



TWIN SCREW



CONICAL 35-92



PARALLEL 75-175

TWIN CONICAL & PARALLEL

QUALITY BUILT FOR RELIABLE, LONG-TERM OPERATION

Milacron has engineered its twin screw extruders with modular design concepts to meet market requirements. The result is built-in flexibility, lower cost, faster deliveries and, ultimately, an exceptionally competitive value to our customers, from stand-alone extruders to complete systems.

- 🔴 Flexible designs that optimize the processing window
- 🔴 Balanced designs to extend screw and barrel life
- 🔴 High surface area, low shear screw designs for efficient heat transfer
- 🔴 Proprietary coating technologies to maximize screw and barrel life



PERFORMANCE ADVANTAGES

- 🔴 Natural compression - large volume to small
- 🔴 Ideal for heat and shear sensitive materials
- 🔴 Positive displacement pumping characteristics
- 🔴 High head pressure capabilities
- 🔴 High torque capability with gentle plastification
- 🔴 Narrow residence time produces optimal melt condition
- 🔴 Excellent devolatilization characteristics
- 🔴 Advanced wear protection for long service life
- 🔴 MOSAIC + Control



TWIN CONICAL

Milacron both designs and builds full extrusion systems in house, maintaining complete control of your precise equipment needs. From extruders to new and rebuilt extrusion barrels and screws, to pipe heads, dies and downstream equipment, you get powerful, reliable solutions that meet your unique needs.

MOSAIC + CONTROL

- Standard discrete extruder control. Optional Mosaic + control with a 21" screen capable interfacing with other extruders and downstream equipment within the extrusion system providing a single point of control

VACUUM

- Standard water ring vacuum pump with single or dual canister configurations. Available option is a waterless rotary claw design option available

GEARBOX

- Milacron designed and manufactured gearbox (standard TC Series)

VOLUMETRIC AND GRAVIMETRIC FEEDING SYSTEMS (OPTIONAL)

- Standard volumetric single screw design dosing feeder with optimized screw geometry for consistent material feeding. Available feeder options include, twin screw, crammer and gravimetric

MOTOR

- Energy efficient AC vector motor. Total Enclosed Fan Cooled (TEFC) is a reliable low maintenance solution for dusty manufacturing environments. Because the motor is not located under the barrel, it provide ease of motor maintenance.

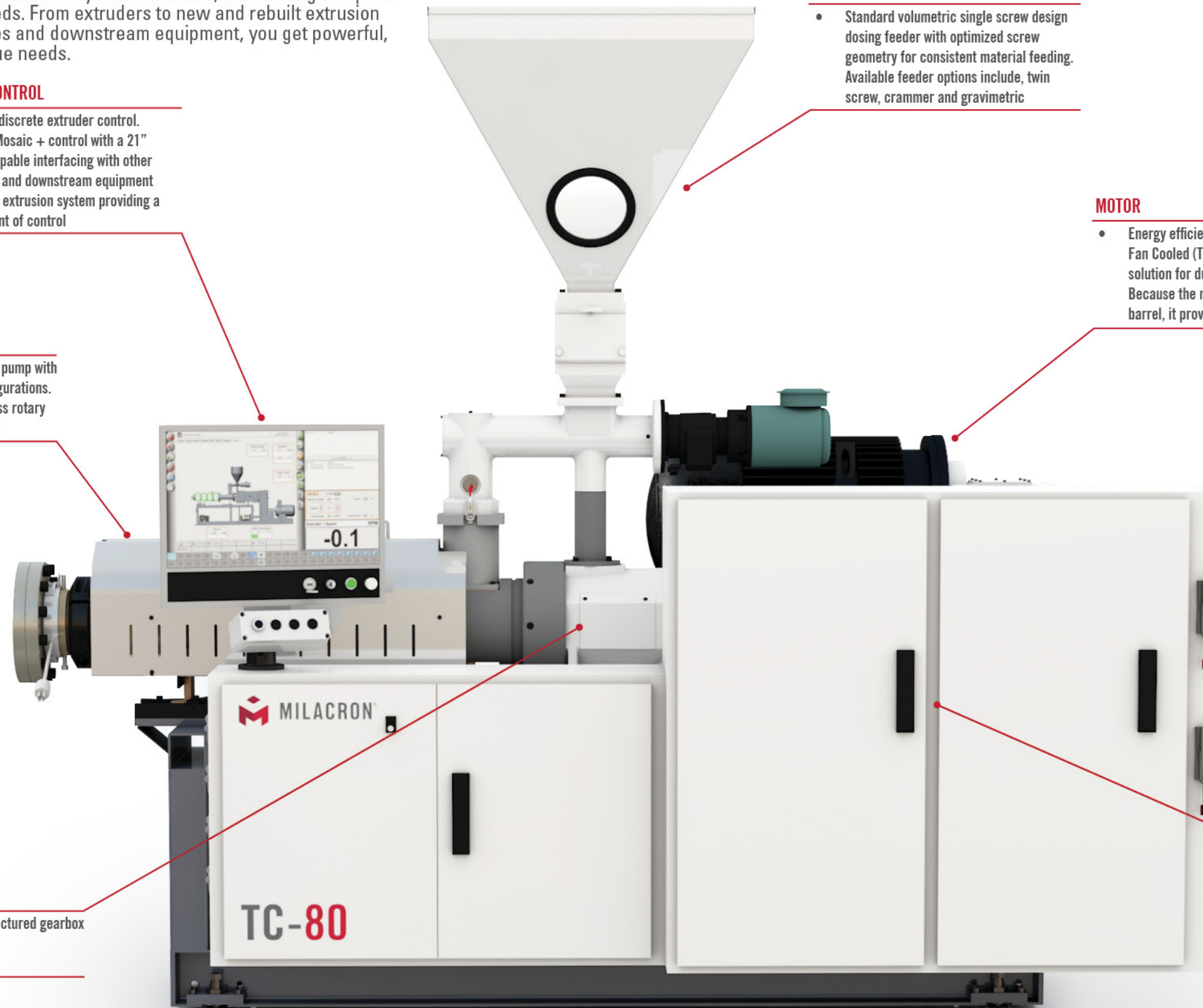


MILACRON M-POWERED

- Designed to fully utilize our M-Powered Suite of connectivity products
- Reduces failures, improves uptime and OEE

BASE MOUNTED ELECTRICAL PANEL

- Houses electrical components including the extruder drive through 200HP. Optional UL, CUL electrical certification is available and CE compliant.



TWIN PARALLEL

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BASE MOUNTED ELECTRICAL PANEL

- Houses electrical components including the extruder drive through 300HP. Optional UL, CUL electrical certification is available and CE compliant.

GEARBOX

- Eisenbiess gearbox (standard TP Series)
- Milacron designed and manufactured gearbox

PROVIDING THE HIGHEST PERFORMANCE,
PRECISION AND FLEXIBILITY.

APPLICATIONS

 AUTOMOTIVE
  CONSTRUCTION
  CONSUMER
  RECYCLING

 ANIMAL FEED

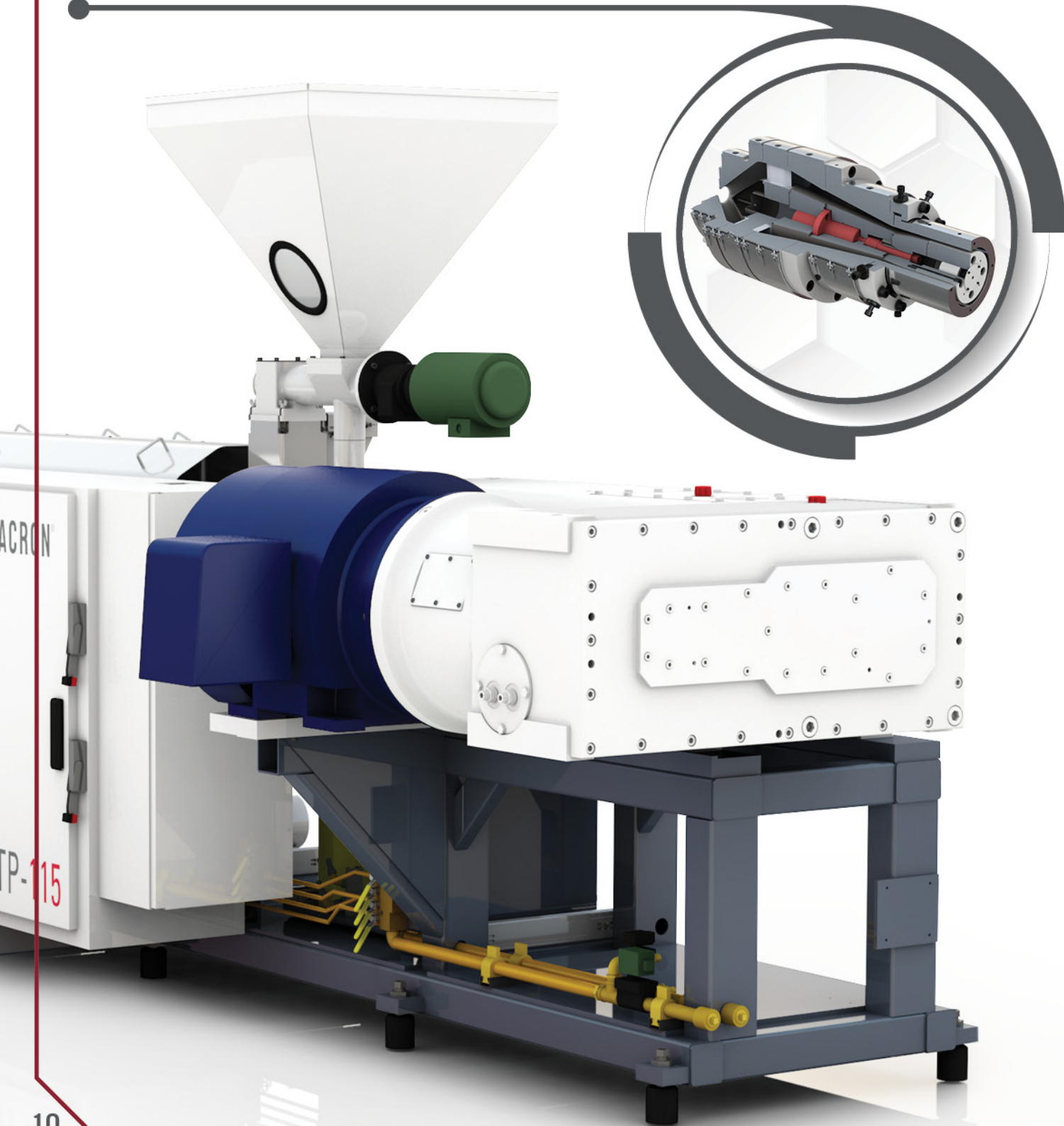


The Milacron Twin Screw system has a wide range of options for every application requirement:

- Customized screw designs matched specifically to the customer process requirements for optimal performance.
- Feeding systems to meet process performance requirements: gravity, dosing, crammer, single and multi-component gravimetric.
- Screw core temperature regulation options.
- Barrel cooling system: water, HTF, air
- Variety of AC vector drive and motor available
- Advanced materials of construction, including tungsten coated screws and tungsten clad barrels for maximum wear protection and the lowest possible life cycle costs.

TOOLING COMPONENTS

Genca MPH PVC and CPH CPVC die heads are available for the production of water, drain waste and conduit pipes. Designed to maximize the extruder's output performance while maintaining product quality. Designed with features to allow timely and efficient pipe size change overs.

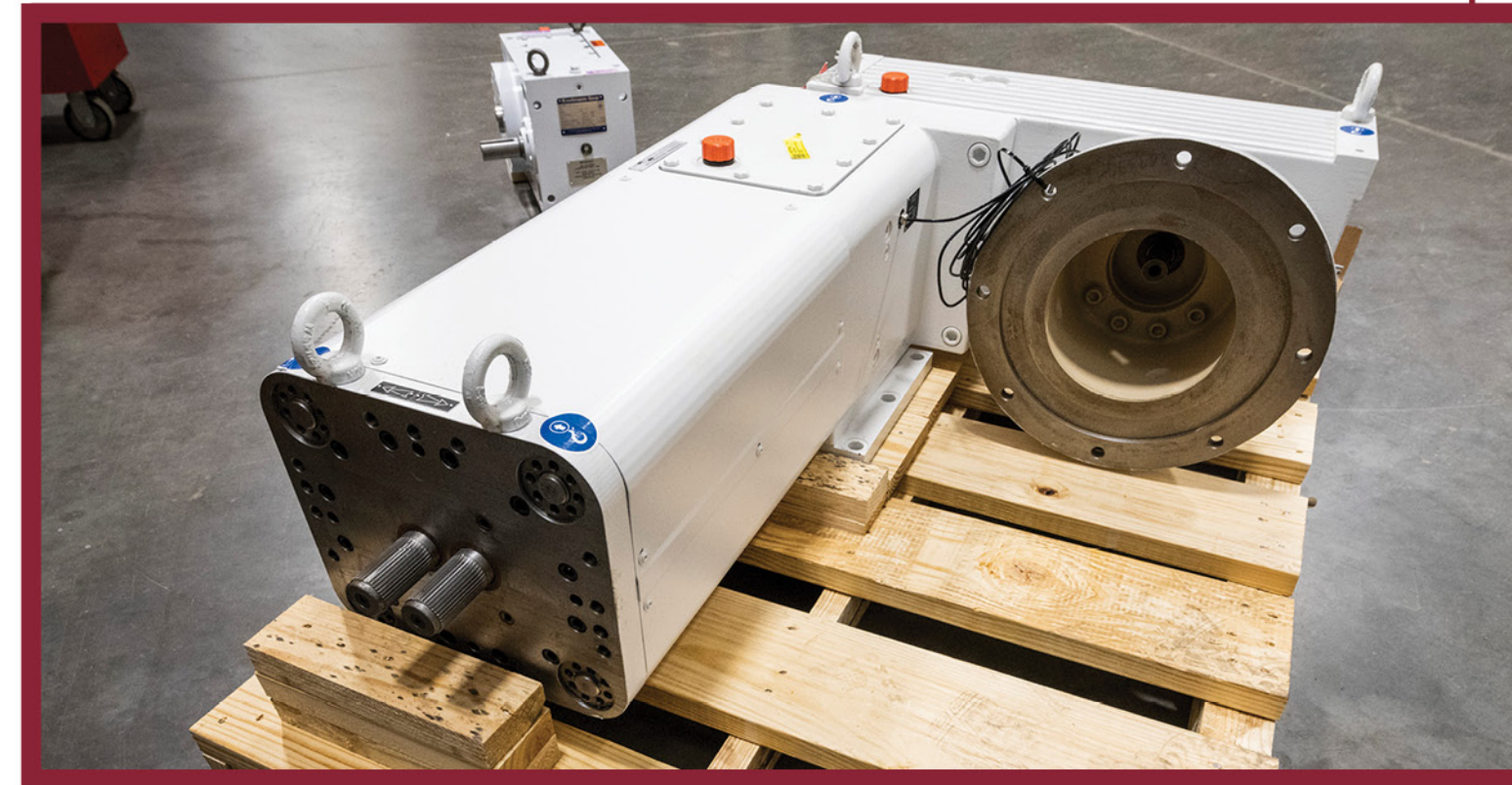


GEARBOXES

- Ⓜ We offer extruder gearboxes with the highest performance and load capacity in the world, including Twin Conical, Twin Parallel, and Single Screw extruders. Milacron understands that gearbox performance and reliability is crucial to any extrusion operation whether you are looking for a new gearbox, a gearbox re-build and upgrade, or an evaluation on your existing equipment.

GEARBOX EXCHANGE PROGRAM

- Ⓜ Gearboxes are crated and stored in a clean environment
- Ⓜ All components are coated with long-term storage lubricant
- Ⓜ Shafts and seals are inspected, and shafts turned every quarter
- Ⓜ Gearboxes are flushed and tested prior to shipment

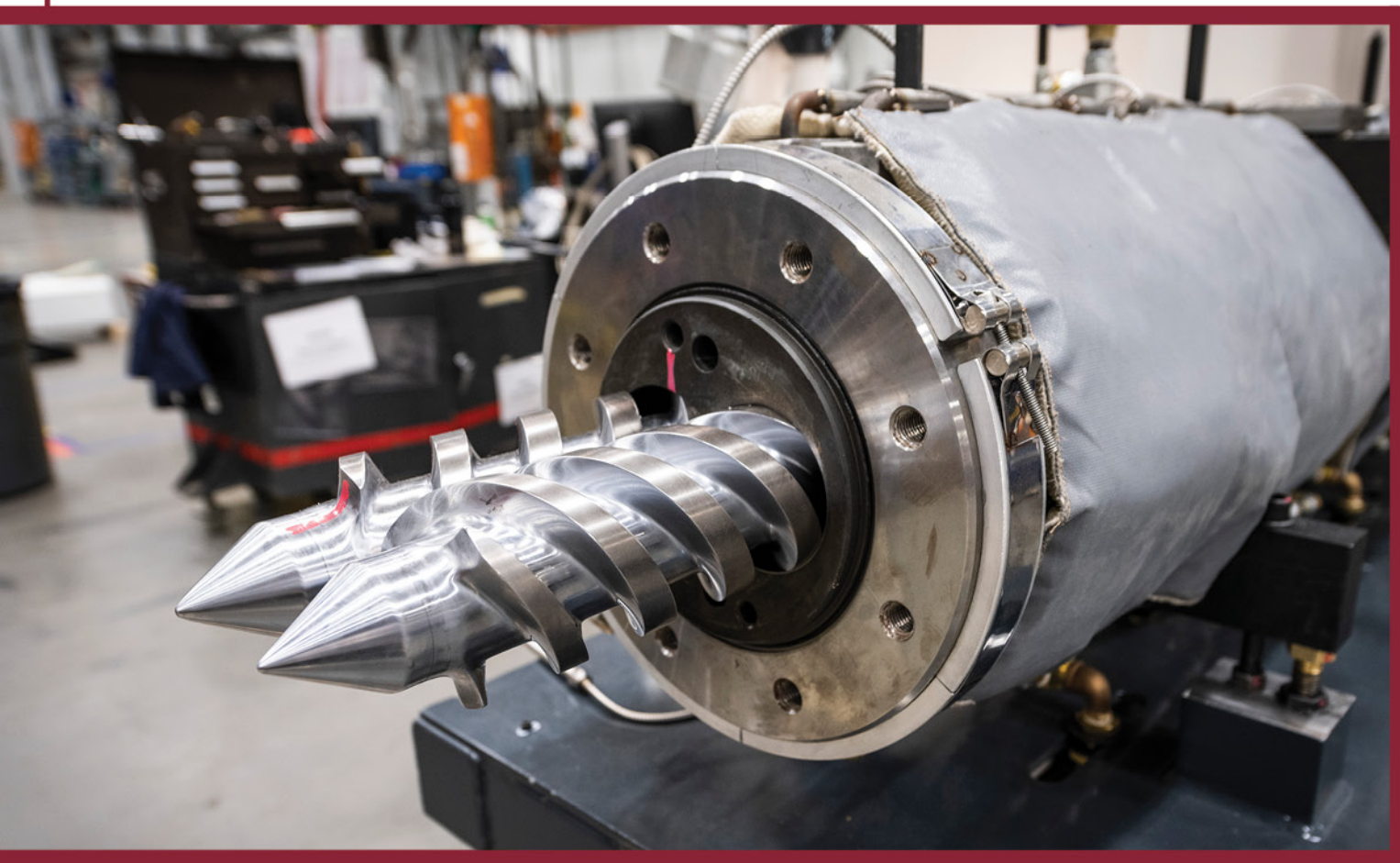


THE MILACRON TC CONICAL TWIN SCREW SYSTEM HAS A WIDE RANGE OF OPTIONS FOR EVERY APPLICATION REQUIREMENT:

- Customized screw designs matched specifically to the customer's process requirements for optimal performance.
- Feeding systems to meet process performance requirements: gravity, doser, crammer, single and multi-component gravimetric
- Screw core temperature regulation options
- Barrel cooling system: water, HTF, air
- Variety of drive and motor systems available including AC vector, brush-less DC and DC
- Advanced materials of construction, including tungsten coated screws and tungsten clad barrels for maximum wear protection and the lowest possible life cycle costs

MILACRON'S TP SERIES OF PARALLEL TWIN SCREW EXTRUDERS IS DESIGNED FOR GREATER OUTPUT, SUPERIOR PERFORMANCE AND HIGHER PROFITS.

- The strongest and most reliable gearbox available on the market today
- Ideal for heat and shear sensitive materials
- High surface area, low shear screw designs for efficient heat transfer
- Positive displacement pumping characteristics
- Narrow residence time produces optimal melt condition



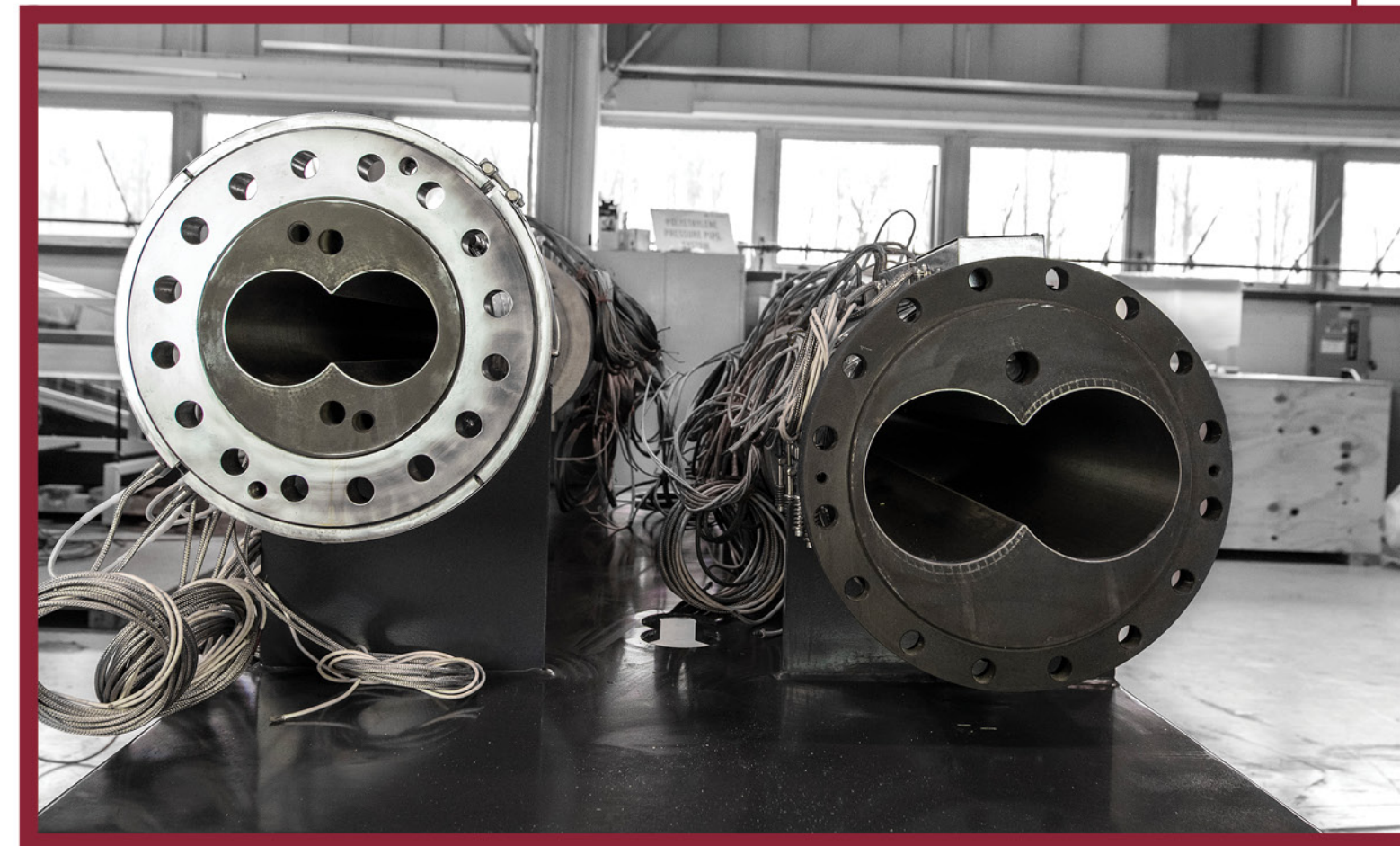
BARRELS

Milacron Extrusion produces the barrels installed on its twin-screw extruder. The segmented barrel design is either nitride or lined with Milacron's exclusive tungsten clad lining. The material used for nitride barrels provides superior hardness and wear characteristics as compared to traditional nitride material. Milacron's exclusive tungsten clad lining is fused to the barrel eliminating the potential for gaps to form between the lining and the barrel. This fused interface provides superior heat transfer as compared to competitive barrel linings. We are capable of providing barrels for competitive brand extruders.

SCREWS

Feed screws are produced from high quality DIN steel, polished, and hard faced with either moly or our proprietary tungsten coating. They can also be nitride, chrome plate or surface treated with a carbide encapsulation for more abrasive or demanding applications. We are capable of handling requests of any size, application and complexity for a Milacron or competitor extruder.

Nitride screw and barrel are standard with optional mold screw coating. Milacron's exclusive tungsten screw and barrel coating are available as an option.



MOSAIC+ CONTROLLER SYSTEM

It's easy to maximize the reliability and adaptability of Milacron machines with the ergonomic touch-screen control of MOSAIC+. Fast processing speeds power extensive data collection and report generation, as well as integration with automation controls to further simplify the whole process.

EXCEPTIONAL STANDARD FEATURES

- ➊ Multi-touch capable 21.5" HD touch screen
- ➋ Intuitive operator interface
- ➌ Configurable screen layout
- ➍ Windows based operating system
- ➎ Touch-screen is provided in English as standard, optional alternative languages available



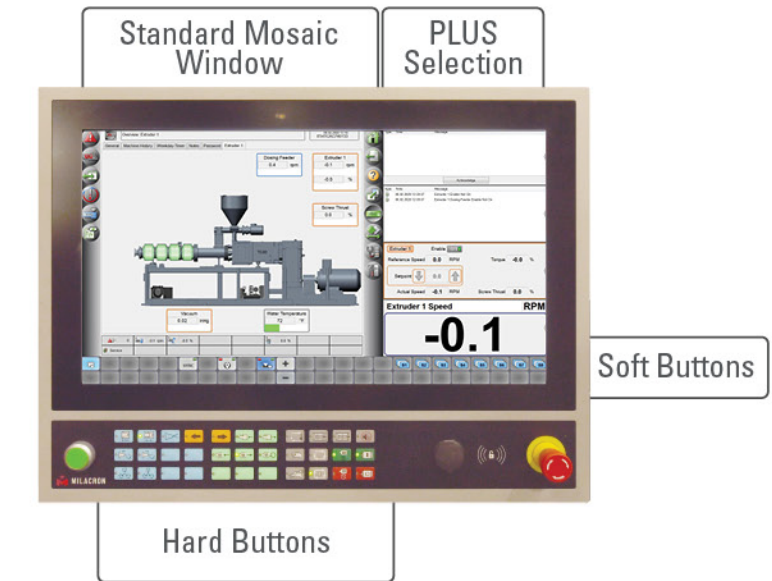
We can offer integrated systems to include tanks, pullers, saws, cutter, printers, collection table, bellers and coilers. On select applications, we can also provide integrated system to produce sheet products.

- ➏ Set point overview page for quick access – actual set points for each axis at the bottom of the page
- ➐ Display of 700 process monitor samples stored on control or virtually unlimited samples on USB stick or network drive via reports
- ➑ Graphic display of 33 integrated soft keys with LED's located below screen
- ➒ Internal parameter storage – 40 formulations or dies
- ➓ Self diagnostic and fault finding capability
- ➔ Data protection with 4 access levels for up to 30 machine operators
- ➕ PID control of barrel and screw oil zones
- ➖ High/low temperature alarms
- ➗ Automatic PID barrel heat tuning
- ➘ Change log and alarm log allow for 700 entries on the control. virtually unlimited on USB stick or network drive via reports.

PLUS SCREEN TECHNOLOGY

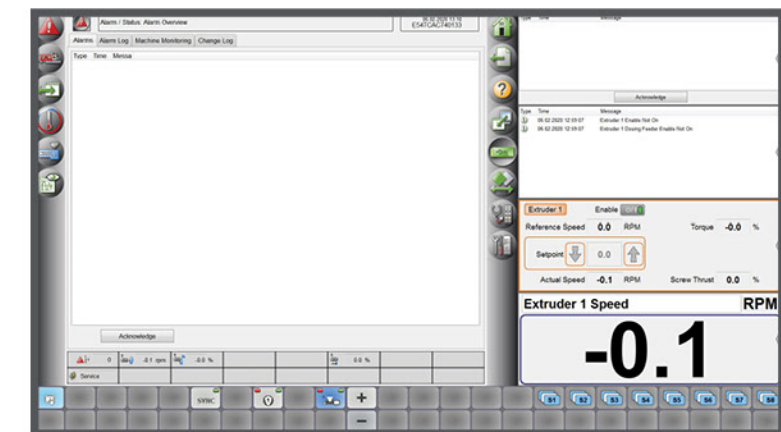
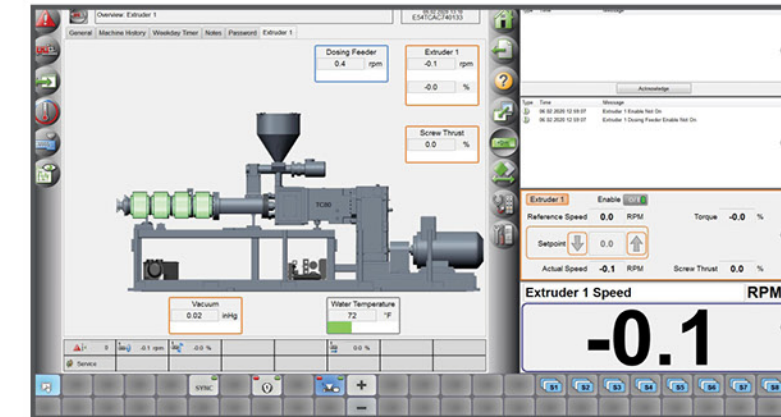
The PLUS section has four configurable window spaces. In this section, the operator can choose to show:

- ➊ Four small windows
- ➋ One large and two small windows
- ➌ Two large windows

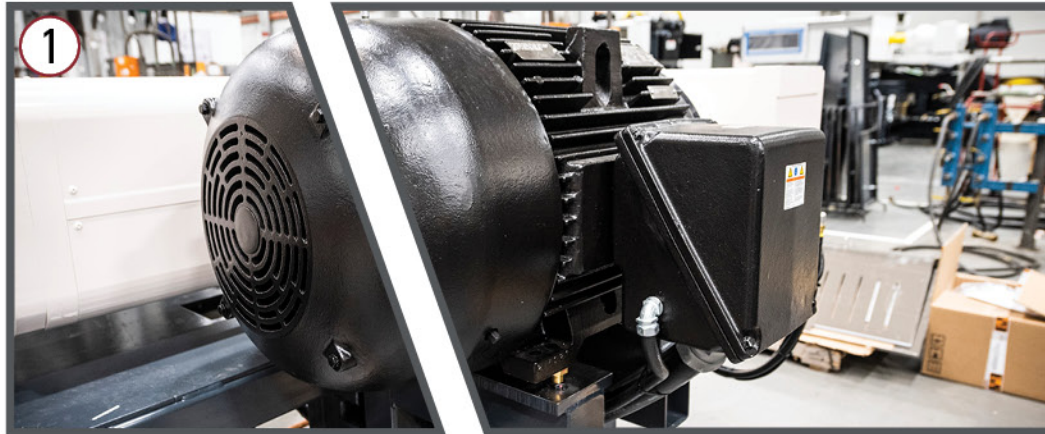


Content choices for the four windows include:

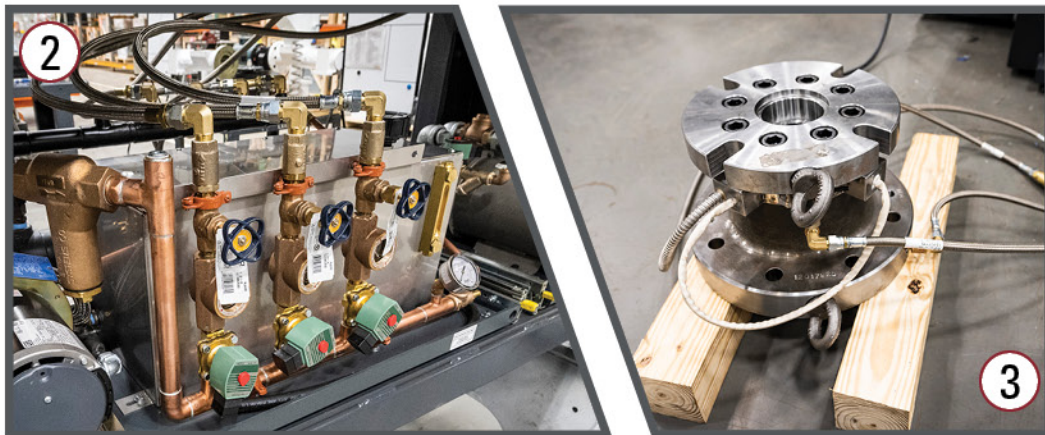
- ➊ Alarms log
- ➋ Energy overview
- ➌ Production run
- ➍ Extrusion graphics
- ➎ Trend data analysis
- ➏ Trend graphics
- ➐ SPC charts
- ➑ Related equipment extruder mounted feeder systems and downstream equipment
- ➒ Status page



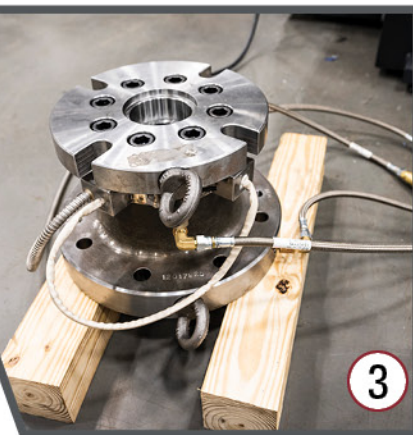
HIGH-QUALITY COMPONENTS



1. MOTOR:
AC vector motors with a energy efficiency rating >90%. TEFC (Totally Enclosed Fan Cooled) motor design permits efficient cooling of the motor while protecting the motor's critical components from dusty environments



2. WATER COOLED EXIT ADAPTER:
Water cooled closed loop barrel cooling system. Mounted on pull out slide try for easy maintenance.



3. SUBCOMPONENTS:
Barrel and screw oil cooling units mounted on roller slide trays for easy maintenance and reduced extruder footprint. Optional free standing screw oil cooling units are available.



4. PANEL:
Well organized, professional manufacturing electrical panels. That utilize high quality electrical components for increased safety, reliability and serviceability. Optional UL, CUL certification and CE compliant design.

STANDARD FEATURES

	Standard	Optional
GENERAL		
Discrete temperature and speed control	●	
Mosaic + (no charge)		○
AC motor and drive	●	
Nitride barrel	●	○
Tungsten screw and barrel	●	
Eisenbeiss gearbox-twin parallel	●	○
Screw oil system	●	
Water cooled screws (no charge)		○
Water cooled barrel	●	
Heat transfer fluid barrel cooling (consult factory)		○
Air cooled barrel (consult factory)		○
Water ring vacuum pump (option waterless)		○
Dosing feeder-single screw (option twin screw)		○
Line Reactor-Drive protection from electrical supply line harmonics		○
Machine mounted die transformer		○
UL or CUL electrical panel certification		○
CE compliant electrical panel		○
Non-standard electrical supply voltage panel design		○
Manual bypass		○
Die clamp		○
R series adapter		○
Universal adapter		○

AUXILIARY SOLUTIONS

CUSTOMIZED SCREW DESIGNS

- Matched specifically to the customer process requirements for optimal performance
- Volumetric twin feeder for increased dosing accuracy and highly filled compounds
- Gravimetric feeder capable of accurately feeding one or more components

FEEDERS

- Offer a variety of feeder technology to feed powders, pellets to scrap regrind
- Feeder types include single and twin screw volumetric feeder or gravimetric for precise feeding requirements

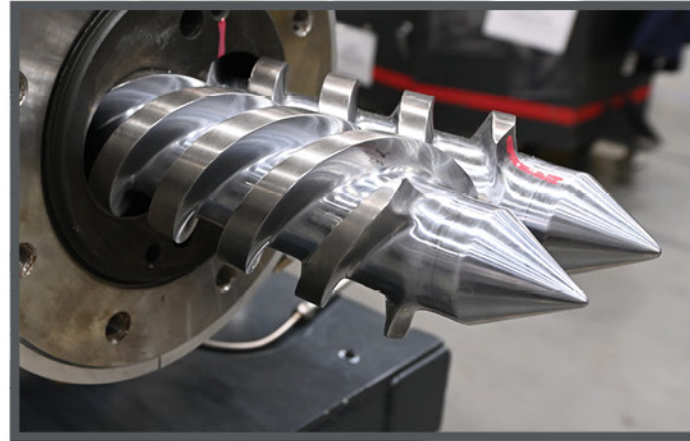
DIE HEADS

- In house designed pipe die head technology
- Die heads for the production of PVC and cPVC pipe

ADDITIONAL DOWNSTREAM EQUIPMENT

- We can offer integrated system to include tanks, pullers, saws, cutter, printers, collection table, bellers, coilers and pelletizers
- On select applications, we can also provide integrated system to produce sheet products

Feeding systems



Die heads



Downstream equipment



M-POWERED

M-POWERED INTELLIGENCE

- M-POWERED leverages the latest in Industrial Internet of Things (IIoT) and data science to contribute unique insights and intelligence into your machine's current operations and future needs.
- Accompany the growing list of M-Powered customers that are experiencing a reduction in service trips and up to a 50% reduction in time to resolution of unplanned downtime events.
- Once an appointment is confirmed, a Milacron technician will be at your facility within the next 10 days to bring your machine online. Alternative connection choices are possible in the event of a more complex IT setup.



M-Powered Applications	ADVANTAGE	ESSENTIAL	PREMIER
Connect Portal	✓	✓	✓
Technical Support	On Demand (payable per hour)	✓	✓ (24/7)
Production Monitoring	✓	✓	✓
Downtime Tracking		✓	✓
Preventative Maintenance			✓
Predictive Analytics			✓

TWIN PARALLEL SCREW EXTRUDER SERIES

SCREW SIZES:
75-175

TECHNICAL SPECIFICATIONS

		TP75-26		TP93-26		TP95-26		TP115-26		TP117-26		TP140-26		TP175-26	
		Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric
Barrel & Screw Specifications	Number of Screws:	2		2		2		2		2		2		2	
	Screw Diameter (in/mm):	2.95	75	3.66	93	3.74	95	4.53	115	4.61	117	5.51	140	6.77	172
	L/D:	26:1	26:1	26:1	26:1	25.5:1	25.5:1	26:1	26:1	25.5:1	25.5:1	26:1	26:1	26:1	26:1
	Direction of Rotation:	Counter-Rotating		Counter-Rotating		Counter-Rotating		Counter-Rotating		Counter-Rotating		Counter-Rotating		Counter-Rotating	
	Number of Heat/Cool Zones:	5		5		5		5		5		5		7	
	Barrel Cooling:	Water		Water		Water		Water		Water		Water		Water	
	Die and Tooling Voltage:	230/3/60		230/3/60		230/3/60		230/3/60		230/3/60		230/3/60		230/3/60	
Electrical Specifications	Main Motor Power (HP/kW):	60	45	100	75	100	75	150	112	150	112	200/250	150/187	300	225
	Main Drive Motor (460V/3 Phase/60Hz) Amps:	72		234 (I)		234 (I)		198		198		268		362	
	Die Zones (230V/3 Phase/60Hz) Amps:	125		125		125		125		125		125/175		125/175	
Drive Train / Utilities	Base Screw Speed (rpm):	0 to 50	0 to 50	0 to 40	0 to 40	0 to 40	0 to 40	0 to 30	0 to 30	0 to 30	0 to 30	0 to 26	0 to 26	0 to 20	0 to 20
	Main Power Drop:	460/3/60		460/3/60		460/3/60		460/3/60		460/3/60		460/3/60		460/3/60	
Machine Dimensions	Total Length without Entry Adapter (in) (mm):	150.5	3823	200.8	5,101	200.8	5,101	243.8	6,192	243.8	6,192	284.8	7,233	339.6	8,627
	Width (in) (mm):	56.8	1443	61.4	1,560	61.4	1,560	70.4	1,788	70.4	1,788	83.2	2,113	92.4	2,346
	Height with Doser Feeder & Hopper (in) (mm):	102.5	2604	104.5	2,655	104.5	2,655	106.3	2,700	106.3	2,700	114.2	2,900	158	4,014
	Extrusion Height Center Line (in) (mm):	43.3	1100	43.3	1,100	43.3	1,100	43.3	1,100	43.3	1,100	43.3	1,100	47.2	1,200
	Extruder Weight, Approximate (lbs) (kg):	11,600	5262	14,500	6,590	14,500	6,590	19,000	8,635	19,000	8,635	26,000	11,820	55,000	25,000
Throughput Rates	Rigid PVC Pipe (lbs/hr) (kg/hr):	to 1,000	to 450	to 1,200	to 545	1600	727	to 2,200	to 1,000	2450	1114	to 3,600	to 1,636	to 5,000	to 2,273
	Rigid PVC Profile (lbs/hr) (kg/hr):	to 720	to 325	250-1,000	114-455	330-1300	150-590	400-1,400	182-636	440-1320	150-590	TBD	TBD	NA	NA
	Rigid PVC Siding (lbs/hr) (kg/hr):	to 720	to 325	to 1,000	to 455	1300	591	to 1,800	to 818	2000	909	to 3,000	to 1,364	to 4,000	to 1,818
	Rigid PVC Sheet-Solid (lbs/hr) (kg/hr):	to 720	to 325	to 1,000	to 455	1300	591	to 1,800	to 818	2000	909	to 3,000	to 1,364	to 4,000	to 1,818
	Rigid PVC Pelletizing (lbs/hr) (kg/hr):	to 1,150	to 520	to 1,200	to 545	1600	727	to 2,200	to 1,000	2450	1114	to 3,600	to 1,636	to 5,000	to 2,273
	Flexible PVC Pelletizing (7 & 8) (lbs/hr) (kg/hr):	to 1,200	to 545	to 1,400	to 636	1850	841	to 2,600	to 1,180	2800	1273	to 4,000	to 1,818	to 5,500	to 2,500
	Wood (Natural) Fiber Plastic Composite (9) (lbs/hr) (kg/hr):	NA	NA	NA	NA	1200	545	NA	NA	NA	NA	NA	NA	NA	NA

All Parallel Twin Screw Extruder Models are available in 33:1 L/D configuration

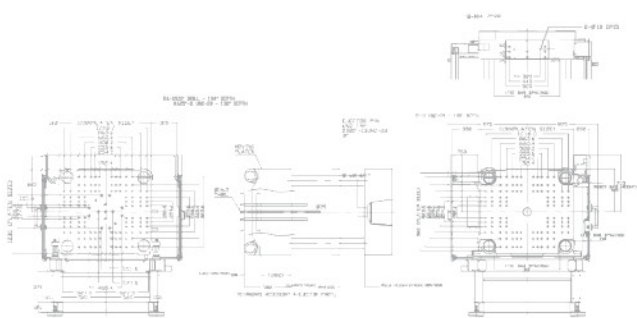
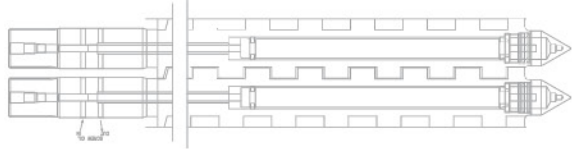
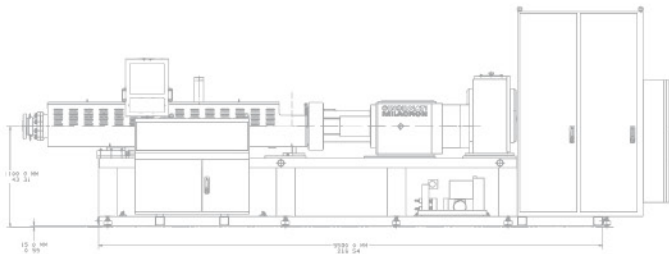
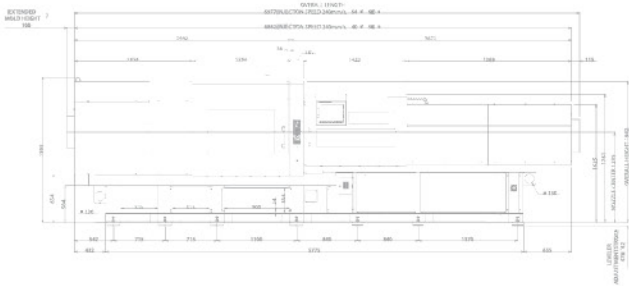
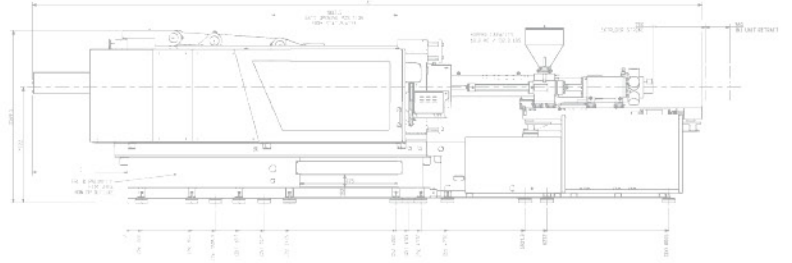
TWIN CONICAL SCREW EXTRUDER SERIES

SCREW SIZES:
35-92

TECHNICAL SPECIFICATIONS

		TC35		TC50		TC55		TC65		TC80		TC80/84		TC86		TC92	
		Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric
Barrel & Screw Specifications	Number of Screws:	2		2		2		2		2		2		2		2	
	Screw Diameter (in/mm):	1.38/2.95	35/75	2.16/4.29	55/109	2.16/4.49	55/114	2.56/5.20	65/132	3.14/6.13	80/156	3.31/6.13	84/156	3.38/6.90	86/176	3.67/7.24	92/184
	Length to Front Diameter Ratio:	23D	23D	22D	22D	22D	22D	22D	22D	23D	23D	22D	22D	27D	27D	27D	27D
	Direction of Rotation:	Counter-Rotating		Counter-Rotating		Counter-Rotating		Counter-Rotating		Counter-Rotating		Counter-Rotating		Counter-Rotating		Counter-Rotating	
	Number of Heat/Cool Zones:	3	3	4	4	4	4	4	4	4	4	4	4	4	4	5	5
	Barrel Cooling:	HTF or Air		HTF, Water, Air		HTF, Water, Air		HTF, Water, Air		HTF, Water, Air		HTF, Water, Air		HTF, Water, Air		HTF, Water, Air	
	Die and Tooling Voltage:	230/3/60	230/3/60	230/3/60	230/3/60	230/3/60	230/3/60	730/3/60	230/3/60	230/3/60	230/3/60	230/3/60	230/3/60	230/3/60	230/3/60	230/3/60	230/3/60
Electrical Specifications	Main Motor Power (HP/kW):	12.7	9	25	18.6	40	30	50	37	75	56	75	56	125	93	150 or 200	112.5 or 150
	Main Drive Motor (460V/3 Phase/60Hz) Amps:	30	30	42	42	64	64	74	74	113	113	113	113	256(2)(3)	256(2)(3)	202/262	202/262
	Die Zones (230V/3 Phase/60Hz) Amps:	75	75	128	128	128	178	174	174	233	233	733	233	108(3)	108(3)	188(3)(4)	188(3)(4)
Drive Train / Utilities	Base Screw Speed (rpm):	10 to 50	10 to 50	7 to 30	7 to 30	7 to 42	7 to 42	7 to 35	7 to 35	7 to 33	7 to 33	7 to 33	7 to 33	7 to 33	7 to 33	7 to 34	7 to 34
	Main Power Drop:	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60
Machine Dimensions	Total Length without Entry Adapter (in) (mm):	98.4	2,500	113.4	2,880	113.4	2,880	123.2	3,130	189	4,800	189	4,800	196	5,000	236	6,000
	Width (in) (mm):	37.8	960	55.5	1,410	55.5	1,410	55.5	1,410	41	1,036	41	1,036	55	1,400	47	1,500
	Height with Doser Feeder & Hopper (in) (mm):	82	2,080	103.3	2,625	103.3	2,625	103.3	2,625	91	2,312	91	2,312	104	2,650	104.2	2,647
	Extrusion Height Center Line (in) (mm):	39.4	1,000	40	1,015	40	1,015	40	1,015	40	1,015	40	1,015	44.8	1,140	43.3	1,100
	Extruder Weight, Approximate (lbs) (kg):	2,770	1,260	6,500	2,955	6,500	2,955	6,800	3,090	12,700	5,760	12,700	5,760	18,000	8,150	21,000	9,500
Throughput Rates	Rigid PVC Pipe (lbs/hr) (kg/hr):	25 to 150	11 to 68	50 to 275	23 to 125	200 to 600	90 to 270	300 to 800	135 to 365	500 to 1,300	227 to 590	500 to 1,600	227 to 727	500 to 2,000	227 to 909	to 2,200	to 1000
	Rigid PVC Profile (lbs/hr) (kg/hr):	25 to 125	11 to 57	50 to 200	23 to 91	80 to 450	35 to 205	200 to 650	90 to 295	300 to 900	135 to 410	300 to 1,000	135 to 455	400 to 1,200	182 to 550	to 1,700	to 770
	Rigid PVC Siding (lbs/hr) (kg/hr):	NA	NA	NA	NA	80 to 500	35 to 225	200 to 650	90 to 295	600 to 1,200	273 to 545	600 to 1,400	273 to 636	600 to 1,700	273 to 770	to 2,000	to 909
	Rigid PVC Sheet-Solid (lbs/hr) (kg/hr):	NA	NA	NA	NA	200 to 600	90 to 270	300 to 800	135 to 365	500 to 1,300	227 to 590	500 to 1,600	227 to 727	500 to 2,000	277 to 909	to 2,000	to 909
	Rigid PVC Pelletizing (lbs/hr) (kg/hr):	NA	NA	NA	NA	to 600	to 270	to 800	to 365	to 1,300	to 590	to 1,600	to 727	to 2,000	to 910	to 2,200	to 1,000
	Flexible PVC Pelletizing (7 & 8) (lbs/hr) (kg/hr):	NA	NA	NA	NA	to 800	to 365	to 1,000	to 455	to 1,500	to 682	to 1,800	to 818	to 2,200	to 1,000	to 2,500	to 1,136
	Wood (Natural) Fiber Plastic Composite (9) (lbs/hr) (kg/hr):	to 100	to 45	to 165	to 75	to 350	to 160	to 500	to 230	850 to 1,000	386 to 455	NA	NA	1,000 to 1,600	455 to 727	to 1,700	to 773

Rigid PVC output rates are based on average formulations with a bulk density of 40 lbs/ft³ or 640 g/L.
WPC output rates are based on 60% wood-fiber 40-60 mesh + 40% HDPE.



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