

英语学习

英语翻译技巧(21)

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4.1.2 Temperature Control

Calender rolls are usually massive pieces of chilled cast-iron. They have sufficient thermal capacity so that, with a fixed flow of water, at some pre-set temperature, passing through an axial hole in the bowl centre, conditions can be reproduced^①. In any case, any temperature changes are slow, so a skilled leading hand on a calender can, from experience, maintain the temperature conditions about right by the alternate use of hot, cold, or no circulating water^②. Sometimes, steam is used instead of hot water.

More recent calenders use rolls with axial drillings about 50mm under the surface, through which water at a pre-set temperature is continuously circulated^③. The rolls with the axial hole through the centre are known as 'cored rolls', and the latter as 'peripherally drilled rolls^④'. Peripherally drilled rolls without controlled-temperature water going through them are unsatisfactory in operation, since hot and cold water used alternately increase and decrease the roll temperature too rapidly. Peripherally drilled rolls are normally heated and cooled at a speed of 1°C/min. In other respects, peripherally drilled rolls give much better control than the cored rolls.

4.1.3 Roll Cambering

The calender rolls are usually cambered and are not parallel to compensate for variation in thickness across the sheet, as discussed below^⑤. Whilst this is an ideal solution for a cal-

ender which produces one gauge of sheet from one compound, a change in either of these parameters gives a departure from the desired crown (Farrel Birmingham, 1953).

Whilst calenders can be recambered in a few hours to accommodate a 'permanent' compound change or to take up wear of the rolls, if more than one compound is processed then some other device for resetting the crown will be needed. If the amount of change of crown needed is small, e. g. on a tyre-fabric processing calender, then a roll-bending device can be installed. This comprises an extra set of bearings outside the normal bearings to which a large force can be applied hydraulically to produce roll bending^⑥. However, for compensation of more than about 0.075mm, depending upon roll width and diameter, it is necessary to apply an axis-crossing device. This will give sheeting thicker at the edges than at the centre by as much as 0.6mm. Thus with cross-axis and the right initial camber, great flexibility of crown control is possible, so a large range of compounds can be run (Willshaw, 1950).

生 词

chilled cast-iron	冷硬铸铁
bowl	辊筒
skilled	熟练的
leading hand	主机手
drilling	钻孔
cored roll	中空辊筒

peripherally drilled roll	垂直钻孔辊筒
roll cambering	辊筒中高度
departure from	偏离, 离开
compensate for	补偿
recamber	重调中高度
crown	中高度; 胎冠
roll-bending device	辊筒拉弯装置
axis-crossing device	轴交叉装置

译 文

4.1.2 温度控制

压延机辊筒通常都是笨重的冷硬铸铁件,它们的热容量很大,因此借助具有预定温度的恒定水流通过辊筒中心轴孔,温度条件是稳定的^①。总之,温度的任何变化都是缓慢的,因而技术熟练的压延机主机手根据经验便可通过选用热水、冷水或停止水循环来保持适宜的温度条件^②。有时可用蒸汽代替热水。

较现代压延机辊筒表面下的 50mm 处有许多轴向钻孔,具有预定温度的水在里面不断地循环^③。中心具有轴孔的辊筒叫作中空辊筒,而第二种叫作垂直钻孔辊筒^④。钻孔辊筒如果不通入控温循环水,操作起来就比较困难,因为交替使用热水和冷水使辊温升降太快。钻孔辊筒加热和冷却的速度通常约为 1℃/min。在其它方面,钻孔辊筒都比中空辊筒好控制得多。

4.1.3 辊筒中高度

如下文所述,为了补偿胶片断面上的厚度变化,压延机辊筒通常是中凸和不平行的^⑤。这对于用一种胶料生产一种厚度胶片的压延机来说确实是一种理想的解决办法,但这两个因素中只要有一个发生了变化,都将使原来理想的中高度不再适宜。

虽然可在数小时内重新磨削压延机辊筒的中高度以适应胶料永久性变更或消除辊筒磨损的影响,但如果要加工的胶料在一种以上,则需要用某种其它装置来重新调节中高

度。如果中高度所需变化不大,例如在加工轮胎帘布的压延机上,则可安装一台辊筒抗弯装置。除通常用的轴承以外,该装置还有一套额外轴承,可用液压装置向该轴承施加很大的力使辊筒反弯曲^⑥。但是校正量超过约 0.075mm 时,需用一种辊筒轴交叉装置,它将使胶片边部的厚度比中心大 0.6mm。这样,利用交叉轴和适宜的初始中高度对中高度的控制就有了较大的机动性,因而可加工胶料的范围就比较大了。

注:①此句中“so that”引出的是结果状语从句,从句中从“with a fixed”至“in the bowl centre”为分词独立结构,其中“at some pre-set temperature”是“water”的定语。

②此句中“about right”为“maintain”的宾语补语。“no circulating”在此处为“停止循环”、“不循环”的意思。

③“through which”引出的是定语从句,“which”代的是“axial drillings”。此处“which”代的是什么,只能根据逻辑来判断。

④“as ‘peripherally drilled rolls’”前省略了动词“are known”,这种省略法在英语中常见。

⑤“across the sheet”直译为“从胶片一侧到另一侧”、“横跨胶片”,实际上就是“在胶片断面上”。

⑥此句中“to which”引出的定语从句中“which”修饰的是前面的“extra set of bearings”。

英译汉常见错误实例

At time zero, a load corresponding to the cord's retractive force generated at 177℃ is applied.

误:温度在 177℃,时间为零时,负荷与帘线收缩力相一致。

正:在时间为零时,施加相当于帘线在 177℃下产生的收缩力的负荷。

注:①“corresponding to……”为现在分