



RTMS NEW ROLL TECHNOLOGY PART 1



whole keyway moves. The upshot is the keyway will no longer be straight and will have shrunk in size. It could be out of tolerance and crooked by 0.030". Should this plausible scenario come to pass, the roll will not fit on the shaft.

This chain of evens explains why back in the 1930's, somebody came up with the arbitrary figure of 0.030" as the amount by which keyways should be wider than the key for the shaft (*fig 7*). It stuck, that's why the keyways have continued to be made 0.030" oversize ever since.



But there's one slight problem here, such keyways are destroying the roll, bore, face and shaft. As a result, the production of out-of-tolerance tubing is widespread. This unpalatable fact is as true today as it was then.

Poor keyway cutting in the main cause of premature wearing of the roll surface and faces. It's also the underlying reason why we have bores that fall out of tolerance after just a few runs. There is also a direct link between such old fashion keyway cutting and the roll marks, shears and crooked tube production we often see.

Of course, nothing happens in isolation in the manufacturing industry. The problems outlined above create a domino effect, where ultimately the shaft itself will fail – and now we are talking about big money!

If the worst happens

But even that is not the ultimate nightmare scenario. That

mantle is reserved for the total indicated run-out (TIR) which creates roll loping. In this case, the tube changes size after every revolution of the roll. There is no cure for TIR, once it's established in the machine, the sickness is terminal.

An owner of a TIR infected machine may, wrongly, conclude that the only problem is that the tooling needs reconditioning. Off the tool goes for grinding and – on its return – there's no improvement: the contour is perfectly shaped, it just can't maintain a steady tube size.

In short, the above text forms the case for prosecution against the seemingly never changing world of roll tooling manufacture. The friendly defense attorney will be along next time to proffer some solutions for these problems. So don't worry, there are easier ways than sticking with what you know.