Anton Paar

Technical Data - FRS 1600, 1800

Technical Specifications			
	Unit	**FRS 1600**	**FRS 1800**
Bearing	-	Air	Air
EC motor (brushless DC) with high resolution optical encoder	-	✔	✔
Permanent torque (60 min), no signal drift	-	✔	✔
EC mode (controlled shear rate and shear stress)	-	✔	✔
Rotation mode	-	✔	✔
Oscillation mode	-	✔	✔
Measuring of newtonian samples	-	✔	✔
Measuring of non-newtonian samples	-	✔	✔
Maximum torque	mNm	230	230
Minimum torque, rotation	nNm	10	10
Minimum torque, oscillation	nNm	2	2
Torque resolution	nNm	0.1	0.1
Viscosity range	Pa.s	$0.001–10^{7}$	$0.001–10^{7}$
Angular deflection, set value	µrad	0.1 to ∞	0.1 to ∞
Angular deflection, resolution	nrad	10	10
Minimum angular velocity	rad/s	10^{-9}	10^{-9}
Maximum angular velocity	rad/s	314	314
Minimum speed (CSS/CSR)	1/min	10^{-9}	10^{-9}
Maximum speed FRS	1/min	300	300
Maximum speed measuring head	1/min	3000	3000
Minimum angular frequency	rad/s	10^{-7}	10^{-7}

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Maximum angular frequency	rad/s	628	628
Normal force range	N	0.005 to 50	0.005 to 50
Normal force resolution	mN	0.5	0.5
Dimensions	mm	680 x 1950 x 920 mm	680 x 1950 x 920 mm
Weight	kg	120	150
Oven temperature range	°C	20, 300 to 1600	20, 600 to 1800
Minimum sample temperature	°C	Room temperature	Room temperature
Maximum sample temperature	°C	1530	1730
Temperature gradient optimized	-	✔	✔
Sample temperature sensor	-	Typ S or B	Typ S or B
Temperature resolution	°C	0.1	0.1
Safety housing	-	✔	✔
Inert gas atmosphere possible	-	✔	✔
Measuring system material	-	Al_2O_3, graphite, Pt, and customized	Al_2O_3, graphite, Pt, and customized
Measuring system rotor diameter	mm	8 to 35	8 to 35
Maximum measuring system cup height	mm	100	100
DMA™ Option	-	on request	on request
Compliant standards ASTM C1276, ASTM C965,ISO 7884-2	-	✔	✔