

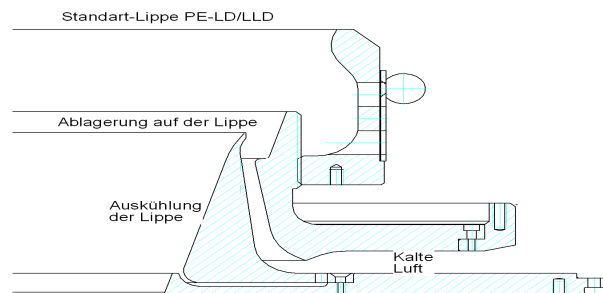
Problems with Paraffin or Wax

- Ulrich Büttel – U.B.Tech.GmbH – 10.2009 -

The time has finally come to the blown film lines with IBC and double lip cooling rings: paraffins or waxes are in for it when it comes to the processing of PE-LD, PE-LLD, PE-mLL, PP, as well as all sensible materials.

The cause of the development is familiar to many, but the fight against it is hard nowadays. Due to our processing temperatures fine oils are released as a mist, sometimes more, sometimes less, depending on the material. This mist or steam which is hot is attracted by all cold items in the vicinity of the blowing. These items like the IBC tower or double lip cooling rings attract this mist or steam like a magnet. The latest progresses of increased performances as well as lower cooling temperatures have intensified this effect.

Translation drawing:
Standard lip PE-LD/LLD
Residues on the lip
Cooling of the lip
Cool air



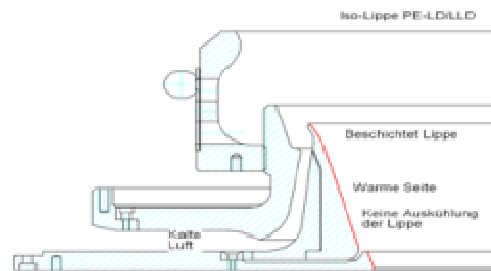
These residues on the IBC tower and the cooling lip cause splashes at the still thermal film blow. The oils run along the cooling devices to the air stream lips. These splashes (size approx. 1mm² to 10mm² and more) are a real nightmare for the progressing industry, which has problems with the film when pretreating, laminating and fusing it. So far the producers could only eliminate this disagreeable effect by switching off the machine and subsequently cleaning the cooling devices – which, as a matter of course, causes enormous costs.

In the past we often swapped ideas with the petrochemistry, but only with a minor success. Also machine builder brought the most elaborate and expensive items on the market, which also were little helpful. Eventually switching off the machine with the appertaining cleaning is still normal and improvements meagre (approx. 5-10%).

The U.B.Tech.GmbH has been working on the further development for a very long time. With success: the problem could be solved by up to 70% and hence the duration of the facility could be considerably increased, which results in a significant financial benefit.

Translation drawing:

Iso lip PE-LD/LLD
Coated lip
Warm side
No cooling of the lip
Cold air



The new way of the U.B.Tech.GmbH are **ISO lips** and **ISO cooling towers**, which can take the blow up temperature and hence eliminate the magnet effect, even when cold air of $\sim 10^{\circ}\text{C}$ is used. It is true that the paraffins and waxes are still there, but they are exhausted by the air outlet conduit which should be cleaned every six months.

All sorts of extruders can be equipped with it – without further conversion – by replacing cooling lip and cooling tower. Cost examples on request.

The technicians among you will certainly ask whether this is a flop or really possible that the cooling devices stay hot? We can only say that it is not only possible, but was implemented already.