



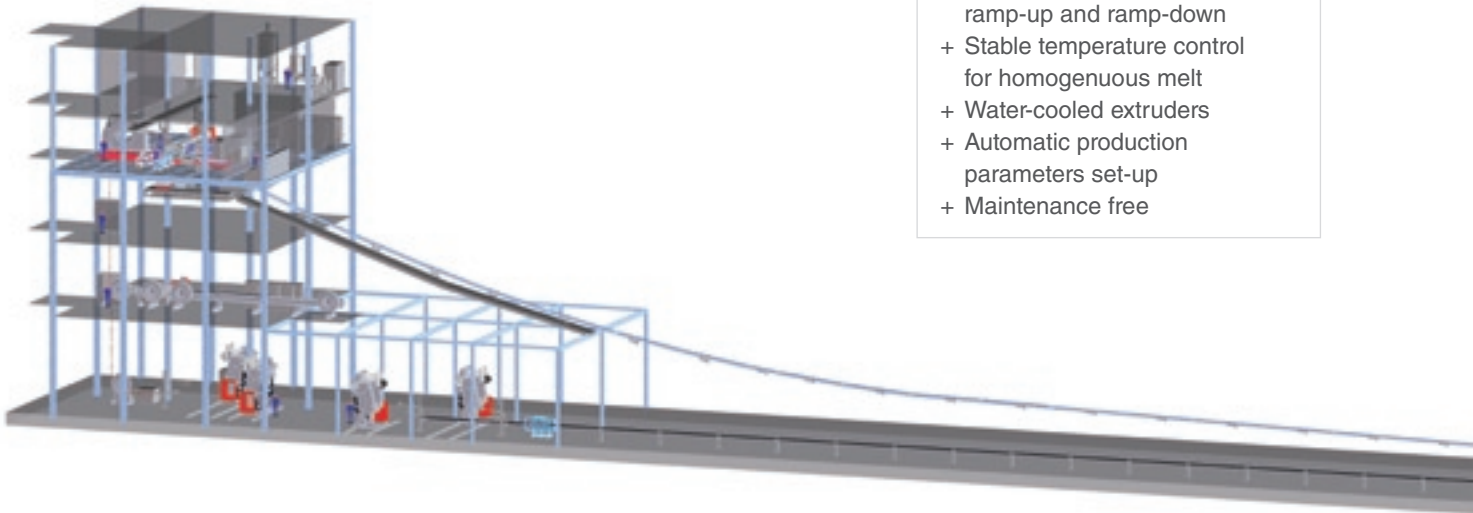
**SAMP SISTEMI**



MHV lines

# Medium and high voltage power cable insulation lines

The SAMP MHV line is designed for the continuous production of XLPE (optionally EPR) insulations on medium and high voltage cables.



## at a glance

- + High, constant line speed
- + Layer thickness, diameter and concentricity control
- + Cable quality control during ramp-up and ramp-down
- + Stable temperature control for homogenous melt
- + Water-cooled extruders
- + Automatic production parameters set-up
- + Maintenance free

## Well-proven extrusion know-how for unmatched quality results

The insulation process is executed by a well-proven, triple-layer crosshead equipped with an independent centering unit for each material flow channel distributors.

The three water cooled extruders, MHV type, are designed to process sensitive polymer and elastomeric materials at a low melt temperature.

Each heating/cooling zone is equipped with a separate heating and cooling element, directly applied to the barrel. Proportional valves connect directly to the PID control guaranteeing very tight and stable melt temperature tolerances.

## Controlled temperature stability at any time

Cross-linking of the insulation materials is done by an inert gas (Nitrogen) pressurized within a catenary tube and heated up by 8 independent zones.

The production parameters set-up is automatically adjusted and homogenised by the SAMP MHV-CAL software to reach maximum production speed while maintaining a constant insulation thickness.

The cable is cooled by a gas circulation system, optionally also by water.

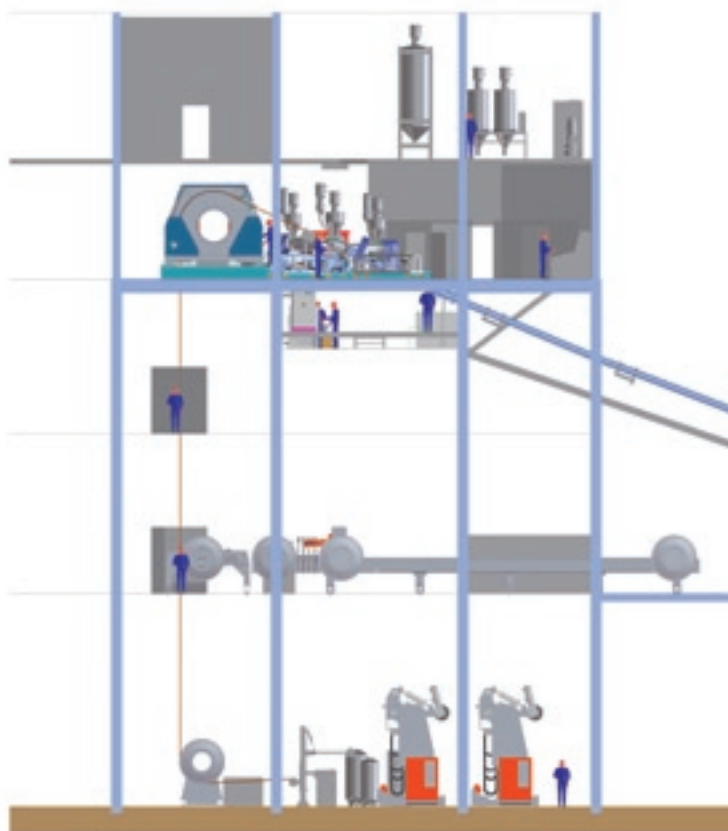
## Unwinding and winding processes: fast, flexible and convenient

The Sampsistemi pay-offs and take-ups are engineered for maximum rigidity and stability to conveniently employ also large reels. Fast speed and easy reel change contribute to the profitability of your existing line.

A variety of safety features, supported by thorough testing and strict quality protocols during assembly and run-off, guarantee the operator's safety in daily production.



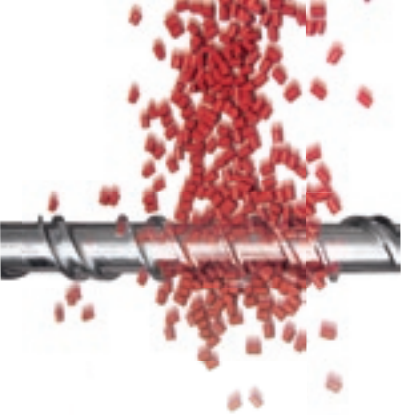
Pay-offs / Take-ups	PT 3000 PT 4200 PT 5000
Accumulators	AC 1200 H AC 1600 H
Master capstan	MC 2600 MHV
Pre-heater	100 kW
Extruders	MHV 80-20 MHV 100-20 MHV 160-25 MHV 200-25
Extrusion heads	TX 50 MHV TX 70 MHV TX 90 MHV
Cross-linking tube	TU 50 MHV TU 100 MHV
Cable twister	CT 1200 MHV
Pulling elements	TR 1200 C TR 1800 C TR 2800 C



Extrusion group



Extruder size	Motor type	Number of thermo-regulated zones	Screw max. rpm	Screw torque (kNm)
MHV 60-20	AC	4	40	5
MHV 80-20	torque / AC	4	30	9
MHV 100-20	torque / AC	4	25	17
MHV 160-25	torque / AC	5	40	45
MHV 200-25	torque / AC	6	25	90

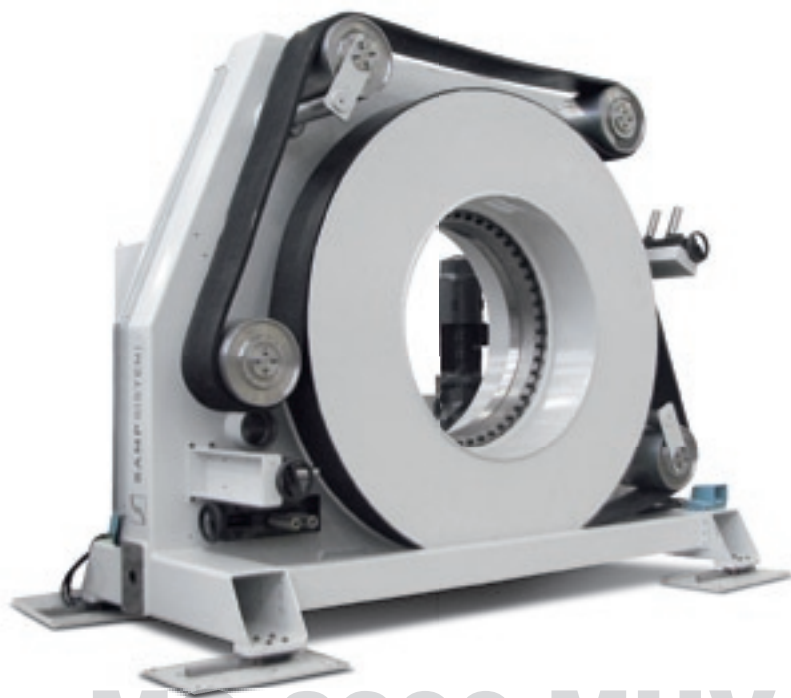


## Highly stable processing for non-stop production

To guarantee the continuous production flow, from the payoff onwards, the conductor is stored in an entry accumulator with an integrated dancer to ensure a constant cable tension before entering the Master Capstan.

This infeed unit is the line Master and guarantees the line speed stability. A capacitive position sensor (located in the catenary tube) controls the speed of the "exit" Caterpillar.

A third Helper Caterpillar with a controlled torque is located before the take-up station, maintaining the cable within the pulley and its support rim.



# MC 2600 MHV

Line specification		MHV 36	MHV 66	MHV 220
Cables voltage range	kV	6 - 36	6 - 66	36 - 220
Conductor section (Al and Cu)	mm <sup>2</sup>	25 - 630	50 - 1200	50 - 1200
Metal tensile strength, max	N/mm <sup>2</sup>	Cu: 45 Al: 25	Cu: 45 Al: 25	Cu: 45 Al: 25
Cable Ø range	mm	14 - 50	20 - 70	30 - 90
Semicond. Layer (Inner and External)	mm	0.4 - 0.8	0.4 - 1.2	0.4 - 1.2
Insulation layer	mm	2.5 - 8	2.5 - 10	2.5 - 23
Cable weight, max	kg/m	7	14	18
Insulation material		XLPE, EPR	XLPE	XLPE
Line set-up				
Total line length	m	200	200	220
Extruder platform height	m	15	20	20
Angle at Crosshead	degree	19	25	25
Tension factor		107	160	160
Gearing speed, max.	m/min	50	25	25
Temperature Cable at tube exit, max.*	°C	90	90	90
Temperature Cable at take-up, max.*	°C	50	50	50
Curing method	N <sub>2</sub>	Gas	Gas	Gas

\* At conductor surface



## Extruder technology the core of extrusion knowhow

A fundamental part of any high performance line, Sampsistemi extruders are born from the longstanding experience and commitment of our expert team of engineers. Our MHV extruders are renowned for their high levels of productivity and flexibility. Sampsistemi extruders meet any requirements of reliability and stability

Excellent output stability is ensured by an accurate screw design.

An optimised screw profile ensures smooth plasticization of thermoplastic compounds with top output values.

We conceive our machines with a view to constantly cutting maintenance costs.

We utilise top quality resistant components. At Sampsistemi, totally reliable reducers (Powerpack™) as well as excellent barrel and screw surfaces are absolute musts and ensure that you produce efficiently over time.

### at a glance

- + Nitrided steel barrels to increase hardness and lower wearing
- + Liquid thermoregulated barrels
- + Nitrided steel screws
- + Screw profiles optimised to barrels
- + Stable & accurate thermo-regulation
- + Automatic crosshead clamping
- + User-friendly process supervision for quick and simple product changes

### Power-up with Powerpacks™

Powerpack™ Extruder Drives are fitted with highly efficient torque motors, available up to 60.000 Nm. Torque servo motors are designed to run at low speeds with highest torque rates.

- + High torque density
- + Less power consumption
- + Direct power transmission
- + Vibration-free
- + Less maintenance

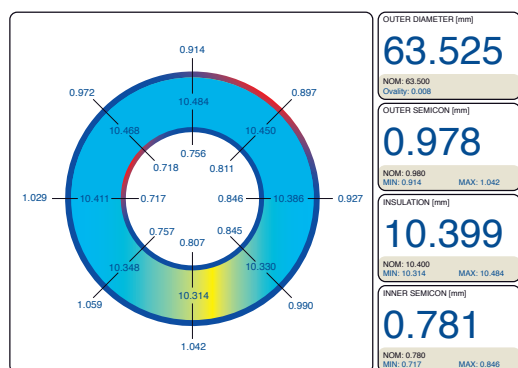


Powerpack™ speed reducer drives for extrusion machinery made by SAMP.

## Easy and intuitive Sampsistemi software

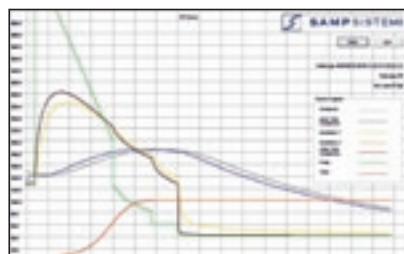


The complete extrusion process is easily controlled by the SAMP line supervision software MHV-SYS™ with a user-friendly operator interface, guaranteeing consistent high quality cable production.



Cable eccentricity control

- + SAMP MHV CAL software to set-up production parameters
- + SAMP MHV SYS line supervision software for the complete line control and consistent quality results.





## Self-traversing portals for cable unwinding and winding

The new TU and PO series has been designed for a wide range of reels in CV lines, insulation and sheathing extruders, lead extrusion lines, stranding lines as well as rewinding lines.

The sturdy design with telescopic cross beam features high-speed motors. Measuring systems for the winding and unwinding process and the direct motor response guarantee a very precise cable distribution on the reels. The automatic wheel tension control ensures the constant pressure on the reels, independently from surface and material.

Mechanical and optical safety fences guarantee a very safe operation, especially during the loading process. Operators are supported by an intuitive user interface with automated functions.

### at a glance

- + Space-saving, stable design
- + Minimum setup time
- + Self-centering pintles
- + Wide range of reels
- + Accurate cable distribution
- + Safe operation
- + Easy & intuitive HMI
- + Carefree maintenance

PT Series



Performances		PT 2240	PT 3000	PT 4200	PT 5000
Speed, max.	m/min	500	300	200	150
Pull, max.	daN	400	800	1300	3000
Reel characteristics					
Flange Ø range	mm	710 - 2240	800 - 3000	1600 - 4200	2000 - 5000
Barrel Ø range	mm	355 - 1200	450 - 1800	800 - 2,000	1120 - 3000
Overall width range	mm	500 - 1800	650 - 2200	1100 - 2500	1350 - 5000
Weight, max.	kg	10000	20000	40000	60000



Pulley diameter 2600 mm

### Master capstan: MC 2600 MHV

- + Accurate torque motor
- + Stable and compact design
- + Machine's fine adjustment system
- + No gap transmission
- + "Zero" vibration
- + Double motors
- + Easy maintenance
- + Independent electric control panel
- + Easy integration in existing lines



Gripping length 1200 mm

### Cable twister: CT 1200 MHV

- + Accurate torque motor
- + Rotating cage with 2 pressing belts
- + Adjustable rotation speed range
- + Easy maintenance
- + Independent electric control panel
- + Easy integration in existing lines



Cable Ø, max. 70 mm

### Extrusion head: TX 70 MHV

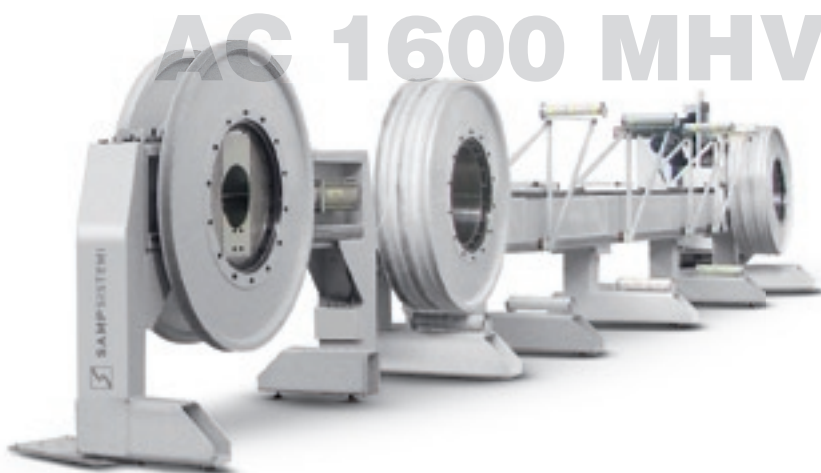
- + Well-proven triple-layer cross-head
- + Long-lasting reliability
- + Anti-wear material, ensuring top-quality end products
- + Material flow channel distributors with independent centering unit
- + Accurate temperature control



Horizontal Accumulator:  
AC 1600 MHV

Max. wire accumulation 100 m  
Pulley diameter 1600 mm  
Max. wire tension 3000 N  
Motor type AC

- + Accurate wire tension control
- + Easy start-up
- + Independent electric control panel
- + Easy integration in existing line



Caterpillar unit: TR 2800 C

Max. line speed 100 m/min  
Max tension 3000 DaN  
Motor type AC

- + Accurate speed control
- + Easy start up; no gearbox required
- + Independent cable axis
- + Independently adjusted by pneumatic cylinders
- + Easy maintenance
- + Independent electric control panel
- + Easy integration in existing lines



The Catenary tube of Scholz Group, historic supplier of the cable manufacturers, completes Sampsistemi MHV lines assuring further quality and reliability to the production processes.

Tube type	DN 150
	DN 250
Curing method	Gas (N <sub>2</sub> )
Pressure, max. (bar)	16
Cooling method	by gas*

\*Optional by water

TU 50 MHV

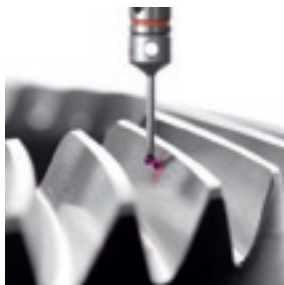
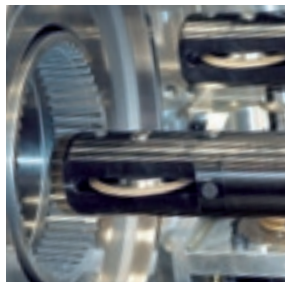
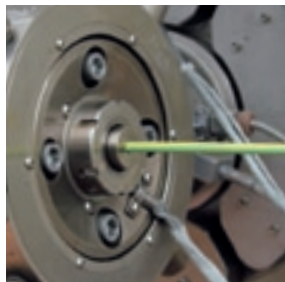
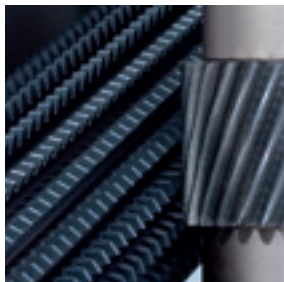


Catenary tube



Double main seal

both pictures: Courtesy of Scholz



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