

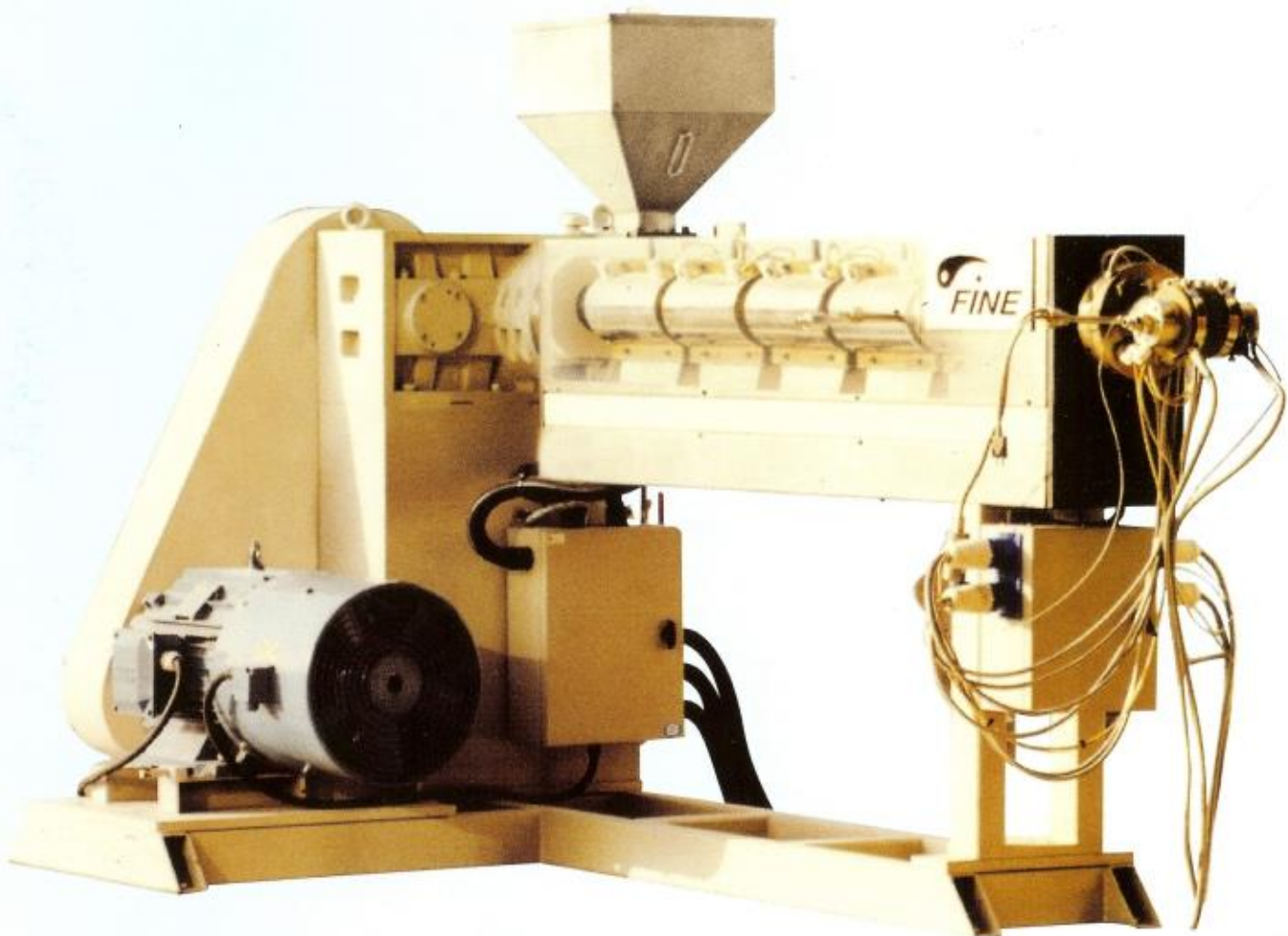


PHYSICAL FOAM LINE BY GAS INJECTION

Fine International offers gas injected physical foam lines for a full range of applications ranging from minicoax used for LAN cable to microwave coax for wireless (cellular) RF cable. The foam technology is based on Fine's proprietary high pressure, gas injection technology suitable for a variety of polymers including PE, PP and FEP.

All production lines are fully tested at our factory prior to shipment and we invite our customers to participate in this important quality assurance step. Our on-site commissioning is oriented toward basic operator training and process development in addition to the more standard line component and synchronization verification and testing.

We also offer line upgrades from existing chemical foam lines or other physical foam processes.



*The Foam Extrusion Experts
Serving the Wire and Cable Industry*

FINE INTERNATIONAL CORPORATION

Drop Coaxial Cable (RG Type) Insulation Line

The Typical RG Coaxial Line is Configured as Follows.

- 800 mm Driven Conductor Payoff with Dancer
- Conductor Sizing Unit
- 800 mm Dual Wheel Vertical Metering Capstan with Tension Control System
- High Frequency Inductive Preheater — Fine's Model IP300-250-8.5
- 30 mm 24:1 Precoat Extruder with Fixed Center Crosshead
- 90 mm 40:1 Foam Extruder with Fixed Center Crosshead
- N2-400 Nitrogen Delivery System with PRECISEFLOW
- Operator Interface Control Panel
- 3 Self-Contained Water Cooling Trough Sections
- 1200 mm Belt Wrap Pullout Capstan
- Diameter/Capacitance Control System
- Automatic 800 mm Dual Takeup (Manual Load) with Accumulator

Production Parameters

Product	Conductor (mm)	Insulation OD (mm)	Line Speed (m/min)	Foam (%)	Flow Rate (Liters/m)
RG-59	0.81	3.66	300	62	2.6
RG-6	1.02	4.57	250	64	3.1
RG-11	1.63	7.11	120	70	3.3

Specification: Capacitance +/- 1.0 pF/m
Diameter +/- 1.0%



Mini-Coaxial Insulation Line

The Typical Mini-coaxial Line is Configured as Follows.


- Dual Conical Flyer Payoffs
- Conductor Sizing Unit
- 400 mm Dual Wheel Vertical Capstan
- High Frequency Inductive Preheater — Fine's Model IP4000-250-5.5
- 25 mm 24:1 Precoat Extruder with Fixed Center Crosshead
- 65 mm 40:1 Foam Extruder with Fixed Center Co-extrusion Crosshead
- 25 mm 24:1 Outer Skin Extruder
- N2-400 Nitrogen Delivery System with PRECISEFLOW
- 2 Self-Contained Water Cooling Trough Sections
- 318 mm Dual Water Wheel Spray Capstan
- Diameter/Capacitance Control System
- Semiautomatic 500 mm Dual Takeup with Accumulator
- Operator Interface Control Panel

Production Parameters

Product	Conductor (mm)	Insulation OD (mm)	Line Speed (m/min)	Foam (%)
Cat 6	0.51	0.88	1200	55
Mini-Coaxial	0.51	2.20	500	60

Specification: Capacitance +/- 1.0 pF/m
Diameter +/- 1.0%

Fine International's physical foam lines enable the cable manufacturer to exceed the current and emerging standards for cable used for high frequency applications. All of the lines are designed incorporating the following critical features.

High Pressure Nitrogen Gas Injection foam extrusion process providing the greatest nitrogen solubility while maintaining high extruder output. The 40:1 L/D extruder uses a 2 stage patented screw design with 2 independent mixing sections to homogenize the raw materials and then homogenize the gas dissolved polymer solution. The 400 bar gas is delivered through from our N2-400 system equipped with PRECISEFLOW, a gas metering device that precisely controls the gas flow pass through the micro size diamond orifice into the extruder. Lines are optional equipped with melt pumps for higher volume applications (such as RF and trunk cable). The fixed center, low volume crosshead is mounted through an adaptor equipped with a bleeding valve allowing minimum conductor waste during line start-ups. The technology results in a highly expanded extrudate with a , closed cell structure.

Closed-loop Tension Control System provides precise and regular wire conveyance through the use of both metering and pullout capstans isolating the payoff and takeup operations from the extrusion operation. The design is essential to minimize periodicities that result in structural return loss. Dual wheel metering capstans optionally equipped with conductor sizing provides a uniform conductor to the extruder crosshead. The pullout capstans ranging from water wheel types to 1500 mm belt wrap depending on product size and foam wall thickness. The capstans avoid the use of gear-boxes using direct drive motors controlled by AC flux vector drives.

Diameter and Capacitance System evaluating the dielectric properties of the foam insulation in a real-time basis. Both the hot insulation diameter and cold diameter are measured allowing for accurate and timely dimensional control. Capacitance is measured continuously and can be used for process monitoring or control.

Control Panel-Operator Interface All AC vector drives are digital controlled. The user friendly touch screen computer displays all parameter and real-time process trending.

Automatic Dual Takeup provides precise winding of insulated wire product in completely self-contained dual shaft type, take-up with automatic change-over capable of line speeds to 600 meter/minute. Shafts have hydraulic lift and closing activated from a conveniently mobile, overhead operator control panel.

**Contact Fine International for
The Best Valued Manufacturing Equipment Available
In the Wire and Cable Market!**

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