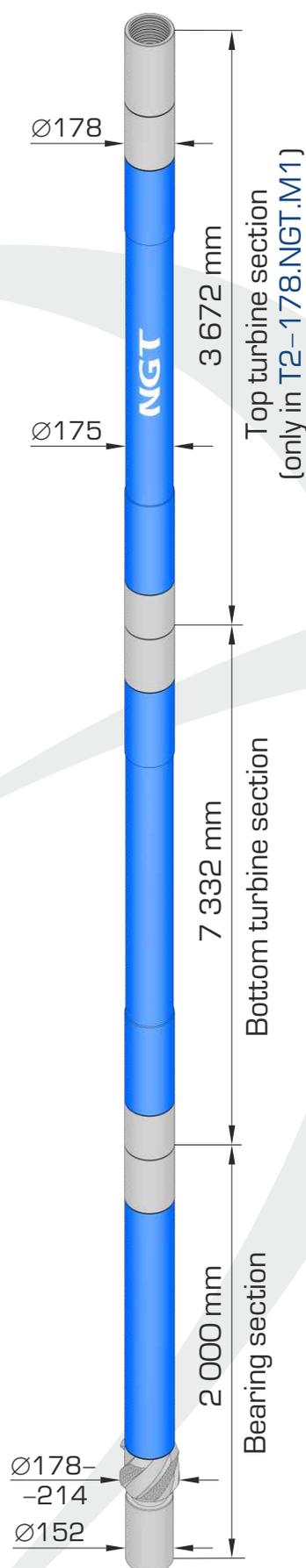


## T1-178.NGT.M1 and T2-178.NGT.M1



High hydrodynamic alternating loads are created while tripping in a well using 212,7–215,9 mm dia. bits and 195 mm dia. downhole motor due to small annular distance between the well walls and the downhole motor. This leads to reduction of the well wall stability, layer breakage, decrease of well productivity. The turbodrills T1-178.NGT.M1 and T2-178.NGT.M1 of 178 mm OD are offered to increase the annular distance and, therefore, to improve conditions of well drilling with 212,7–215,9 mm bits. The turbodrill is available for drilling with impregnated and PDC bits.

The turbodrill incorporates one (T1-178.NGT.M1) or two (T2-178.NGT.M1) turbine sections and bearing section. High performance turbine made out of stainless steel by precision casting method is used in the turbine sections. The turbine efficiency constitutes 68–70% at max. power. The turbodrill is completed with the bearing section of enhanced operation life exceeding 400 hrs. The turbodrill bearing section operates in mud and has axial sliding bearing, the operating surfaces made of synthetic diamond. This allows reaching high power characteristics and increased overhaul life.

### Turbodrill specification

Code of turbodrill	T1-178.NGT.M1	T2-178.NGT.M1
OD of threaded connections, mm	178	
Diameters of bits used, mm	212,7–215,9	
Turbodrill length, mm	9 332	13 004
Length of top turbine section, mm	–	3 672
Length of bottom turbine section, mm	7 332	7 332
Length of bearing section, mm	2 000	2 000
Connecting thread to drill pipes	5 1/2 FH	
Connecting thread to bit	4 1/2 Reg	
Max. density of mud, g/cm <sup>3</sup>	1,9	
Max. axial load, kN	150	
Weight, kg	2 100	2 500
Max. temperature in well, °C	250	

### Turbodrill power characteristic

Quantity of turbine sections, pc.	1	2
Mud flow rate, l/sec	32–36	25–32
Mud density, g/cm <sup>3</sup>	1,0	1,0
Stall torque, N*m	2843–3599	2450–4014
Speed of rotation at operating condition, min <sup>-1</sup>	827–931	646–827
Pressure drop, MPa	5,8–7,4	5,0–8,2
Max. power, kW	107–152	72–151