

OPERATING MODE AND FUNCTIONS

- Advanced dual lip air ring BREEZE:
the Lower Lip provides initial quenching to strengthen the melt and also the "venturi effect" between the bubble and the cone to "set" the bubble;
Forming Cone: guides lower lip air and supports bubble while in the "semi-solid" state;
the Upper Lip provides the final "blast" of cooling air "adjustment".
- The air flow is diverted into several radial flows distributed all around the ring, that impinge on the melt as it exits the die. The temperature of each individual air stream is controlled by cartridge heaters (control zones).
- The automatic control system gets the inputs from the thickness sensor and therefore adjusts the temperature of the air streams into each control zone, to compensate any deviation of the thickness profile:
if a thicker section is detected, the air temperature into the relevant control zone is slightly increased, hence the melt is going to be a little under cooled, enough to make the gauge thinner;
if a thinner section is detected, the air temperature into the relevant control zone is slightly reduced, hence the melt is going to be a little over cooled, enough to make the gauge thicker.
- The temperature of control zones can be manual adjusted from the operator screen. When in Automatic Mode, all adjustments are controlled automatically by the gauge control software.
- Available as an option:
Upper Lip provided with a motorized lifting device, to adjust "on-the-fly" (machine running) volume and speed of the air, hence to get exactly the adjustment which is suitable for each BUR and each material processed;
also the Chimney is adjusted by a motorized lifting device, to further redirect the cooling air and increase the stability of the bubble.

操作模式及功能FUNCTIONS

- 先进的双出风口风环 BREEZE
泡膜刚出来时，下口出风提供冷却，在锥形结构与泡膜间形成“出风口效果”，对泡膜“定型”
锥结构：引导下风口并支撑处于半固态的泡膜
上风口结合冷风对泡膜进行最后的风吹调整
- 气流沿着气环分成若干径向气流，这些气流对刚从模头出的熔体施加影响，并且每个气流的温度通过卡盒式加热器（控制区）来控制。
- 自动控制系统从传感器读取数据，并调节每个控制区的风温，来取得对膜厚轮廓改善：
如果传感器检测到膜较厚，进入相应控制区的气温会少量增加，从而让厚膜处薄一点。
反之，若是检测到膜较薄，则相应控制区的气温会少许下降，从而使得薄膜处增厚点。
- 控制区的温度调整有两种模式，一种是手动式，另外一种是全自动式。
- 可选
上风口配备马达抬举的装置，能动态调整风量与风速，因而可以对每个吹胀比（BUR）和物料做到准确的调整。
风道也可以通过马达调整，进一步改进冷风的流向并增加泡膜的稳定性。



PROTUNE

GAUGE CONTROL SYSTEM



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PROTUNE

GAUGE CONTROL SYSTEM

HIGHLIGHTS

- Retrofitable.
- Outstanding gauge uniformity and cooling efficiency.
- Design maximize the cooling rate and utilize maximum blower efficiency with proven gauge deviation reduction.
- The operating principles assure a quick response time to any input for thickness correction.
- Superb gauge uniformity while maintaining excellent output.
- Designed to match the exact characteristics of any polymer and provide excellent bubble control and gauge uniformity.
- Suitable for running low melt-strength materials at higher blow-up ratios.
- Repeatable settings of total airflow adjustments by a variable speed AC control for the blower motor.
- Do not require an additional blower or use compressed air.
- 可定制改进。
- 卓越的测量一致性及冷却效率。
- 设计是根据大量现场测试，最大化冷却速度，优化风吹效率。
- 运行原则上对厚度修正的输入保证快速反应。
- 在高性能输出的同时，保持测量的一致性。
- 设计时考虑了各种聚合物原料的特性，在提供优异的膜泡控制的同时，也保持了测量的一致性。
- 也适合对低融强的原料的高速膜吹。
- 通过可调速度AC控制吹机马达，能重复设定总体气流修正。不用配置额外的吹机或用压缩空气。



PROTUNE

SYSTEM COMPONENTS

- Dual lip air ring BREEZE, fully powered by Dotec.
- Pc Based Operator Interface with 15" touch-screen colour screen, to display:
 - previous and actual profile comparison (cartesian plot)
 - actual profile (polar)
 - profile trend diagram
- Control cabinet with automatic gauge control software.
- Online film thickness sensor Kündig K-300 Rotomat.

- 高性能双出风口自动风环，全由Dotec设计生产。
- 基于PC机的操作界面，配上15吋彩色触摸屏，可显示：
 - 上一个与目前的膜轮廓比较（直角坐标曲线图）
 - 实际轮廓（极线图）
 - 轮廓趋势图
- 控制柜带测量控制软件。
- 在线厚度传感器 Kündig K-300 Rotomat。



BREEZE

AUTOMATIC AIR RING SYSTEM COMPONENTS

- High performance dual-lip automatic air ring.
- Last state-of-the-art design to start from best performance when automation is off, with highest cooling efficiency of the film with the best stability of the bubble.
- Automatic gauge control made with cartridge heaters, hence:
 - no maintenance required
 - no alteration of the air flow around the bubble
 - very easy to set-up
- Motorized adjustment of upper lip and chimney (option).
- 高性能双出风口自动风环。
- 顶尖的设计风格，追求对膜最佳的冷却效果，同时保持泡膜的稳定性。
- 内置卡盒式加热器自动测量控制，能实现：
 - 不需要维护
 - 不用改变泡膜周围的气流
 - 容易设置
- 上出风口与罩可用马达调节（可选）



Model	sizes die ø (mm)	control zones	air inlets
BREEZE 300	50 ÷ 150	54	6
	> 150 ÷ 300	54	6
BREEZE 400	> 300 ÷ 400	60	6
BREEZE 550	> 400 ÷ 500	72	8
	550	72	8
BREEZE 700	600	100	8
	650	100	8
	700	100	8

ONLINE THICKNESS SENSOR

KÜNDIG K-300 ROTOMAT



The capacitive sensor, on slewing ring, goes around the bubble and measures the film thickness along the circumference, over the frost line.

The system calculates the thickness average value and the thickness actual values on each radial position (corresponding to the control zones of the automatic air rings).

Rotates continuously in one direction at a minimum rotation time of 36 seconds.

Different sizes of slewing rings available for lay-flats from 255 mm up to 3900 mm.

Sensors with different coatings available: CRS (chrome coated sensor for standard films, excellent durability with abrasive films), PVD-2 (plasma coated sensor for slightly sticky films, good durability with light abrasive films), PTFE (coated sensor for sticky films, short lifetime with abrasive films).

安装有圆环导轨上的电容传感器，沿着泡膜运转测量膜厚。系统对每个气环的控制区域对应的泡膜部分计算平均值及实际值。

单方向连续旋转，不断扫描，旋转一周最少时间为36秒。

导轨能对应不同的折径，从 255 mm 到 3900 mm。

传感器有不同的涂装。目前有：
 CRS（铬镀层 适用于普通薄膜）
 PVD-2（真空电镀 适用于低粘性薄膜）
 PTFE（聚四氟乙烯 适用于粘性薄膜）

On demand, the PROTUNE can be interfaced with any other sensor available in the market.

根据需要，PROTUNE 能与市面上多数传感器一起使用。