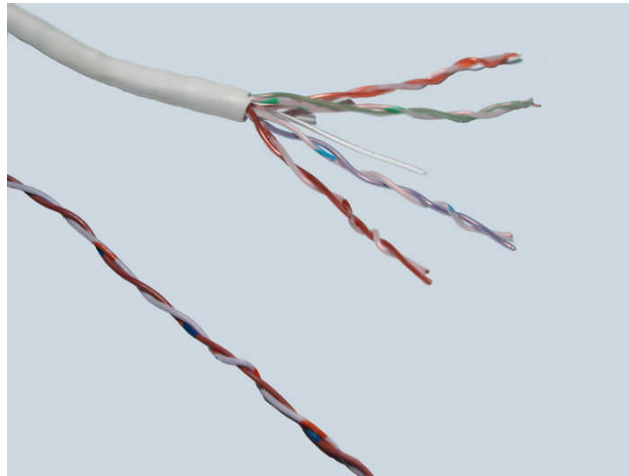




Royle Systems Group

Sheathing



Specifications:

Application: LAN Jacketing
Compounds: PVC, Flame Retardants
Maximum Core Diameter: 12 mm

Maximum Finished
Diameter: 18 mm
Extruder Size: 80 mm 24:1 L/D
Linespeed: 500 MPM maximum
Line Height: 1M

Line Configuration

- (2) 1000 mm Payoffs
- Accumulator
- 80 mm 24:1 L/D High Temperature Extruder w/ Accessories
- Crosshead
- Cooling Trough
- Diameter Control System
- Lump/ Neckdown Detector
- Ink Jet Printer
- 610 mm Capstan
- Dancer
- 1000 mm Dual Reel Takeup
- autoLine Level V/ Control System

Key Components

- 80 mm 24:1 L/D High Temperature Extruder w/ Accessories
- Cooling Trough
- 610 mm Capstan
- autoLine Level V/ Control System

80 mm 24:1 L/D Extruder



One Royle Gen2000 heavy-duty extruder comes complete with a fully enclosed gear housing having self-lubricated reduction drive, lubricating oil fed by gravity to integral roller thrust bearing mounted in its own housing to isolate extrusion pressure and torque overload from gear reduction drive. Also come with spacer ring and water-cooled feed section (equipped with safety guard), cylinder with high temperature bimetallic lining and insulating jacket, heating/cooling system consisting of ceramic heaters with stainless housing for increased cooling and internal high-temperature resistance heaters. High-velocity air cooling is done by motorized blowers connected to a plenum chamber, and temperature sensing thermocouples for each control zone and system are automatically controlled by remote.

All above assembled and mounted on heavy-duty fabricated steel base, prewired, prepiped, and completely shrouded.

Specifications:

Model:	80 mm 24:1 L/D High Temperature
Heating/cooling Zone:	5
L/D Ratio:	24:1
Reducer Model #:	425K

Driving Members for 100HP

One set of motor mounting members including motor base, bolted and prealigned to extruder base to make field alignment unnecessary, steel sliding base for extruder motor, coupling, and guard. Drive transfer and guards included.

Specifications:

Motor HP: 100

C-Clamp Head Adapter

One high temperature C-clamp closure for heating flange including three piece C-clamp with handle to open and lock in open position. Hinged locking bolt with ratchet for quick access. The clamp is controlled as a separate heat zone having its own heaters and control thermocouple. Also, includes a double knuckle hinge for crosshead support.

Specifications:

Type: 80 mm

Crosshead Stand

One double knuckle hinge crosshead stand welded to extruder base. Includes swivel and mount to hold second crosshead for preheating.

Melt Pressure Transducer

One melt pressure transducer with hastelloy tip located in barrel prior to breaker plate. Includes interconnecting cable for display of melt pressure in autoLine. Includes hi pressure alarm setpoint and hi-hi pressure alarm setpoint which shuts down the extruder drive.

Specifications:

Manufacturer: Dynisco

Cooling Trough - 23 meters

Section 1, Hot Water/Retractable

One retractable single pass, heavy gauge, stainless steel cooling trough, 3 meters long with baffles designed for spray or flood cooling, comes complete with rigid end flanges and vertically adjustable support structure. Complete trough is covered, insulated, and is provided with a drain box.



Specifications:

Size:	100 mm
Length:	3 meters
Retraction:	1 meter

One tempered water system comes complete with stainless steel reservoir for connection to the first zone. The system has immersion heater, thermocouple and a pump to provide water to the first trough zone. The temperature will be controlled by the EM-2 System.

There is one cable drying section. It includes a venturi style air dryer with air pressure regulator. The air control solenoid is electrically actuated and integrated via the autoLine computer with the Line Start and Stop functions.

Section 2, Hot Water

Three single pass, heavy gauge, stainless steel cooling trough, 3 meters long with baffles, are designed for spray or flood cooling, complete with rigid end flanges, and vertically adjustable support structure. The complete trough is covered, insulated and is provided with a drain box.

Specifications:

Size:	100 mm
Length:	10 meters

One tempered water system comes complete with a stainless steel reservoir for connection to the first zone. The system has immersion heater, thermocouple and pump to provide water to the first trough zone. The temperature will be controlled by the EM-2 system.

Section 3, Plant Water

Three single pass, heavy gauge, stainless steel cooling trough, 3 meters long with baffles, are designed for spray or flood cooling, complete with rigid end flanges and vertically adjustable support structure. The complete trough is covered and is provided with a drain box.

Specifications:

Size:	100 mm
Length:	10 meters

There is one cable drying section. A large capacity vacuum pump is connected to the air wiper housing to eliminate the moisture that is removed from the surface of the wire.

610mm Belt Wrap Capstan



One belt wrap capstan comes complete with a main support bracket for idler sheaves having one sheave positioned by means of a pneumatic cylinder to provide belt tension adjustment. It features a driven capstan wheel with guide flanges and rubber covered cable contacting surface which is directly mounted on the output shaft of a heavy duty reducer. All electrical and pneumatic devices are wired and piped to appropriate locations for convenient service connections. All above mounted on a heavy duty fabricated steel base with protective shrouding to cover all moving parts.

Specifications:

Capstan Diameter	610 mm
Motor:	5 HP

autoLine Level V Control System

The Royle autoLine Level V control system is a flexible PLC Based industrial control package designed specifically for **extrusion** applications. Careful thought and consideration have gone into the selection of the various components that are used to make up the system. Some of the more important considerations are: long term support of the component, experience in an extrusion application and ease of use through the human machine interface (HMI) package.

Royle has designed a system that has withstood the test of time as we have dozens of autoLine installations worldwide. The success of the system can be attributed to the philosophy of distributed controls and the notion of integrating world renowned components with high speed data networks. As a standard, components such as the temperature control are integrated to the host HMI package via a high speed communications network instead of try-

ing to develop the temperature control algorithms and applying them towards an extrusion process.

We feel that the complex integration of all the industrial components lend themselves well to a seamless integration of a technically superior and reliable industrial control system that will optimize production capabilities and be easy to support down the road.

Level V autoLine Operator Control System

One autoLine control system for total control of synchronization of control parameters with full integration between all elements and recipe capability for each product. The system utilizes a color touchscreen for display for annunciation and monitoring of all critical parameters.

The autoLine Level V control system consists of five main components:

- Operator Interface Terminal (OIT)
- autoLine Level V system HMI package
- Programmable logic controller (PLC)
- Temperature Control System
- DC Drive System

Level V OIT/Graphical User Interface

The GUI is an industrial computer equipped with the following hardware:

- Intel 633Mhz CPU
- 40GB Hard Drive
- 3.5" Floppy Drive
- 256 MB RAM
- Large Color touchscreen display

The OIT features a graphical user interface (GUI) operating from a Microsoft Windows environment with color display screens, pre-configured to provide the operator with Real-Time monitoring of process variables. All of these screens may be accessed by the operator to obtain information on a piece of equipment, or for modification of system parameters.

An uninterruptable power supply (UPS) is included with the Level V System. The UPS allows for a proper computer shut down in the event of a power failure in order to save the system databases. The UPS also prevents premature computer shutdowns in the event of a power "brown out".

Level V HMI

The Royle Level V HMI has been fully developed and is utilized in many applications throughout the world. The development software package is Microsoft Windows based and can be readily networked to enterprise computer networks. The package proposed is a full Run Time version allowing control and interface to the control system.

The autoLine Level V system HMI package features:

- Real-Time Color Graphics
- Recipe Editor/Loader/Generator
- Real-Time and Historical Trending
- Print Spooler
- File Manager
- Alarm and Event Supervisor
- Relational Database Historian
- Real time Data Logger
- SPC (Optional)

The following displays will be supplied:

- Process overview display
- Temperature overview display
- Temperature zone configuration display
- Alarm display/Historian
- Recipe editor/loader/generator display
- System setup & Diagnostics display
- System
- Historian/Real Time Trending (8 Variables on Screen)

During the initial production trials, parameters for the successful operating runs will be recorded against product code. These parameters can then be re-loaded at any time that the same product is run as part of the set-up procedure for the line, which will automatically reset all the line parameters to correspond to the successful settings of the past.