

1 Technical data ZE 180A x 28D - UT**1.1 Applications**

Production of Polyketone P 1000 and R 1000

Throughput up to :1750 - 7000 kg/h

1.1.1 Scope of validity

These operating instructions apply exclusively to the twin-screw extruder ZE 180A x 28D -UT identified by the machine number on the cover sheet.

These operating instructions contain information on the twin-screw extruder ZE 180A x 28D - UT, as such and on additional equipment included in the scope of delivery.

Data on equipment not included in the scope of delivery are furnished for your information only. No legal claims can be raised with respect to this equipment (options).

Berstorff does not assume any responsibility for information and technical data included in the documentation provided by sub-suppliers (in the appendix to these operating instructions).

1.2 Mechanical data**1.2.1 Extruder**

Barrel bore diameter	:	194 mm
Outer screw diameter	:	192,3 mm
Core diameter	:	131,7 mm
Centre distance	:	163 mm
Screw shaft	:	Spline shaft with 24 teeth
L/D ratio	:	28 : 1
Screw speed	max.	: 325 1/min
	min.	: 35 1/min
(screw speed apply to installed drive motor)		
Max. drive power at max. admissible screw speed	:	2238 kW
Max. torque per screw shaft	:	32650 Nm
Thrust bearing consisting of a tandem bearing and a self-aligning roller bearing	:	T6 AR 38x160x360/29436E
Dynamic load capacity	:	2140 kN
Theoretical service life at 130 bar and 300 1/min	:	40 000 h
(see service life diagram, chapter 8.3.4)		
Number of closed barrels (4 D)	:	5
Heating power per barrel	:	45 kW
Number of open barrels (4 D)	:	2
(1x feed barrel 4 D , not heated)		
Heating power per barrel	:	30 kW
Head connection	:	16 kW
Total heating power	:	271 kW
(The specification of heating power be current at 500V voltage)		

1.2.2 Electric drive (direct drive)

Motor (by BC)	:	three-phase motor
Make/Type	:	Siemens
Power	:	2238 kW at 1789 1/min
Overload protection coupling	:	make Desch type PLANOX PPF 183 H RA ORPEX 450
Pre-set disconnecting torque	:	13655 Nm
at air pressure	:	3,3 bar
(see moment of friction characteristic, appendix A)		
Inductive proximity switch	:	IFM IA-3010-BPKG
Max. admissible speed	:	1800 1/min
Sense of rotation	:	right, if seen towards the motor output journal

1.2.3 Gear unit

Max. admissible nominal torque per output shaft	:	34500 Nm
Max. admissible drive power	:	2350 kW
Transmission	:	i = 5,524
Max. speed of input shaft	:	1800 1/min
Max. speed of output shafts	:	327 1/min
Oil volume	:	950 l
Oil viscosity	:	ISO VG 320
necessary oil quantity	:	200 l/min
amount of heat to be removed	:	85 kW
Sense of rotation if seen towards the input shaft	:	left
Sense of rotation if seen towards the output shaft	:	left
Max. sound level at a distance of 1 m at max. drive power and max.speed	:	<ca. 85 dB(A)

1.2.4 Oil circulation lubrication system

Pump unit	:	by BC
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1.2.5 Extruder heating/cooling system

Heating by means of AIBz heating elements		
Number of controlled heating zones	:	8 (6 x barrel, zones 2 - 7 2 x Strand extrusion head zone 8 + 9)
Cooling by means of water		
Number of controlled cooling zones	:	6 (6 x barrel, zones 2 - 7)
Temperature sensor (zonetemperature)	:	by BC
Temperature sensor (melt)	:	by BC

For information on the technical data of auxiliary equipment, please refer to the separate operating instructions

1.3 Weights, dimensions

For information on weights and dimensions, please refer to the drawings of the sub-assemblies in the appendix.

1.4 Emissions

Sound level	: ca. 90 dB(A)
Electromagnetic	: not in our scope of delivery
Dust	: depending on the process and material
Vapours/gas	: depending on the process and material

1.5 Energy consumption

1.5.1 Instrument air

Unit	Operation	Flow rate (Nm ³ /h)
Instruments	continuous	4
Coupling	emergency disconnection	small
Total approx.		4

1.5.2 Electric power

Unit	Voltage
Extruder drive	by BC
Power consumers drive units, heatings	3 x 460 V, 60 Hz network structure TN-S
Tolerances	+ 10 % / - 10 % frequency ± 2 %
Control voltage	24 V =, 110 V AC

NOTE

For information on technical data of separate Berstorff units and equipment provided by sub-suppliers, please refer to the appendix to these operating instructions.