ELAV | THE ART OF EXTRUSION CONTROL

Elav Mechanical Division

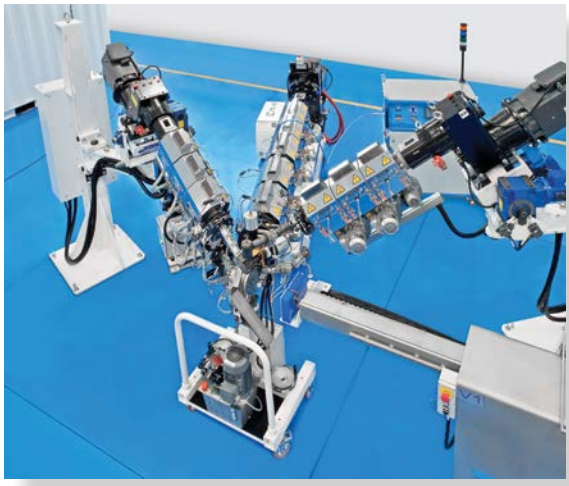
After 40 years of experience in wire and cable manufacturing with more than 3500 installation worldwide, in 2021 Elav started its mechanical division.

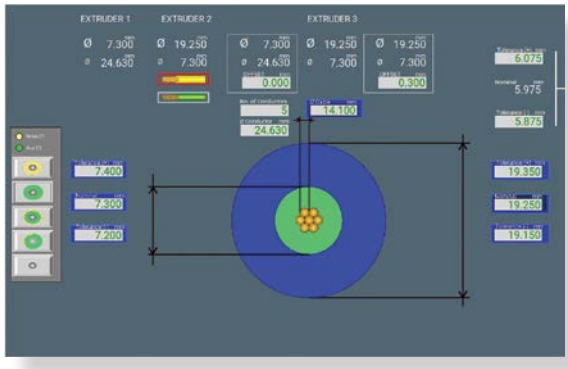
Thanks to synergy with Colines SpA, leader in plastic film extrusion line manufacturing since the '70, with four manufacturing plant covering more than 25.000 sqm, Elav is capable of supply a complete extrusion line for cable manufacturing with special attention to low energy consumption and production efficiency.

All our system can be customized to completely meet the specific requirement of our customers and all equipment can be easily integrated in already existing lines.

Our services include also the refurbishment and upgrade of old equipment and the complete installation at customer premises, giving our client the added value of a turnkey project.

The partnership with primary worldwide companies for all ancillary equipment that characterize a cable manufacturing line (e.g. dosing system, temperature control units, extrusion heads, etc.), combined with the experience in automation and process control, give our customers a state-of-the-art solution.



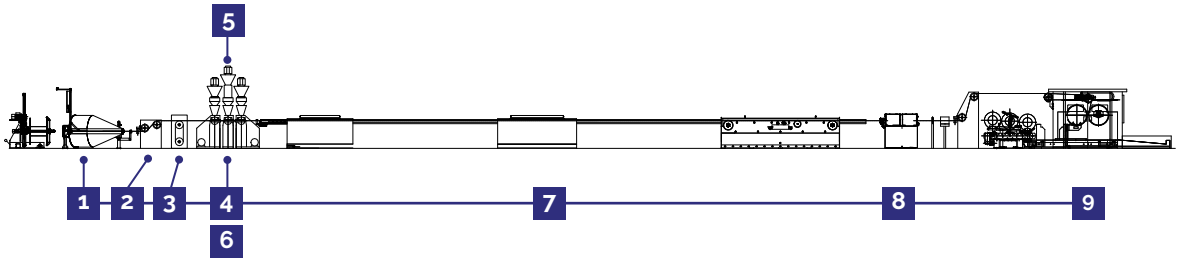


Automotive wire Insulation Lines

Suitable for high speed insulation of low voltage automotive wire with mulitple thermoplastic materials including flame retardants, reticulated polyethylene (XLPE), also with liquid Silane, halogen-free (HFFR), TPE and PVC.
Multiple line configurations guarantee efficient production with high speeds and low scrap.

LINE CONFIGURATION

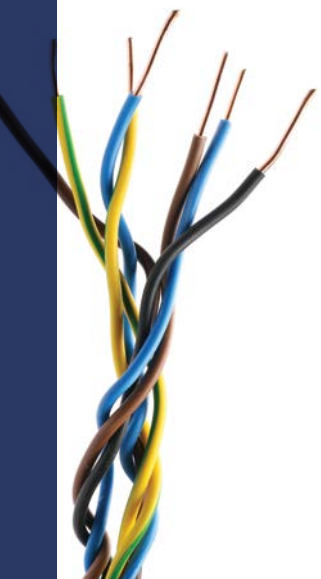
LINE ELEMENT		DESCRIPTION
1	**Pay Off**	Single or dual flyers SDF800, SDF1250 Cantilever SCT 800, SCT 1000
2	**Brake / Capstan**	Pneumatic or clutch driven braking system Belt Capstan TCP series
3	**Pre-Heater**	On request
4	**Extruders**	Main: LCE 60 - LCE 80 – LCE100 - LCE120 Stripes: LCE 35 – LCE 45
5	**Dosing system**	Optional: volumetric or gravimetric system Optional: liquid Silane high accuracy dosing system Si-Jet (patented)
6	**Extrusion Head**	On request
7	**Cooling troughs**	Straight, hot/cold sections, single or multipass
8	**Outlet Capstan**	Belt Capstan TCP series
9	**Take Up**	Double automatic ADA630 - ADA800



LINE TYPES:

- Coex 2: insulation extruder and stripe extruder
- Coex 3: insulation extruder, skin/stripe extruders – with Quick Color Change functionality
- Ceox 4: insulation extruders with Quick Color Change functionality, skin and stripe extruders

X-Flow quick color change system ensures color change without slowing down the line with minimum scrap.



TYPICAL PRODUCT DEFINITION

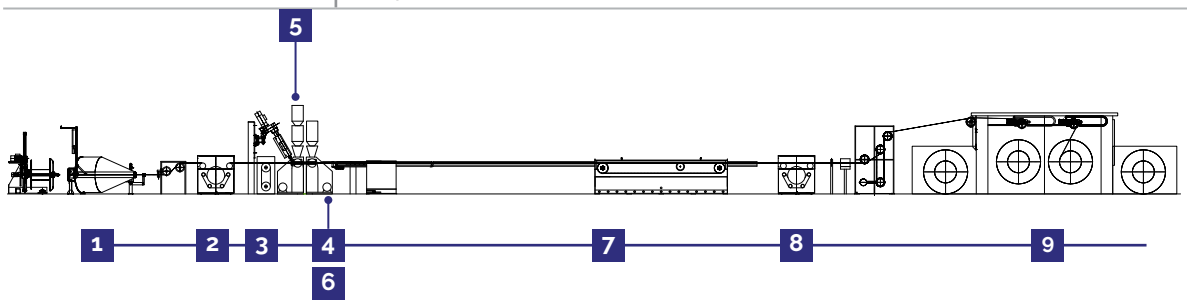
CONDUCTOR CROSS SECTION	WIRE Ø RANGE	INSULATION MATERIAL	SPEED MAX
0.22mm² – 6mm²	5mm	PVC, PE, XLPE, XLPE Liquid Silane, PVC, HFFR, TPEE	1.500 m/min

Building wire Insulation Lines

Ideal for insulation of low-voltage wire with multiple thermoplastic materials including flame retardants, reticulated polyethylene (XLPE), also with liquid Silane, halogen-free (HFFR), PP, PU, TPE and PVC.
Multiple line configurations guarantee efficient production with high speeds and low scrap.

LINE CONFIGURATION

LINE ELEMENT		DESCRIPTION
1	**Pay Off**	Single or dual flyers SDF800, SDF1250 Cantilever SCT 800, SCT 1000 *Tandem with Rod Break Down Machine*
2	**Brake / Capstan**	Pneumatic or clutch driven braking system Belt Capstan TCP series
3	**Pre-Heater**	On request
4	**Extruders**	Main: LCE 60 - LCE 80 – LCE100 - LCE 120 Stripes: LCE 35 – LCE 45
5	**Dosing system**	Optional: volumetric or gravimetric system Optional: liquid Silane high accuracy dosing system Si-Jet (patented)
6	**Extrusion Head**	On request
7	**Cooling troughs**	Straight, hot/cold sections, single or multipass
8	**Outlet Capstan**	Belt Capstan TCP series
9	**Take Up**	Cantilever ACT800 – ACT 1000 Double automatic ADA630 – ADA800 - ADA1250 for cylindrical and tapered reels



LINE TYPES:

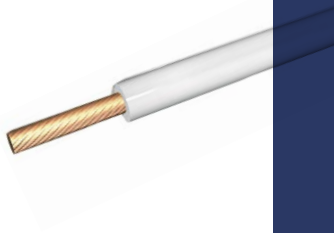
- Single extruder – insulation
- Coex 2: insulation extruder and stripe extruder
- Coex 3: insulation extruder, outer skin, inner skin – with Quick Color Change functionality

X-Flow quick color change system ensures color change without slowing down the line with minimum scrap.

TYPICAL PRODUCT DEFINITION

CONDUCTOR CROSS SECTION	WIRE Ø RANGE	INSULATION MATERIAL	SPEED MAX
0.3 mm² – 35 mm²	5mm – 12mm	PVC, PE, XLPE, XLPE Liquid Silane, PP, HFFR, PU, TPE	1.500 m/min (*)

(*) may be higher with Tandem Rod Break Down Machine

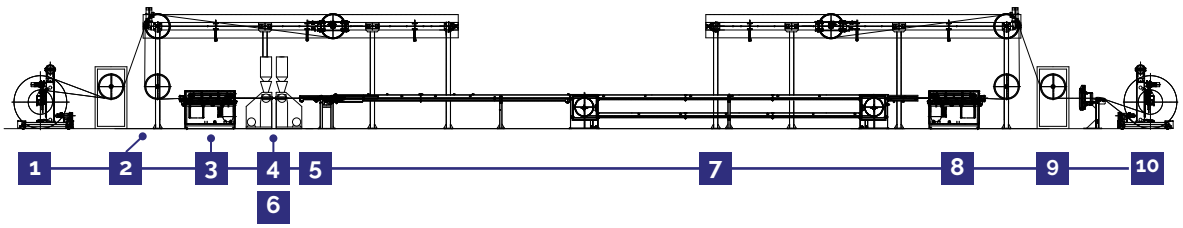


Building wire sheating Lines

Designed for sheating of low-voltage cables with different thermoplastic materials including flame retardants, reticulated polyethylene (XLPE) including liquid Silane, halogen-free (HFFR), PVC, PP, PU, TPE.
Multiple line configurations guarantee efficient production with high speeds and low scrap.

LINE CONFIGURATION

LINE ELEMENT		DESCRIPTION
1	**Pay Off**	Single or dual flyers SDF1250 Cantilever SCT 1000 Sliding arms SSM 1600 SSM 2000 Portal SPT 1600 SPT 2000 SPT 2500
2	**Accumulator**	Vertical ACV series Horizontal ACH series
3	**Inlet Capstan / Caterpillar**	Belt Capstan TCP series Caterpillar TCT series
4	**Extruders**	Filling: LCE 80 – LCE100 - LCE 120 – LCE 160 Sheating: LCE 60- LCE 80 – LCE 100 - LCE 120 - LCE160 Skin:LCE60 - LCE 80 –LCE 100 - LCE 120 – LCE 160
5	**Dosing system**	Optional: volumetric or gravimetric system Optional: liquid Silane high accuracy dosing system Si-Jet (patented)
6	**Extrusion Head**	On request Single Layer or Coex
7	**Cooling troughs**	Straight, hot/cold sections, single or multipass
8	**Outlet Capstan / Caterpillar**	Belt Capstan TCP series Caterpillar TCT series
9	**Accumulator**	Vertical ACV series Horizontal ACH series
10	**Take Up**	Sliding arms ASM 1600 ASM 2000 Portal APT 1600 APT 2000 APT 2500 Double automatic ADA630 – ADA800 - ADA1250



LINE TYPES:

- Single extruder – sheating
- Coex 2: Filling Extruder, Sheating Extruder
- Coex 3: Filling Extruder, Sheating Extruder, skin extruder
- Tandem: Filling group Single Extruder – Sheating Group Single Extruder

TYPICAL PRODUCT DEFINITION

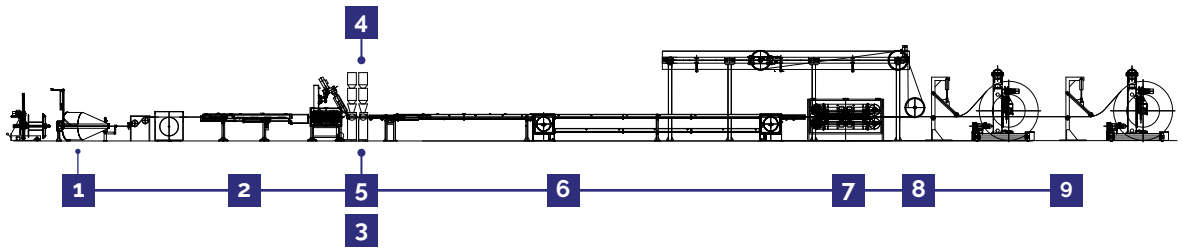
CONDUCTOR CROSS SECTION	WIRE Ø RANGE	FILLING MATERIAL	INSULATION MATERIAL	SPEED MAX
Assembled cables	5mm – 30mm	PVC, HFFR	PVC, PE, XLPE, XLPE Liquid Silane, PP, HFFR, PU, TPE	500 m/min

Building wire sheating Lines with S-Z Stranding

With our building wire SZ Strander ESZ, the core assembly is combined with filling and sheathing lines to guarantee continuous production with materials including flame retardants, halogen-free (HFFR), PVC, PE and EPDM (for filling).

LINE CONFIGURATION

LINE ELEMENT		DESCRIPTION
1	**Pay Off**	Single or dual flyers SDF800 SDF1250 Cantilever SCT 1000 Sliding arms SSM 1600 - SSM2000
2	**S-Z Group**	Tension lowering entry capstan ZTCP S-Z Strander ESZ Torsion Block Caterpillar ZTCT
3	**Extruders**	Filling: LCE 80 – LCE 100 - LCE 120 – LCE 160 Sheating: LCE 80 – LCE 100 - LCE 120 – LCE 160 Skin: LCE 80 – LCE100 - LCE 120 – LCE 160
4	**Dosing system**	Optional – volumetric or gravimetric
5	**Extrusion Head**	On request Single Layer or Coex
6	**Cooling troughs**	Straight, hot/cold sections, single or multipass, motorized capstan
7	**Outlet Caterpillar**	Caterpillar TCT series
8	**Accumulator**	Vertical ACV series Horizontal ACH series
9	**Take Up**	Sliding arms ASM 2000 Portal APT 2000 APT 2500



LINE TYPES:

- Coex 2: Filling Extruder, Sheating Extruder
- Coex 3: Filling Extruder, Sheating Extruder, Skin Extruder
- Tandem: Filling/Sheating group Coex 2 – Skin Group Single Extruder

TYPICAL PRODUCT DEFINITION

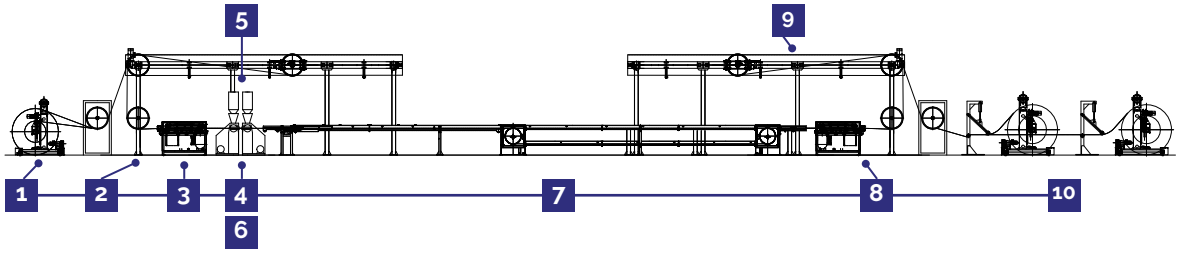
CONDUCTOR CROSS SECTION	CABLE Ø MAX	N. OF WIRE MAX	FILLING MATERIAL	SHEATING MATERIAL	SPEED MAX
0.5mm² – 16mm²	30mm	7 x 6mm² 5 x 16mm²	EPDM, PVC, HFFR	PVC, PE, XLPE, HFFR, TPE	400 m/min

Power Cable Insulation Lines

Suitable for insulation of power cables with different thermoplastic materials including flame retardants, reticulated polyethylene (XLPE) – liquid silane, halogen-free (HFFR), PVC, PUR, TPE.
Multiple line configurations guarantee efficient production with high speeds and low scrap.

LINE CONFIGURATION

LINE ELEMENT		DESCRIPTION
1	**Pay Off**	Single or dual flyers SDF1250 complete with braking belt capstan Cantilever SCT 1000 Sliding arms SSM 1600 SSM 2000 Portal SPT 1600 SPT 2000 SPT 2500
2	**Accumulator**	Vertical ACV series Horizontal ACV series
3	**Inlet Capstan/ Caterpillar**	Belt Capstan TCP series Caterpillar TCT series
4	**Extruders**	Main: LCE 80 – LCE100 - LCE 120 – LCE 160 Stripe: LCE 45 – LCE 60 – LCE 80
5	**Dosing system**	Optional: volumetric or gravimetric system Optional: liquid Silane high accuracy dosing system Si-Jet (patented)
6	**Extrusion Head**	On request Single Layer or Coex
7	**Cooling troughs**	Straight, hot/cold sections, single or multipass
8	**Outlet Capstan / Caterpillar**	Belt Capstan TCP series Caterpillar TCT series
9	**Accumulator**	Vertical ACV series Horizontal ACH series
10	**Take Up**	Sliding arms ASM 1600 ASM 2000 Portal APT 1600 APT 2000 APT 2500 Double automatic ADA1250 (without accumulator)



LINE TYPES:

- Single extruder – insulation
- Coex 2: insulation extruder and stripe extruder

TYPICAL PRODUCT DEFINITION

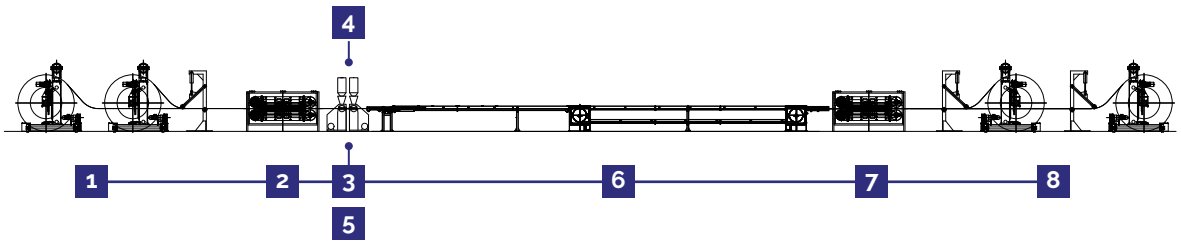
CONDUCTOR CROSS SECTION	WIRE Ø RANGE	INSULATION MATERIAL	SPEED MAX
1mm² – 800mm²	50mm	PVC, PE, XLPE, XLPE Liquid Silane, PP, HFFR, PU, TPE	500 m/min

Power Cable sheating Lines

Designed for sheating of low-voltage power cables with different thermoplastic materials including flame retardants, reticulated polyethylene (XLPE) – liquid silane, halogen-free (HFFR), PVC, PUR, TPE and EPDM (for filling).
Multiple line configurations guarantee efficient production with high speeds and low scrap.

LINE CONFIGURATION

LINE ELEMENT		DESCRIPTION
1	**Pay Off**	Sliding arms SSM 1600 SSM 2000 Portal SPT 1600 SPT 2000 SPT 2500
2	**Inlet Caterpillar**	Caterpillar TCT series
3	**Extruders**	Filling: LCE 100 - LCE 120 – LCE 160 Sheating: LCE 100 - LCE 120 – LCE 160 Skin: LCE 80 - LCE 100 - LCE 120 – LCE 160
4	**Dosing system**	Optional: volumetric or gravimetric system Optional: liquid Silane high accuracy dosing system Si-Jet (patented)
5	**Head**	On request Single Layer or Coex
6	**Cooling troughs**	Straight, hot/cold sections, single or multipass
7	**Outlet Caterpillar**	Caterpillar TCT series
8	**Take Up**	Sliding arms ASM 1600 ASM 2000 Portal APT 1600 APT 2000 APT 2500



LINE TYPES:

- Single extruder – sheating
- Coex 2: Filling Extruder, Sheating Extruder
- Coex 3: Filling Extruder, Sheating Extruder, Skin Extruder
- Tandem: Filling/Sheating group Coex 2 – Skin Group Single Extruder

TYPICAL PRODUCT DEFINITION

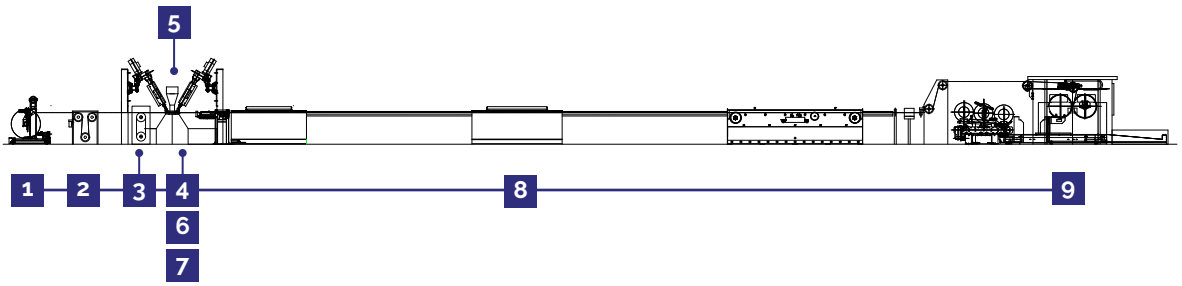
CONDUCTOR CROSS SECTION	CABLE Ø RANGE	FILLING MATERIAL	SHEATING MATERIAL	SPEED MAX
Assembled cables	30mm - 200mm	PVC, HFFR	PVC, PE, XLPE, XLPE Liquid Silane, PP, HFFR, PU, TPE	500 m/min

LAN and telephone cables insulation line

Ideal solution for the production of LAN (up to Cat. 7) and telephonic cables with different thermoplastic materials (PE, FEP, PVC).
Multiple line configurations guarantee efficient production with high speeds and low scrap.

LINE CONFIGURATION

LINE ELEMENT	DESCRIPTION
1 **Pay Off**	Cantilever SCT 800 SCT 1000 Flyer combined with Wire Drawing machine tandem with the line
2 **Dancer**	Dancer DNCO or DNCV series
3 **Pre-Heater**	On request
4 **Extruders**	Foam: LCE60/32D - LCE 80/32D (PE) LCEF 45/24D - LCEF 60/24D Skin: LCE 35/25D (PE) – LCEF 35/25D (FEP)
5 **Dosing system**	Optional – volumetric
6 **Nitrogen injection**	On request
7 **Head**	Coex 3 or Coex 4
8 **Cooling troughs**	Telescopic hot sections, straight cold, cold multipass with motorized capstan with integrated motorized capstan
9 **Take Up**	Double automatic ADA630 - ADA800



LINE TYPES:

- Standard: Solid PE and Physical PE Foam – expansion up to 70%
- Tandem: Wire Drawing machine tandem with the line
- FEP: Solid FEP or Physical FEP foam and Solid PE

TYPICAL PRODUCT DEFINITION

	LAN	Telephone
Cable category	**Cat 5e, Cat 6, Cat 7**	**Std. Telecom**
Conductor material	**Copper**	**Copper**
Conductor Ø	**0.32÷0.90mm**	**0.32÷0.90mm**
Insulated cable max Ø	**3.0mm**	**3.0mm**
Insulation material	**PE, FEP**	**PVC, PE**
Process	**Solid and Physical foam**	**Solid and Physical foam**
Expansion level, max.	**50% FEP -70% PE**	**50% PE**
Line speed, max.	**2500 m/min (*)**	**2500 m/min (*)**

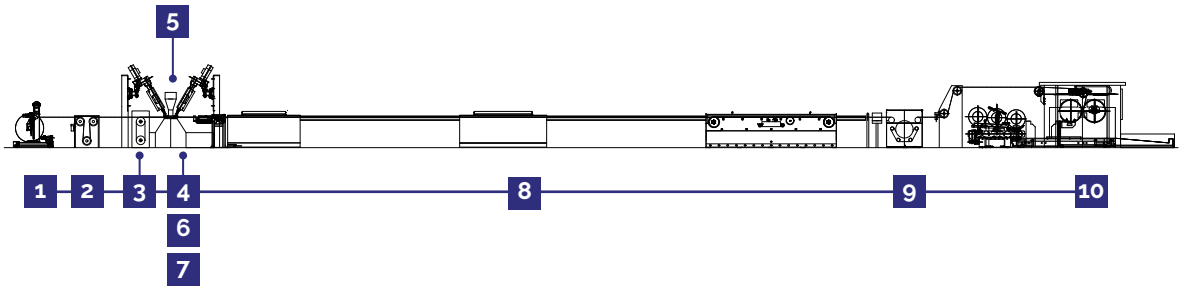
(*) with Tandem Wire Drawing Machine

Coaxial cables insulation line

Ideal solution for the production Mini and micro-coaxial cable cables with different thermoplastic materials (PE, PVC, FEP).

LINE CONFIGURATION

LINE ELEMENT		DESCRIPTION
1	**Pay Off**	Cantilever SCT 800 SCT 1000
2	**Dancer**	Dancer DNCO or DNCV series
3	**Pre-Heater**	On request
4	**Extruders**	Foam: LCE60/32D - LCE 80/32D (PE-PVC) LCEF 60/24D LCEF 45/24D Skin: LCE 35/25D (PE-PVC) – LCEF 35/25D (FEP)
5	**Dosing system**	Optional – volumetric
6	**Nitrogen injection**	On request
7	**Head**	Coex 3 or Coex 4
8	**Cooling troughs**	Telescopic hot sections, straight cold multipass (with integrated motorized capstan)
9	**Outlet Capstan**	Belt Capstan TCP series (if not integrated in cooling trough)
10	**Take Up**	Double automatic ADA630 ADA800 ADA1250



LINE TYPES:

- **Standard:** Solid PE and Physical PE Foam – expansion up to 85%; Coex 2 (Foam/Skin) or Coex 3 (Skin/Foam/Skin)
- **FEP:** Solid FEP or Physical FEP foam and Solid PE and Physical PE Foam; Coex 2 (Foam/Skin) or Coex 3 (Skin/Foam/Skin)

TYPICAL PRODUCT DEFINITION

	Micro Coaxial	Mini Coaxial
Conductor material	**Soft Copper Copper clad aluminum Copper clad steel**	**Soft Copper Copper clad aluminum Copper clad steel**
Conductor Ø	**0.32÷1.2mm**	**0.7÷2.8mm**
Insulated cable max Ø	**5mm**	**12mm**
Insulation material	**PE, FEP**	**PE**
Expansion level max	**55% FEP -70% PE**	**80%**
Line Speed max	**2400 m/min PE Foam 1200 m/min FEP**	**300 m/min**

Extruders

LCE 120/25D

IR HEATING

Elav **LCE Extruders** are used to provide the **insulation** and **sheathing** of electrical conductors and cables with constant focus on process optimization and **energy efficiency**.

LCE Extruders are designed for processing a wide range of materials such as PE (LDPE/MDPE/HDPE), XLPE, XLPE Liquid Silane, PP, PVC, HFFR, PU, TPE with optimized screw geometry, carried out with Computer simulations and with the cooperation of the main compound manufacturers

All extruders can be equipped with **Infra-Red heating** system to increase energy efficiency and process reliability.

Extruders

Special alloys are applied if extruder processing involve corrosive or abrasive materials. Dedicated extruders are available for special materials like FEP (Fluoro Polymers), peek, rubber.

Each extruder can be supplied with a multi **material gravimetric dosing system** (OPTIONAL) to improve process control and material consumption, especially for co-extrusion lines.

STANDARD EXTRUDERS

TYPE	DIAMETER	L/D RATIO	kg/h LDPE	kg/h HDPE	kg/h PP	kg/h PVC
LCE35(1)	35	25	25-32	27-35	24-30	35-50
LCE45 (1)	45	25-30	40-50	45-55	38-48	55-80
LCE60	60	25-30-32	90-120	100-135	85-115	130-190
LCE80	80	25-30-32	180-230	200-250	170-220	260-360
LCE100	100	25-30	280-340	310-380	250-320	400-550
LCE120	120	25-30	380-450	420-500	360-430	550-700
LCE160	160	25-30	550-650	620-720	520-620	800-1050

TYPE	AC MOTOR	HEATING POWER (400V)	TEMP. CONTROL. SCREW	GRAVIMETRIC DOSING
LCE35	9kW - 57Nm	6kW	N.A.	Opt.
LCE45	37kW-236Nm	9-12kW	Opt.	Opt.
LCE60	76kW - 484Nm	20-25kW	Opt.	Opt.
LCE80	130kW-828Nm	30-37kW	Opt.	Opt.
LCE100	175kW-1114Nm	40-50kW	Opt.	Opt.
LCE120	230kW-1464Nm	45-54kW	Opt.	Opt.
LCE160	319kW-2031Nm	80-90kW	Opt.	Opt.

Expressly developed for Silane injection, Elav® **Si-Jet** is the ideal solution for **cable insulation** based on **liquid silane crosslinking technology**.

The system is made of a **highly reliable** unit which offers high-level dosing **accuracy** and controllability. Facilitating a safe and efficient dosing, important aspects for maintaining the product consistency and quality, the Si-Jet system is designed to reduce the installation and commissioning time and to guarantee **ease of maintainance**.

The Si-Jet is provided with a double check on Silane dosing, performed by a combination of **gravimetric dosing** (i.e. load cells) and **mass flow meter**, that guarantee **high accuracy** and **repeatability**, even at very low addition rates: when an incoherent measure is detected an alarm is triggered in order to alert the operator to stop the production and **avoid wasting of materials.**

The control of the Si-Jet system is deputed to a PLC unit that can be easily interfaced to existing lines by means of Profibus/Profinet connections.

Thanks to a combination of **static and dynamic mixing techniques**, supported by an injection system integrated into the dynamic mixer used to wet all granules regularly, Si-Jet system is able to homogeneously feed solid and liquid materials directly into the extruder. This represents a real alternative to using compounds and a way to maximize earnings reducing the costs of raw materials.

Si-Jet can be used to dose almost any liquid, including any cross-linking agent, since all parts in direct contact with the material are made of stainless steel AISI 316 and PTFE and any potentially flammable liquid is managed in inert atmosphere (Nitrogen).

Applications	Silane, cross linking agents, inorganic liquids, organic liquids, oils.
Special features	All parts in direct contact with the material are made of stainless steel AISI 316 and PTFE, inert atmosphere by mean of Nitrogen.
Advantages	High accuracy and repeatability, double dosing check, wide range of applications, compact design.
Dosing accuracy	+/- 0.1 of mean value.
Control	By mean of PLC: it can be interfaced by mean of Profinet/Profibus connections.
Power supply	230VAC – 50/60Hz (other options upon request).
Dimensions	Two modules “back to back” 1000Lx1400Hx400W mm, other configurations upon request.

Pay off

PORTAL

Elav provides a wide range of **pay off** and **take ups** to meet the different needs in cable manufacturing processes.

Our pay-off and take-up are designed to provide maximum stability even in case of large reels, easy usage and with a variety of safety features to guarantee the safety of operators during all production phases.

All motorized machines are equipped with AC Vector or Synchronous Brushless motor to offer an **accurate control especially for cable distribution**.

Operators are supported by an intuitive HMI to manage the machines.

MODEL	TYPE	REEL DIAMETER RANGE	BARREL	MAX REEL WIDTH	MAX. REEL WEIGHT	OPTION
SDF800	Flyer (Defilè)	400 ÷ 800	200	600	1000	Motorized
SDF1250	Flyer (Defilè)	800 ÷ 1250	400	950	4000	Motorized
SCT800	Cantilever	400 ÷ 800	200	600	1000	Self Traversing
SCT1000	Cantilever	800 ÷ 1000	400	750	2000	Self Traversing
SSM1600	Sliding Arms	1000 ÷ 1600	500	1200	8000	
SSM2000	Sliding Arms	1600 ÷ 2000	800	1500	14000	
SPT1600	Portal	1000 ÷ 1600	500	1200	8000	
SPT2000	Portal	1250 ÷ 2000	630	1500	14000	
SPT2500	Portal	1250 ÷ 2500	630	2000	27000	
SPT3000	Portal	1250 ÷ 3000	630	2200	35000	

Take up

MODEL	TYPE	REEL DIAMETER RANGE	BARREL	MAX REEL WIDTH	MAX. REEL WEIGHT	OPTION
ACT800	Cantilever	400 ÷ 800	200	600	600	Self Traversing
ACT1000	Cantilever	800 ÷ 1000	400	750	1200	Self Traversing
ASM1600	Sliding Arms	1000 ÷ 1600	500	1200	4500	
ASM2000	Sliding Arms	1600 ÷ 2000	800	1500	8000	
APT1600	Portal	1000 ÷ 1600	500	1200	5000	
APT2000	Portal	1250 ÷ 2000	630	1500	8000	
APT2500	Portal	1250 ÷ 2500	630	2000	14000	
APT3000	Portal	1250 ÷ 3000	630	2200	20000	
ADA630	Automatic double	400 ÷ 630	200	475	300	Automatic reel loading/unloading
ADA800	Automatic double	630 ÷ 800	250	600	500	Automatic reel loading/unloading
ADA1250	Automatic double	800 ÷ 1250	400	950	2000	Automatic reel loading/unloading
ADS1600	Semiautomatic double	800 ÷ 1600	400	1180	4000	Automatic reel extraction/ automatic wrapping

ADA 800

ADA take up family is the answer to the increasing demand for lines capable of **reaching speeds exceeding 2,500 m/min**. ADA take ups are available with both manual and automatic (with buffers) reel loading and unloading. Available reel size 400÷630, 630÷800, 1000÷1250.

ADS take up allowes customers to use multiple reels format and materials without any need of tooling, minimizing the human intervention also in the reel change and reel wrapping processes, maintaining the highest safety standard. ADS1600 works with metallic or wooden reels from 800mm up to 1600mm, with a maximum speed of 700 m/min.

ADS 1600

Pulling elements

MODEL	TYPE	CAPSTAN DIAMETER	MAX SPEED	PULL	OPTION
TCP350	Belt Capstan	350	1500 m/min	300N @ 1500m/min 900N @ 500m/min	Intake load cell
TCP600	Belt Capstan	600(680)	1500 m/min		
TCP800	Belt Capstan	800 (850)	1500 m/min		
ZTCP800	Tension lowering capstan for S-Z	800	500 m/min	700N @500 m/ min.	

MODEL	TYPE	GRIPPING LENGHT	SPEED RANGE	PULL N	OPTION
TCT500	Pulling caterpillar	500	0 – 150 150 -500	5000 - 5000 5000 – 1200	Load cell
TCT1000	Pulling caterpillar	1000	0-125 125-400	10000-10000 10000-2500	
TCT1500	Pulling caterpillar	1500	0-60 60-200	15000-15000 15000-3500	
TCT2000	Pulling caterpillar	2500	0-30 30-100	20000-20000 20000-6000	
TCT2500	Pulling caterpillar	2500	0-30 30-100	25000-25000 25000-8000	
ZTCT1000	Cable apacking and defect detection	1000	500	1000	

MULTIPASS COOLING TROUGH WITH CAPSTAN

TCT 2500

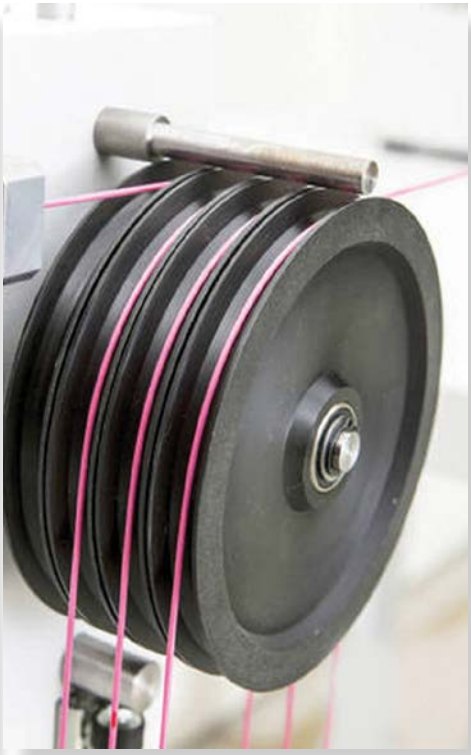
Accumulator and dancer

ACCUMULATORS

MODEL	TYPE	PULLEY DIAME-TER	OPTION
ACH300	Horizontal accumulator	300	Load cell/Dancer
ACH600	Horizontal accumulator	600	Load cell/Dancer
ACH800	Horizontal accumulator	800	Load cell/Dancer
ACH1000	Horizontal accumulator	1000	Load cell/Dancer
ACV300	Vertical accumulator	300	Load cell
ACV400	Vertical accumulator	400	Load cell
ACV600	Vertical accumulator	600	Load cell

DANCERS

MODEL	TYPE	PULLEY DIAMETER	SPEED M/MIN	ACTUATOR	OPTION
DNCV100	Vertical Dancer	100	1200-2400	Pneumatic	Load cell
DNCV200	Vertical Dancer	200			
DNCV300	Vertical Dancer	300			
DNCO60	Oscillation dancer	60	1200-2400	Pneumatic	Load cell
DNCO100	Oscillation dancer	100			
DNCO200	Oscillation dancer	200			
DNCO300	Oscillation dancer	300			



ACH1000

elav Automation division

With more than 40 years experience in automation solutions for cable production with a leading knowledge in all wire & cable manufacturing processes, coming from thousands of active systems all around the world, Elav can give you the **tailor-made** solution you need for your new and old manufacturing lines.

A long experience in selection of the proper automation systems, **built around your line**, allows **savings on labour costs**. High quality components, together with technologically advanced engineering and commissioning departments, grant a long term performance and allow **saving on maintenance and energy costs**, giving the best quality to your products.

SOME EXAMPLE OF OUR EXPERTISE

Wire drawing machines & Annealing	From rod break down to micro-capillar, single and multi-wires
Stranding for Electric cables	(Rigid and back twist cage), Telecommunication cables (back and zero twist),Wire Ropes, S-Z technology stranding, Drum twister stranding, Planetary stranding
Bunching	(Single and Double twist)
Extrusion line	Building wires (insulation/sheathing), telecom cables, optic fibers, antenna & video cables, expansion (chemical & physical), silicon cables (IR & salt bath), crosslink (Silane)
Dosing	Gravimetric, volumetric, solid, liquid, optimization of the cable insulation
Curing lines	LV, MV, HV; steam and nitrogen
Armoring lines	For copper and steel
Rewinding lines	Single or double pay-offs and take-ups, automatic defect detection, wrapping unit

Electrical control equipment built in thermal-insulated In-Box Container complete with heat exchangers for indoor temperature control (air conditioning)

The long-term collaboration with our customers continues to increase Elav's skills over the years.

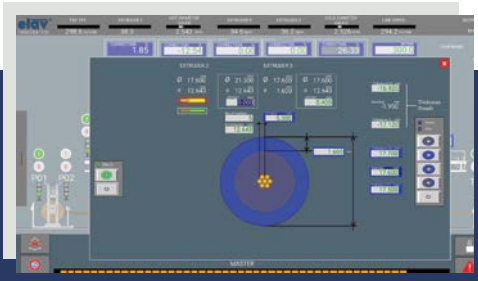
Today our product range boasts more solutions to help our clients in any phase of their activities or business analysis like:

CableWizard: the new control system powered by Elav to run cable extrusion lines simply defining only the cables proprieties

MarkOne: the universal marking solution, integrated with the most important inkjet manufactures and interfaceable with all major ERP/MES systems

Live Control: MES software to monitor, store and analyze all relevant production data, to guarantee a complete product traceability, increasing its quality, optimizing all the manufacturing processes and interfacing ERP and management software (Industry 4.0)

EXTRUSION LINE TANDEM – COEX



CABLE WIZARD

CV - LINE

WIRE DRAWING MACHINE

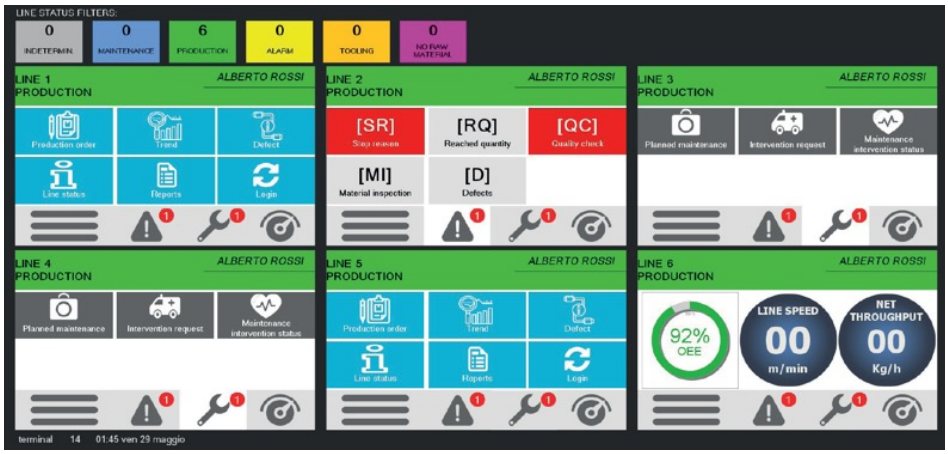
ADS1600

SEMI-AUTOMATIC DOUBLE TAKEUP
AUTOMATIC WRAPPING

LIVECONTROL

THE MANUFACTURING EXECUTION SYSTEM FOR WIRE AND CABLE INDUSTRIES

Expressly developed for the cable and wire manufacturing industries, Live Control allows to monitor, store and analyze all relevant production data, achieving a complete traceability of the production, increasing quality and optimizing the production processes, providing a key element for the modern manufacturing environment (Industry 4.0).



Live Control promotes the connection between man and machines to extract the most complete information on what the machine is doing and its status in real time: easy to use and adaptable to the needs of each customer, Live Control interacts with any type of machine to be monitored, providing great flexibility and a complete look on the manufacturing lines to perform promptly interventions when needed.

BASIC FEATURES:

Shop Floor Data Collection and visualization.

- **Materials** used (type, quantity, manufacturer, batch, real vs expected consumption)
- **Recipe** values vs Set points vs actual values of the machine/production parameters
- **Temperatures** of extruders, melt pipes, head
- **Melt pressure** and temperature
- **Diameter** of the cable (hot – cold)
- **Defects** on the cable: spark, lump, neck, color
- Speed, torque, temperature of **motors**
- **Speed/Throughput** of the line
- **Energy consumption** of the line
- Date and time of start/end of production **(Cycle time)**

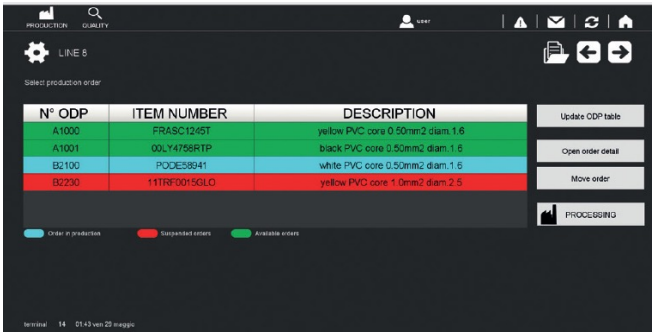
Reporting

Live Control can automatically or manually generate report on Job or Reel basis, containing multiple information required from the customer all combined with a reel unambiguous identifier.

EXTENDED FEATURES:

EPR Interface Module

Live Control can be interfaced with the most common ERP on the market like SAP®, Microsoft® Dynamics Nav, to get production order details, eventually including detailed production recipes and send back all relevant process information associated to each product coming from the shop floor.

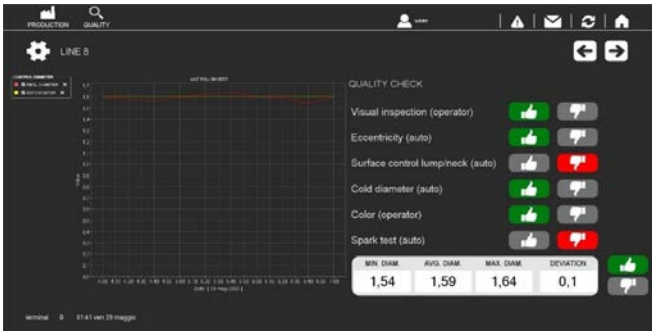


Overall equipment effectiveness module (OEE)

Live Control enables manager to track the variables responsible for the OEE of the line: availability of the line (including tracking all the stop causes), performance and quality (automatic and manual detection of the scrap) of the products.

On-Line and Off-Line Quality Check

On-line quality check by mean of control devices (e.g. Spark, Lump&Neck, Diameter gauges) combined with visual inspection performed by operators allows a real time quality inspection on each reel.



Raw material module

Materials used are a key factor for the final product quality. Live Control helps operators to check if the material being used are quality checked (i.e. acceptance test), if they are set up according to the recipe coming from the production order and to trace the lot of material being used. The material consumption can be shared in real time with an ERP, to get an efficient management of the raw material stock.

Call for Maintenance module

Planned and unplanned maintenance activities are an integral part of the production, influencing significantly the productivity of the line, by consuming time for diagnosis and organization. Live Control help maintenance manager and operators to quick address unexpected maintenance needs, to the right department to get a prompt intervention. Average time between maintenance call and intervention, most frequent cause of intervention, average time to solve troubles are just some example of metrics.

Process alarm module

Live Control help shift manager and line operators to keep under control the key performance variables that defines the quality of the final product; if a process parameter goes out from a defined interval, the system will promptly inform the operators by mean of multiple alarm signaling (e.g. screen alarm, acoustic alarm, email, etc.)

The Power of Sinergy

elav

Cameri Factory

COLINES®

Azzate Factory

COLINES®

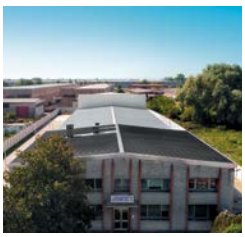
Marano Ticino Factory

COLINES®

Bastia Umbra Factory

COLINES®

Novara Factory



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