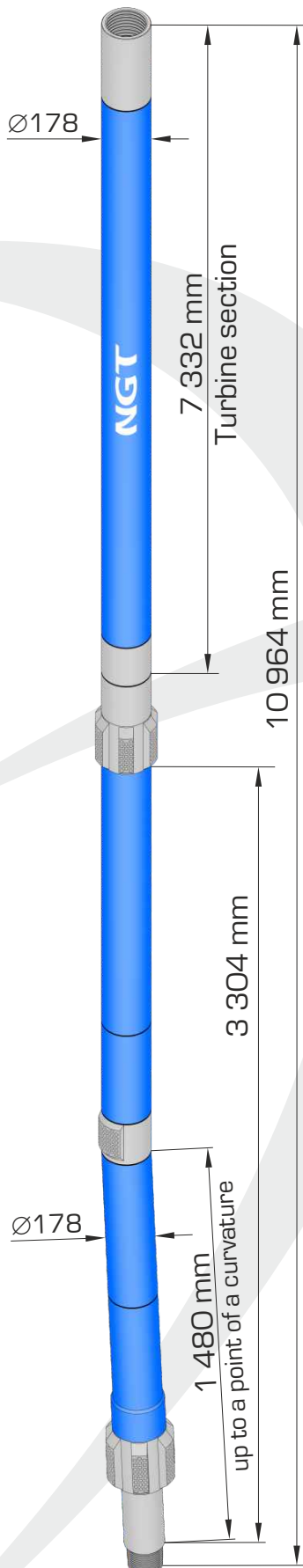


TBS1-178.NGT.M1 and TBS1-178.NGT.M2



Turbodrills TBS1-178.NGT.M1 and TBS1-178.NGT.M2 are new universal turbodrill-whipstocks with an ultra-short arm to the point of axes curvature.

The turbodrill is available for drilling with impregnated and PDC bits in 212,7–220,7 mm dia.

Turbodrill contains turbine section and bearing section as whipstock with angle adjuster. Angle adjuster is available with the following bend angles : 0°00', 0°13', 0°25', 0°37', 0°49', 1°00', 1°11', 1°20', 1°29', 1°37', 1°44', 1°50', 1°54', 2°00'. Flexible shaft of titanium alloy is used for torque transmission.

Highly efficient turbines of M1 and M2 types are used in turbine section of turbodrills. Both turbines are made of stainless steel by precision casting method. The turbine efficiency constitutes 68–70% at max. power.

The turbodrill bearing sections have axial sliding bearing, the operating surfaces made of synthetic diamond. This allows obtaining high power characteristics and increased overhaul life.

Turbodrill specification

Code of turbodrill	TBS1-178.NGT.M1	TBS1-178.NGT.M2
OD of threaded connections, mm	178	
Diameters of bits used, mm	212,7–215,9	
Turbodrill length, mm	10 964	10 964
Length of turbine section, mm	7 332	7 332
Bearing section length to curvature plane, mm	1 480	1 480
Connecting thread to drill pipes	5 1/2 FH (NC-50)	
Connecting thread to bit	4 1/2 Reg	
Max. density of mud, g/cm ³	1,9	
Max. axial load, kN	150	
Weight, kg	2 100	2 100
Max. temperature in well, °C	250	

Turbodrill power characteristic

Quantity of turbine sections, pc.	1	1
Mud flow rate, l/sec	32–36	25–28
Mud density, g/cm ³	1,0	1,0
Stall torque, N*m	2843–3599	2254–2827
Speed of rotation at operating condition, min ⁻¹	827–931	926–1037
Pressure drop, MPa	5,8–7,4	6,4–8,0
Max. power, kW	107–152	100–140