



TEXTILE



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PAPER

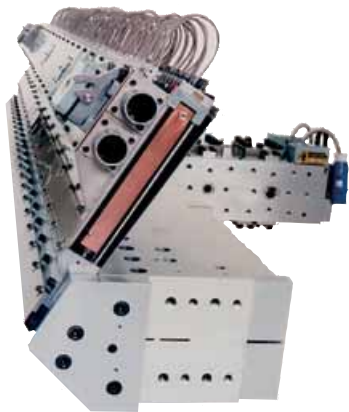


PLASTIC

## OPTIONS

# DIECONTROL APC PRO

## AUTO DIECONTROL



Extrusion die\*



### Product-highlights

- ✓ Exceedingly short recovery times by using optimised "feed-forward" control algorithms
- ✓ Modular construction facilitates maintenance and expandability
- ✓ Automatic improvement of power-factor by varying the switching time points
- ✓ Features such as predictive Neck-In Compensation and Edge-Bead Control are industry firsts

### Applications

The DieControl APC Pro thermal die controller can be used with all the usual extrusion dies which can regulate via thermal die elements the amount of coating applied cross-sheet, eg. "Autoflex™" dies from EDI, USA (Extrusion Dies Incorporated). These dies are used chiefly for film extrusion (cast film) and extrusion coating. They can also be used on special applications such as the manufacture via a coating process of special membranes on high-precision, guided steel bands. Regardless of the application, the DieControl APC Pro is used to compensate for set-point errors in the thickness or g/m2 weight of the product, specifically in those segments of the extrusion die in which these errors occur. The DieControl APC Pro is usually coupled to one of the QMS Qualiscan's sensing systems, which continuously detects these errors across the entire width of the sheet, and transmits this profiling data to the DieControl APC Pro via a data bus link.

\* With kind permission of EDI (Extrusion Dies Inc.)

## Fundamentals

The main panel contains the thyristor-based power controls for the individual thermal die bolts of the extrusion die, one per segment (max. 256 per unit). This is normally installed close to the die to avoid long cable runs and is connected to the operating unit. Power output is regulated for each thermal die bolts by a duty cycle. Varying the latter's ratio changes the output, which in turn alters the temperature of the die accordingly. As a consequence the length of the element also changes and, as the latter is directly attached to the lip applicator, the temperature of the die also alters the profile of the lip, and this then acts upon the cross-sheet profile of the extruded polymer (film thickness, coating weight).

All control loops are operated in real-time by an independent PLC which communicates directly with the power actuators and regulates the duty cycle. The operating screens are typically integrated into the main QMS-12 Console display: all parameters entered into the PC are sent to the PLC via a TCP/IP interface, thereby ensuring optimum, fail-safe processing. The control algorithms support both types of extrusion dies, i.e. "push" and "push-pull", and in doing so, reliably prevent damage to the die lips as a result of incorrect control actions.

### Customer benefits

- ✓ Fully automatic reduction of repetitive errors in cross-sheet thickness (coating)
- ✓ A marked improvement in the quality of the end product
- ✓ Instant control ensures a minimum of lost production when changing batches
- ✓ Considerable savings in raw material thanks to a minimum of set-point errors
- ✓ Automatic reduction of operator errors thanks to closed-loop control



Recipe settings for die control

## TECHNICAL DATA | DIECONTROL APC PRO

| Technical Data                | DieControl APC Pro             |
|-------------------------------|--------------------------------|
| Max. number of power outputs  | 256 (32 PCBs, each 8 channels) |
| Max. switching power          | 110/240 V AC, 1.25 A per bolt  |
| Controller                    | B+R™ PLC                       |
| Connection                    | TCP/IP                         |
| Power supply                  | 440/480 V AC<br>50/60 Hz       |
| User interface                | APC Pro software (Win32)       |
| Control loops                 | Predictive, based on die model |
| Dimensions of control cabinet | 600 x 1072 x 450 mm            |



### CONTINUANCE

Our decades of experience has made us the reliable partner which we are today. Independent, determined and forward-thinking. So that we can also be here for you tomorrow.