



Date: July 14, 2020
 Applicability: 7-7/8” Orbit
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BACKGROUND INFORMATION

PowerDrive Orbit for 7-7/8” Hole Size is a hybrid of 475 and 675 tool designs, requiring special consideration for bit design and hydraulics configuration to achieve optimum steering.

Hydraulics:

- **The target pad pressure drop should be approximately 900-950psi, for a pad force greater than 8,000N.**
 - o The PowerDrive App (or the PD2 desktop app) should be set up for **475 PowerDrive Orbit**.
 - o This will flag in the **red zone** for 475 tools – this is acceptable.
 - o The 7-7/8” design has 675-sized flow port passages to enable higher pad pressure than other 475 tools
- Motor bypass must be verified for accurate pad pressure calculation. Without this, the calculation will not be accurate
- The preferred way to achieve the pad pressure is to jet the bit tighter. A restrictor may be used if the bit cannot be changed.

Bit requirements include the following:

- Preferred - total makeup length less than 12 inches - minimize shank length and bit mass.
- Allowed gauge pad length is variable, but no more than 1 inch nominal gauge, with the rest undercut or tapered.
 - o Extreme initially recommends a gauge pad length less than 4 inches total, but with planning, this can be increased.
- Required - no depth-of-cut limiters in the bit shoulder area. Cone limiters may be acceptable.
- If there are any concerns, contact your Extreme representative.

Troubleshooting:

- Please contact the Extreme Command Center for troubleshooting assistance.
- Pad pressure may be raised up to 1000psi for short periods if required for troubleshooting, though risk of damage increases.

7-7/8” PowerDrive Orbit Specifications

Tool Size	Pad Size	Nominal Bit Size	File Code	BU Body Part Number	BU Assembly Part Number	Length (ft)	Weight (kg)	ID (in)	OD (in)	Max OD Pads In (in)	Max OD Pad Out (in)	Flow By Area (in ²)	Lower Connection (Bit Box)	Extension Sub Upper Connection (Pin/Box)
675	475	7 7/8	PDORS6-AG	103299915	N/A	3.29	167	2.28	6.88	7.825	8.515	8.898	4 ½ REG	NC50 (Pin)