

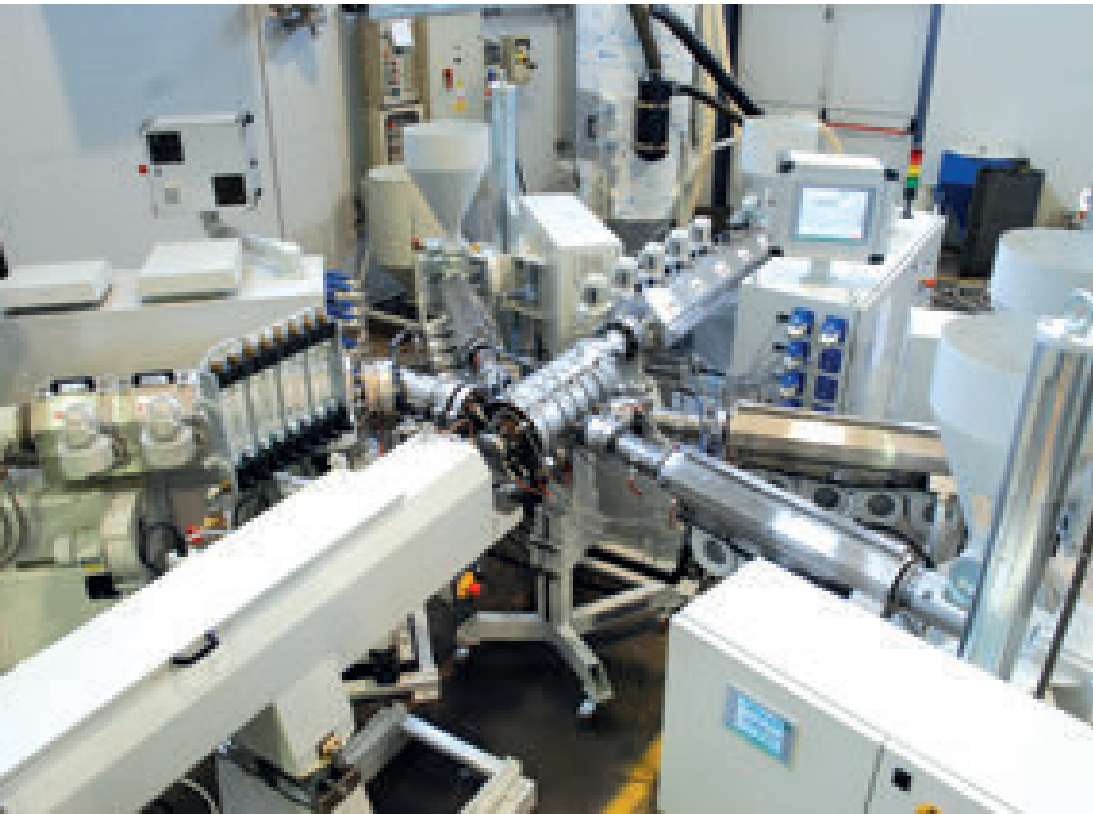
MACPLAS INTERNATIONAL

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THE MAGAZINE FOR THE PLASTICS AND RUBBER INDUSTRY

www.macplas.it ■ ITALIAN MACHINERY - SHADOWS AND LIGHT AT THE HALFWAY POINT ■ PLENTY OF POTENTIAL FOR RECYCLING ■ TECHNOLOGICAL DEVELOPMENTS APPLIED TO INJECTION SYSTEMS ■ PLASTICS EARN THEIR TRAVEL TICKET



NOWADAYS, ANY INDUSTRIAL PROCESS REQUIRES HIGH QUALITY PRODUCTS AT EFFICIENT OPERATION COSTS. THIS PRINCIPLE IS ALSO TRUE IN MANUFACTURING PLASTIC PIPES AND HAS LED TECNOMATIC TO DEVELOP A NEW GENERATION OF EXTRUDERS AND DIE-HEADS, IN ORDER TO OFFER PERFORMING PRODUCTS FOR INCREASINGLY DEMANDING APPLICATIONS

TECNOMATIC AT K 2016: ADVANCED SOLUTIONS FOR PIPE MANUFACTURING

AIMING AT ENERGY AND PERFORMANCE EFFICIENCY

Pipe manufacturers have started to think in terms of operation cost efficiency, but without compromising the performance of pipe extrusion lines. At K 2016, Tecnomatic (hall 16, booth D05), which celebrates its 45 years of experience in the plastic sector, presents innovative solutions in pipe extrusion, to assist customers not only by supplying extruders and die-heads but also providing complete production systems for a line of business which is getting increasingly demanding. At the K show, Tecnomatic introduces a further developed version of its extrusion series Zephyr with L/D=40, both in a gearless and a traditional version (with gearbox).

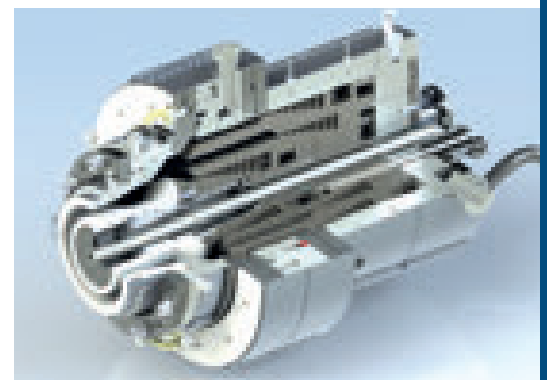
ZEPHYR EXTRUDERS

Zephyr is the most performing line of extruders in the Tecnomatic's product range. It boasts an array of advanced technical solutions, which make such a series of unique models, designed

for pipe manufacturers, look for highly energy-efficient machines, offering extreme output performance at lower melt temperatures. Innovation spans the entire extruder, the new spiral grooved bush, screw and motors.

Pipe extrusion is highly dependent on electricity and most of the energy usage is in operating the extruder. The Zephyr series has focused on this as its top priority, offering extruder increased screw length, smaller torque, and AC water-cooled motors, to achieve the same output of bigger size extruders while improving energy efficiency.

The new feed bush ensures minor friction, commonly generated by the transport of raw material, with the subsequent increase of the specific and total throughput. The further development in screw design, with optimization and enhancement of torque and shearing elements, has improved output and also led to process material at lower melt temperatures.



Venus Multi 250 Quattro die-head, for the production of PE pipes up to 250 mm in 4 layers, with PAC system (Pipe Air Cooling)

To meet the requirements in terms of production efficiency, the machines are equipped with torque or water-cooled motors (in this case, with one-step or two-step gearboxes) and compact water-cooled inverters. These solutions, com-

bined with the mechanical features, ensure outstanding energy-efficiency, low noise operation (less than 74 Db), reduction in maintenance workload, greater efficiency within wide speed and load ranges, and faster dynamic response.

VENUS AND ATHENA DIE-HEADS

Besides the extruders, Tecnomatic also displays multilayer die-heads from the Venus and Athena series: the Venus Multi 250 Quattro - for the production of PE pipes with a diameter up to 250 mm in 4 layers, with PAC system (Pipe Air Cooling) - and the highly innovative Athena 5-40, offering improved performance to the market of PE-x and PE-rt pipes.

Athena heads are made with the addition of radial modules based on the number of layers to be produced. The radial distributors do not have any dead zones or edges, where material could stop, and allow easy cleaning and rapid assembling/disassembling operations. The radial spirals ensure low pressure losses and high flexibility in terms of layer structure (thick or thin layers) and number of layers, while their short flow path leads to reduced residence time and rapid material and colour changes. In a market increasingly looking for highly innovative developments and continuous improvement in the properties of the material, single-layer pipes are not always able to fulfil the necessary requirements. Tecnomatic has well interpreted emerging customer needs and has developed, on the basis of the Venus concept, a full range of die-heads for the production of 2, 3 or 4 layer polyolefin pipes, even in a large size. A project in 1,200 mm three layers, carried out in 2013, is the milestone of the multilayer production made by Tecnomatic.

The heart of the Venus Multi consists in an innovative flow channel geometry, which has been calculated in consideration of the current raw material, PE 100 CR and PP. This geometry ensures the same behaviour for pressure and distribution of the melt in all the pipe heads, also at very high output rates.

The new feeding system of the spiral channels, the matching ranges and the small die sets contribute to reducing pressure. This greatly influences energy consumption during extrusion, considering that approximately 5 to 10% of the extruder power is necessary for pumping. Lower pressure also results in a lower increase of the melt temperature and, with lower residence times, pipe characteristics are significantly improved with regard to OIT (oxidation resistance) values, extra weight, and thermal and shear stresses reduction. ■

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