



Measuring Extruders Recommendations Concerning Technical Application



... where quality is measured.

Measuring Extruders - Recommendations Concerning Technical Application

Thermoplastics

Material	Products	Barrel length [D]	Screw compression	Barrel temperatures					Remarks
				Zone 1	Zone 2	Zone 3	Zone 4	Die head	
Cellulose acetate (CA)	Ribbons, blown and flat films	25 - 32	CP 3:1 3Z 3:1	175	185	195	200	210	preheat 2 h at 80 °C
Polyacetals (POM)	Ribbons, tubes, rods	20 - 32	CP 3:1 / 4:1	170	190	205	210	210	extrusion at low speeds
Polyamide PA 6 Polyamide PA 6.6	Ribbons, blown and flat films, monofilaments	25 - 32	3Z 3:1 / 4:1	230 250	240 260	250 270	255 275	260 280	preheat 3 h at 80 °C under vacuum, ring nut with heating
Polycarbonate (PC)	Ribbons, profiles	25 - 32	CP 2:1	290	280	270	260	240 - 250	preheat 3 h at 120 °C
Polyester linear	Monofilaments, films	25 - 32	3Z 4:1	250	260	270	275	280	preheat 3 - 4 h at 80 °C
Polyethylene (PE)	Ribbons, blown films, round strands, cables	20 - 32	3Z 3:1 / 4:1	190	200	210	220	220 - 230	
PE, grits (HDPE, UHMPE)	Ribbons, blown films, round strands	25 - 32	ZC 1:1	160 - 220	170 - 230	180 - 240	185 - 245	190 - 250	conical, grooved feed zone
Polymethylmethacrylate (PMMA)	Sheets, profiles	20 - 32	CP 2:1 / 3:1	170	180	190 - 200	210	220	preheat 5 h at 70 - 100 °C
Polypropylene (PP)	Ribbons, blown films, tubes, round strands	20 - 32	3Z 3:1 / 4:1	210	220	230	-	240	
Polystyrene (PS)	Ribbons, profiles, blown films	20 - 32	CP 2:1 / 3:1	170	180	190	200	210	
PS copolymers ABS	Round strands, blown and flat films, ribbons and tubes	20 - 32	CP 2:1 / 3:1	170 - 190	175 - 195	185 - 200	185 - 225	185 - 225	preheat 2 h at 80 °C
Polysulfone	Ribbons, blown and flat films	20 - 32	CP 2:1	250 - 280	270 - 300	290 - 320	290 - 330	290 - 330	preheat 4 h at approx. 140 °C
Polyurethane (PUR)	Ribbons, profiles	25 - 32	CP 3:1	140 - 220	160 - 220	180 - 220	190 - 220	190 - 220	preheat 2 h at 100 - 110 °C
Polyvinyl butyral (PVB)	Ribbons, profiles	25	3Z 3:1	100	120	130	140	140	
Polyvinyl chloride (PVC)	Ribbons, profiles, blown films, tubes, round strands, cables	20 - 25	CP 2:1	150 - 160	155 - 165	160 - 170	-	170 - 190	above $n = 45 \text{ min}^{-1}$ air cooling for barrel required
• Rigid PVC pellets		25	CP 2:1 / 3:1	160 - 170	165 - 175	170 - 180	175 - 185	180 - 190	
• Rigid PVC powder		20 - 25	CP 2:1 / 3:1	150 - 170	160 - 190	165 - 200	-	170 - 200	
• Soft PVC pellets		20 - 25	CP 3:1	150 - 170	160 - 190	170 - 200	175 - 205	170 - 200	
• Soft PVC powder									

Thermosets

Material	Products	Barrel length [D]	Screw compression	Barrel temperatures					Remarks
				Zone 1	Zone 2	Zone 3	Zone 4	Die head	
Epoxy resins (EP)	Rods	15	ZC 1:1	80	80 - 90	110 - 130	-	110 - 130	possibly liquid heating/cooling of barrel and die head
Urea resin (UF)	Rods	15	ZC 1:1	80	80 - 90	110 - 130	-	110 - 130	possibly liquid heating/cooling of barrel and die head
Melamines (MF)	Rods	15	ZC 1:1	80	90	110	-	130	possibly liquid heating/cooling of barrel and die head
Phenolics (PF)	Rods	15	ZC 1:1	80	90	100	-	110	possibly liquid heating/cooling of barrel and die head
Polyester (UP)	Rods	15	ZC 1:1	70	80	90	-	100	possibly liquid heating/cooling of barrel and die head

Elastomers

Material	Products	Barrel length [D]	Screw compression	Barrel temperatures					Remarks
				Zone 1	Zone 2	Zone 3	Zone 4	Die head	
Natural rubber compounds, ribbons of rolled sheets, pellets, NBR	Round and Garvey profiles	10	ZC 1:1	80	-	-	-	100	feed roll for ribbons, feed hopper for pellets
Synthetic rubber, compounds, ribbons of rolled sheets, pellets	Round and Garvey profiles, ribbon profiles	20	ZC 1:1 CP 2:1	60 - 80	70 - 90	-	-	100 - 110	feed roll for ribbons, feed hopper for pellets, for flat profiles die up to 50 x 0.5 mm, scrow CP 1:3

Other materials

Material	Products	Barrel length [D]	Screw compression	Barrel temperatures					Remarks
				Zone 1	Zone 2	Zone 3	Zone 4	Die head	
Electrodes	Round and flat profiles, films	20	ZC 1:1	70	75	75	-	80	vertical feed screw, air cooling of barrel required, for flat profiles die up to 50 x 0.5 mm
Ceramics	Round and flat profiles, tubes, films	20	ZC 1:1	40 - 60	50 - 70	60 - 80	-	80 - 100	screw and barrel made of special materials
Powder coatings	Ribbon and round profiles	25	CP 2:1 ZC 1:1	70	80	90	100	100 - 120	frequently special screws with mixing section required, air cooling required

CP = core progressive screw
 ZC = zero compression
 3Z = 3-zone metering screw
 • 25 D total length: 10 D + 3 D + 12 D
 • 20 D total length: 10 D + 3 D + 7 D

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Our state of the art application laboratory is always made available to our customers.

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The new software is characterized by its easy and intuitive handling. After log-in, the user finds all information about the device and a choice of options for his purpose on the start screen.

The advantages

- User-friendly operation by touch – perfect for tablets and smart-phones
- Responsive web design: screen resolution adjusted automatically
- Ready to use, no installation necessary
- Security of tests and data through password protected user log-in
- Live test tracking by authorized users from multiple end devices all over the world at a time

Intelligent features

Benefit from new and optimized functions:

- Administration mode for user access rights
 - Web-based solution – possibility of sharing information and data with other users worldwide
 - Live tracking of tests with end time indication for logged-in users
 - Optimized basic functions like data recording and evaluation, printing and export of test results – clearer, easier, faster
 - Central test administration and data storage provides for quick and easy access of authorized users
- Easy definition, clear display and quick integration of reference curves
 - Optimized functions for editing and adapting diagrams to your individual needs



Plastograph EC Plus with measuring extruder 19/25



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