

DUNST
extruders
for
the cable
production





The DUNST extruders for all applications

An ever broadening spectrum of thermoplastics and applications calls for versatile processing machinery solutions. The new extruders from DUNST match this essential requirement. Incorporating the latest developments in extruder technology, they offer improved processing capability, a wider processing band and an impressive service life. In addition, the new generation is based on design principles which reduce maintenance and floor space requirements to a minimum.

Application-tailored extruders

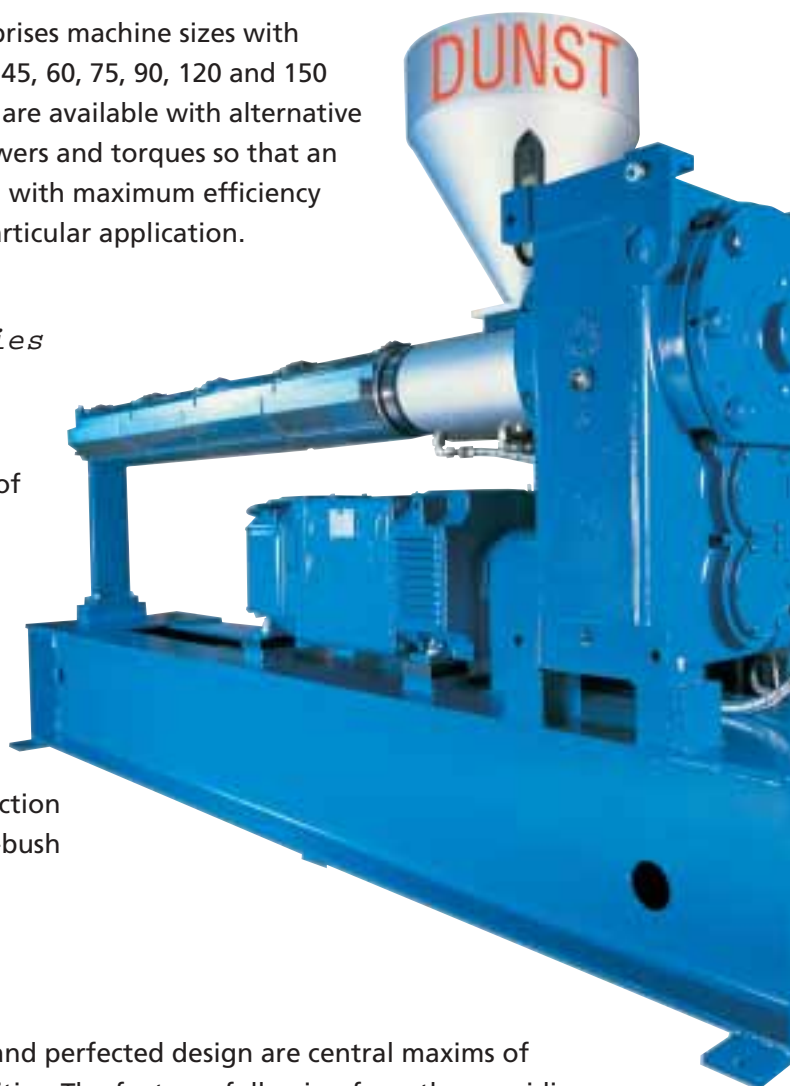
The DUNST series comprises machine sizes with screw diameters of 32, 45, 60, 75, 90, 120 and 150 mm. Different versions are available with alternative gear ratios, driving powers and torques so that an optimised specification with maximum efficiency can be offered for a particular application.

Output capacities

The new DUNST extruders cover an extremely wide range of output capacities. These are from 1,5 kg/h for the production of skin with low-speed smooth-bush extruders, to over 900 kg/h for the production of HDPE with grooved-bush sheathing extruders.

Footprint

Optimal functionality and perfected design are central maxims of our development activities. The features following from these guiding principles are good accessibility, ease of maintenance and minimised floor space requirements. All models of the extruders have the motor positioned under the feed section, a design which makes the DUNST extruders surprisingly short with a minimised footprint.



The DUNST extruders combine features which guarantee supreme efficiency. Proven design concepts were developed further in close co-operation with raw material producers and users of extrusion equipment to create machines with unsurpassed processing performance.

Drive / gear

DUNST extruders are driven by shunt motors. Digital control of the driving motor ensures precise control of the speed. The dual-reduction gears are designed to take extreme thrust and torque loads, helical gearing and high-grade materials ensure quiet running and long life of the mechanisms.



Dual reduction-gear

Barrels

Bimetallic barrels are standard for all DUNST extruders. This high-grade type of barrel substantially prolongs the service life of the processing unit. For the processing of highly corrosive or abrasive thermoplastics bimetallic barrels made from special alloys are available.



Bimetallic barrel

Barrel heating and cooling

Accurate barrel temperature control is effected by means of an air cooling system and ceramic heater bands. The highly efficient heat transfer brought about by the special design of the copper cooling fins needs only a modest air flow which grants the advantage of a very low noise level in addition to precise control of the melt temperature.



Barrel air cooling system

Processing performance

L/D variants

Feed zone		Barrel	L/D ratio	Type Code	Bush	
Length	Width				Type	Finish
2,50			22,50	25	B+G	smooth + grooved
4,00			26,00	30	G	grooved
4,00			26,00	30	F	finely grooved

For high-performance extrusion of polyolefins, an L/D ratio of 30:1 is ideal. The G types with grooved feed bush are offered for such applications. They feature a cooled 4D feed zone which is thermally isolated from the rest of the barrel.

Grooved bush

A higher screw filling factor is achieved through the novel design of the grooved bush with asymmetric intake. An additional advantage of this design concept is a lower pressure in the bush which prolongs the service life of screw and barrel.



Grooved bush with asymmetric intake

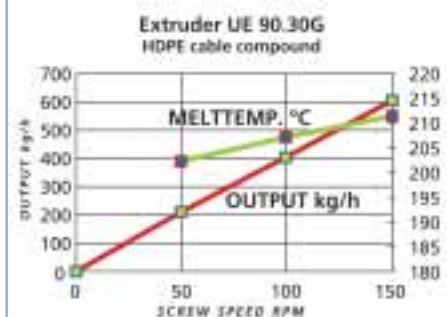
High-output extrusion

Special barrier screws are available for high output-extrusion. The barrier section with a length of 12D ensures gentle plasticising of the thermoplastic so that a melt with excellent quality is obtained at low temperatures. The barrier flight is designed to provide additional enhancement of the throughput.

Linearity

For all screws, output rate is directly proportional to screw speed throughout the operating range.

DUNST extruders represent the peak of processing performance. Matching for the particular application is achieved by different L/D ratios of product-specific processing units.



Screws

Special features screw geometries

The range of screw types offered includes designs for the production of cables from typical thermoplastics such as PE, HDPE, PP, TPU, PA, PVC, Sioplas, Silan, FRNC- materials such as Megolon and special types for high output applications.

The screws are nitrided or for grooved - bush extruders feature coated flights of the feed section or entire processing unit, depending on the requirements. A special powder coating alloy with outstanding tenacity and wear- resistance was developed in- house for the coating of screw flights. Included in the broad range of screws available for DUNST extruders are types from Hastelloy for the processing of fluoro polymers and other corrosive thermoplastics.

Development

High- grade thermoplastics require top quality processing equipment. Our teams of specialists are constantly engaged in the development of new screw configurations capable of coping with the numerous novel raw materials which come on the market.

A kit system is used for the efficient testing of of new developments.

The ideal geometry is found by variation of the flight depths, compression ratios and gap widths of the barrier, shear and mixing sections of the screw. Optimisation of the processing performance is carried out under real production conditions and the optimised geometry is then transposed to other machine sizes by computer- assisted upscaling and downscaling.



A comprehensive range of screw geometries is available



Welding of flights



A comprehensive range of screw geometries is available





Technical data and output values of the DUNST - extruders:

25D - Extruder

Type:		UE 30.25	UE 45.25	UE 60.25	UE 75.25	UE 90.25	UE 120.25	UE 150.25
Diam. of screw	[mm]	30	45	60	75	90	120	150
Max. rpm	[min-1]	200	180	160	140	110	90	70
Max. melt press.	[bar]	1000	750	750	750	450	500	400
Motor power	[kW]	9	24	41	65	94	140	250
PVC	[kg/h]	35	90	190	250	390	680	1050
LDPE	[kg/h]	23	60	125	165	260	450	690
HDPE	[kg/h]	21	55	110	150	240	430	660
LSF(Megolon)	[kg/h]	18	45	90	120	190	330	550
PP	[kg/h]	18	50	95	130	210	370	540
TPU	[kg/h]	15	45	85	120	200	350	490
PA / PBTP	[kg/h]	21	40	75	100	a.A.	a.A.	a.A.
Fluoro copolym.	[kg/h]	18	36	65	75	a.A.	a.A.	a.A.

30D - Extruder: "High Output"

Type:		UE 45.30	UE 60.30	UE 75.30	UE 90.30	UE 120.30	UE 150.30
Diam. of screw	[mm]	45	60	75	90	120	150
Max. rpm	[min-1]	180	160	140	120	90	80
Max. melt press.	[bar]	750	750	750	550	500	on request
Motor power	[kW]	41	65	80	140	170	on request
PVC (laed free)	[kg/h]	130	230	350	500	880	1200
LDPE/HDPE	[kg/h]	85	170	240	380	650	on request
HFFR	on request						on request
PP	[kg/h]	65	120	185	260	440	on request
TPU	[kg/h]	75	140	210	320	540	on request

Cascade extruder group for highly foamed PE

Type:		UE 60.30/UE 75.25	UE 75.30/UE 90.25	UE 90.30/UE 120.25
Diam. of screw	[mm]	60/75	75/90	90/120
Length	[L/D]	30/25	30/25	30/25
Max. rpm	[min-1]	95/40	80/35	75/30
Max. melt press.	[bar]	550/500	500/450	450/400
Motor power	[kW]	41/52	65/80	94/114
Output of foam if 78% foaming degree:				
HD-/LDPE recipe	[l/h]	195	265	425
CO - Extruder series 32		vertical	45° execution	horizontal

Type:		UE 30.20.00	30.25.00	30.20.45	30.25.45	30.20.90	30.25.90
Diam. of screw	[mm]	30	30	30	30	30	30
Length	[L/D]	20	25	20	25	20	25
Max. rpm	[min-1]	200	200	200	200	200	200
Max. melt press.	[bar]	1000	1000	1000	1000	1000	1000
Motor power	[kW]	9	12	9	12	9	12
PVC	[kg/h]	30	35	30	35	30	35
LDPE	[kg/h]	20	23	20	23	20	23
HDPE	[kg/h]	18	21	18	21	18	21



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