of the cutting force components, it also cause residual stresses in various part of work piece. Therefore, in the machining process it is important accurately to know the magnitude of the temperature that occurs in the cutting zone. The temperature developed in the tool can be measured in different ways. We are using artificial thermocouple to measure the temperature because it is simple and reliable to use and is the most widely using method. During machining heat is generated at the cutting point from three sources. Those sources and causes of development of cutting temperature are:



- Primary shear zone (1) where the major part of the energy is converted into heat
- Secondary deformation zone (2) at the chip – tool interface where further heat is generated due to rubbing or shear
- At the flanks (3) due to rubbing between the tool and the finished surfaces