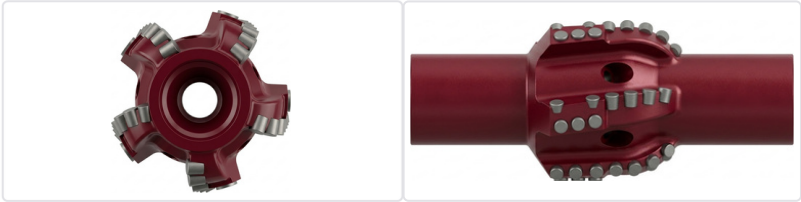


MODEL VRX513H

6.0in VRX513H HDD PDC Reamer

6" VRX513H PDC Reamer is a 5-wing PDC hole opener engineered for enlarging borehole diameter to a nominal 6.000 in OD. The 4145H steel body carries 21 triangle-shaped main PDC cutters, 13 edge PDC cutters, and 15 gauge-protection PDC inserts, with cemented-carbide hardfacing on specified wear surfaces for extended abrasion resistance. Both ends are machined with API 2 3/8" REG Box connections, and five flush nozzles accept optional 6/32 in tungsten-carbide inserts with rubber seal rings for hydraulic circulation. Designed and manufactured in accordance with API Spec. 7-1 and API Spec. 7-2 for water-well, HDD, geothermal, and oil & gas drilling applications.

REAMER RENDERINGS



Ø6.0" NOMINAL OD	2 3/8" REG CONNECTION (BOX × BOX)	14.173" OVERALL LENGTH	5 WINGS	21 / 13 / 15 MAIN / EDGE / GAUGE PDC	5 FLUSH NOZZLES (6/32")
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GENERAL SPECIFICATIONS & OVERALL DIMENSIONS

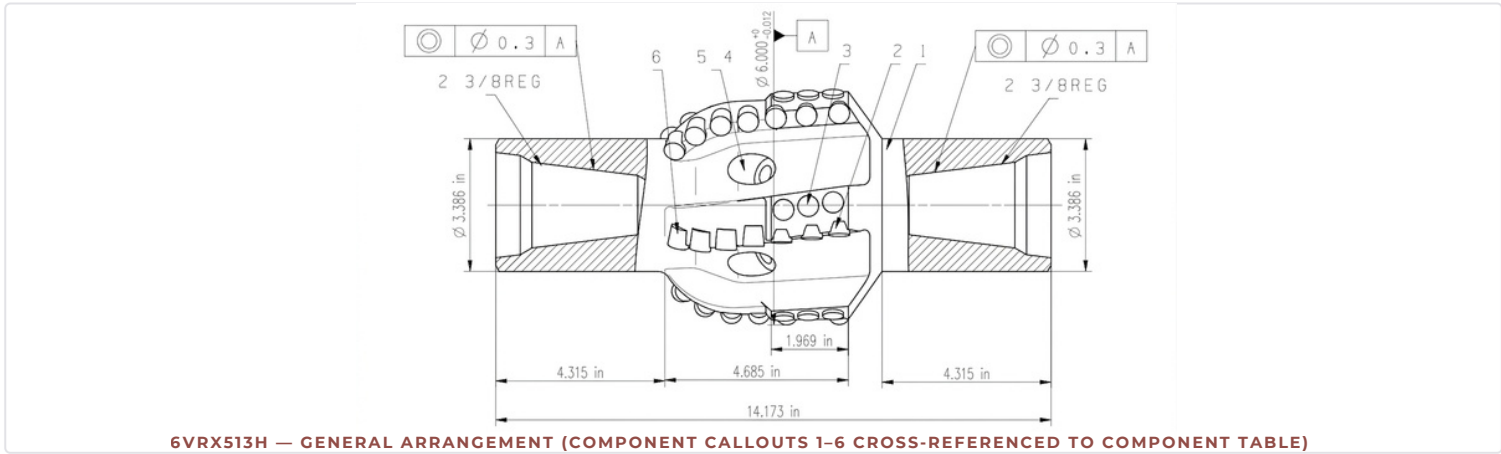
DESIGN & MFG. STANDARDS	API Spec. 7-1 / 7-2	NO	COMPONENT	SPECS.	QTY.	MATERIAL
CONNECTION TYPE	API 2 3/8" REG Box (both ends)	1	Body	VRX513H	1	4145H
BODY MATERIAL	4145H	2	Edge Cutter	13.44 × 8.0 mm	13	PDC
NUMBER OF WINGS	5	3	Gauge Protection PDC	13.44 × 5.2 mm	15	PDC
NOMINAL OD	Ø6.00 in, +0 / -0.012 in	4	Nozzle	Optional 6/32"	5	TC (Tungsten Carbide)
PILOT HOLE/SHAFT SIZE	Ø3.386 in	5	Seal Ring	—	5	Rubber
OVERALL LENGTH	14.173 in	6	Main PDC Cutter	13.44 × 13.2 mm	21	PDC
LEFT / RIGHT CONN. LENGTH	4.315 in / 4.315 in	7	Hardfacing Layer	Applied	—	Cemented Carbide
CENTRAL BODY LENGTH	4.685 in					
CUTTER REF. DIMENSION	1.969 in					
THREAD INSPECTION	Standard API thread gauge					

CUTTER CONFIGURATION



Main cutting structure uses **triangle-shaped PDC cutters** (21 pcs, 13.44 × 13.2 mm) distributed across the 5 wings for aggressive, self-cleaning rock engagement. Edge PDC cutters (13 pcs, 13.44 × 8.0 mm) define the leading profile; gauge-protection PDC inserts (15 pcs, 13.44 × 5.2 mm) maintain full-gauge diameter and protect wing tips from abrasive wear.

ENGINEERING DRAWING



6VRX513H — GENERAL ARRANGEMENT (COMPONENT CALLOUTS 1-6 CROSS-REFERENCED TO COMPONENT TABLE)

MANUFACTURING, WELDING & QUALITY CONTROL

WELDING / HEAT TREATMENT

- 4145H body preheated to 1,022°F (550°C) prior to welding.
- Specified components welded after body reaches required preheat temperature.
- Post-weld cooling: asbestos-cotton insulation wrap, controlled cooling for 8 hours to minimize thermal stress.

QUALITY CONTROL / INSPECTION

- Verify hole-opener OD: Ø6.000 in, +0 / -0.012 in.
- Inspect API 2 3/8" REG Box threads with standard API thread gauge.
- Verify overall length (14.173 in) and shaft OD (Ø3.386 in).
- Verify PDC cutter quantity, dimensions & placement vs. approved drawing.
- Verify cemented-carbide hardfacing coverage on specified wear surfaces.