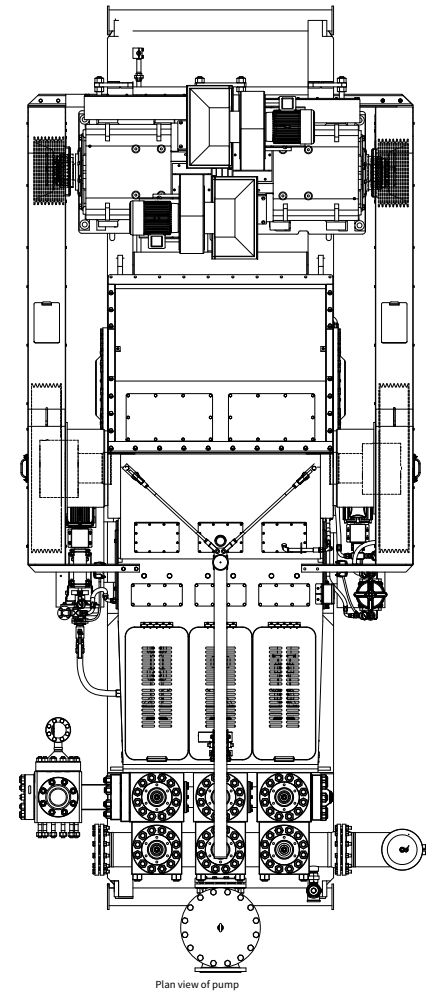
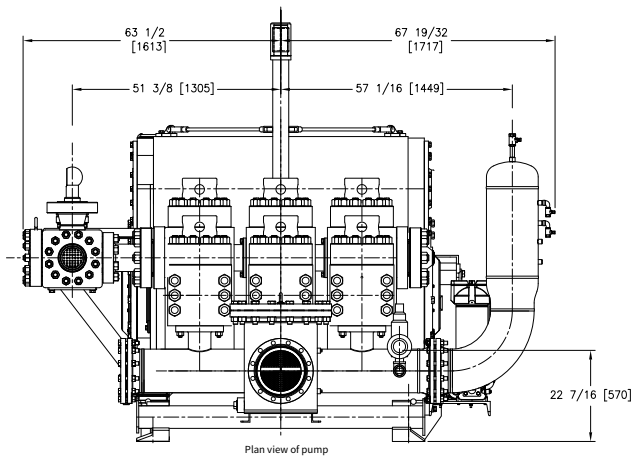
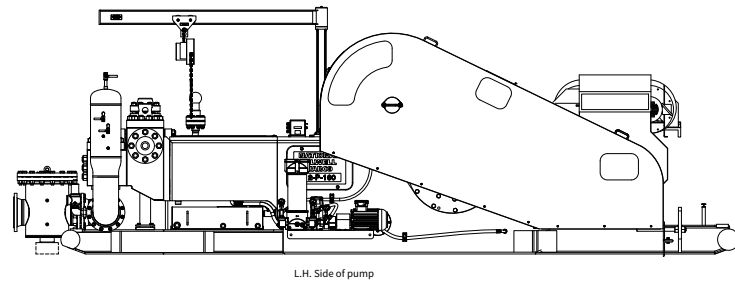


National Oilwell Varco's 12-P-160 Mud Pump provides smooth performance. It's construction is robust and durable for use in most environments. The 12-P-160 is rated @ 1,600 input horsepower (1,193 kW) at 120 strokes per minute with a 12 inch (304 mm) stroke. Multiple liner sizes allow pressure and volume to handle circulation in deep drilling applications.

The mud pumps advanced fluid end design gives exceptionally smooth triplex performance. In addition, this unique design facilitates fast inspection and easy servicing. Compact engineering provides higher efficiency in less space. The pump's light weight and flexible design make it easily adaptable to varied rig configurations. This provides flexibility as drilling requirements and conditions change.



Power End

- Fabricated steel frame construction
- One-piece forged steel construction crankshaft, connecting rod and pinion shaft
- Adaptability to a variety of drive arrangements on either sides or on both sides
- Premium roller bearings to enhance smooth performance and efficiency
- Pressurized lubrication system

Belt Drive

- Belt life in excess of 10 years delivers an effective drive solution with the lowest cost of ownership in the industry
- No requirement for lube oil filter, cables, cable trays, MCC cubicles, starters

Forged Steel Crankshaft

- One piece forged steel crankshaft with pressed fit bearing journals
- Naturally balanced for smooth running
- No casting
- No welding

Optional Accessories

- Hydra-LIGN™ piston rod
- Blak-JAK™ liner retention system
- Blak-JAK™ Torque master quick change valve cover retention system
- Pneumatic pump rotation tool

Warranties

- The standard module carries a three-year, 100% warranty against cracking
- The premium module has a four-year, 100% warranty against cracking
- Crankshaft carries a seven year limited warranty

Quiet Blower

- 3000 scfm Quiet Blower emits approximately 82 dba

Condition Monitoring

- Local display graphs the pump power end vibrations and temperatures
- Trending of pump data to identify and predict maintenance needs
- Can also be used to record pumping data (strokes pressure), which can be exported via flash card to rig computer

Performance Data												
Liner Size, inches (mm)	7¼" (184.2)	7" (177.8)	6¾" (171.5)	6½" (165.1)	6¼" (158.8)	6" (152.4)	5¾" (146.1)	5½" (139.7)	5" (127)	4½" (114.3)		
Max. Discharge pressure psi (kg/cm²)	3,200 (225)	3,430 (241.1)	3,690 (259.4)	3,980 (279.8)	4,305 (302.7)	4,670 (328.3)	5,085 (357.5)	5,555 (390.5)	6,720 (472.4)	7,500 (527.2)		
Speed spm	Input HP	Hyd.* HP	Input HP	GPM* (LPM*)	GPM (LPM)	GPM (LPM)	GPM (LPM)	GPM (LPM)	GPM (LPM)	GPM (LPM)	GPM (LPM)	GPM (LPM)
120 †	1,600 †	1,440	772 (2,922)	720 (2,724)	669 (2,533)	621 (2,349)	574 (2,172)	529 (2,002)	486 (1,839)	444 (1,682)	367 (1,389)	297 (1,124)
100	1,333	1,200	643 (2,435)	600 (2,270)	558 (2,111)	517 (1,958)	478 (1,810)	441 (1,668)	405 (1,533)	370 (1,401)	306 (1,158)	248 (938)
80	1,067	960	515 (1,948)	480 (1,816)	446 (1,689)	414 (1,566)	383 (1,448)	353 (1,334)	324 (1,226)	296 (1,121)	245 (927)	198 (750)
60	800	720	388 (1,461)	360 (1,362)	335 (1,267)	310 (1,175)	287 (1,086)	264 (1,001)	243 (920)	222 (841)	184 (697)	149 (564)
40	533	480	257 (974)	240 (908)	223 (844)	207 (783)	191 (724)	176 (667)	162 (613.1)	148 (561)	122 (462)	99 (375)
Volume/Stroke, gal. (Liters)	6.433 (24.35)	5.997 (22.70)	5.576 (21.11)	5.171 (19.58)	4.781 (18.10)	4.406 (16.68)	4.046 (15.32)	3.702 (14.02)	3.060 (11.58)	2.479 (9.38)		

*Based on 90% mechanical and 100% volumetric efficiency

**Pressures shown are for optional 7,500 psi fluid end configuration. standard 12-P-160 mud pump is rated for 5,000 psi (351.5 kg/cm²), and considered the maximum discharge pressure for 5¾" liners or smaller

† Rated maximum input horsepower and speed

AC drive motor*

Motor type	Standard DM27 Drill Force AC Cage induction motor
Electrical rating	Continuous duty
Temperature ambient 600V - 1,150 HP (7,700 ft-lbs)	-40°C to 45°C
Temperature ambient 690V - 1,229 HP (7,550 ft-lbs)	-40°C to 45°C
Temperature ambient 600V - 1,075 HP (7,057 ft-lbs)	-40°C to 55°C
Temperature ambient 690V - 1,150 HP (7,064 ft-lbs)	-40°C to 55°C
Insulation	Class H, VPI form wound
External cooling requirements	2,800 SCFM at motor inlet
Classification	ATEX, increased safety IECEx
Optional certification	ABS, DNV, CSA
Standard stator and Bearing RTD's	

*Optional GEB-22 AC Cage Induction Motor

Fluid End Modules

NOV offers a choice of fluid end modules and valve covers for 12-P-160 pump model to select the fluid end module that exactly matches the drilling requirements. The 12-P-160 can be equipped with either the standard or premium forged, two-piece interchangeable fluid modules.

- Cold worked for longer life - The internal bores of the standard modules are shot peened. The premium modules have auto-fretage bores. The benefits of these processes are increased module fatigue life and greater resistance to stress corrosion cracking
- High pressure modules

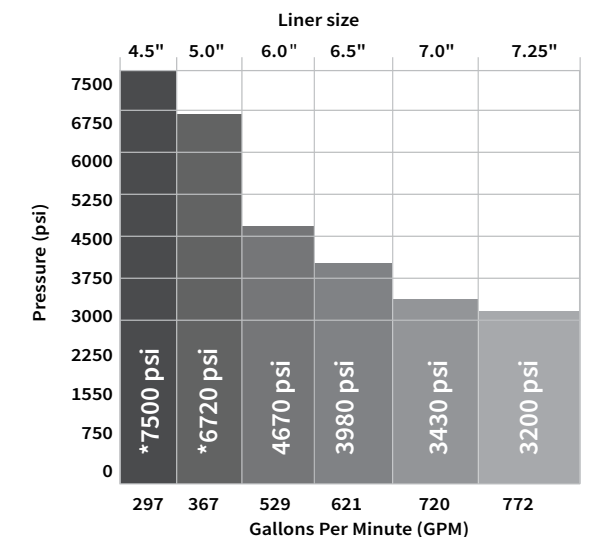
Fluid End key features

- Two-piece modular cylinder design is completely interchangeable between modules
- Fast Change™ screw-type valve covers, which facilitate quick removal and installation are currently standard
- Suction manifold can be equipped with front or side inlet connections
- Discharge piping connects from either side
- Piston and liner chambers are easily accessible and fully open
- Two-piece piston rod construction allows removal of piston without disturbing liner
- Easy-to-operate clamps give positive locking for liners and piston rod assemblies
- Spray system cools and lubricates piston and liner surfaces

Technical specifications

Height, floor to center of front inlet suction, inches (mm)	16 ½ (419)
Height, floor to center of discharge, inches (mm)	45 ¼ (1149)
Overall length over skids, inches (mm)	209 (5309)
Width over frame, inches (mm)	78 ¾ (1997)
Width over pinion shaft, inches (mm)	113 ¾ (2889)
Height, floor to top of gear case, inches (mm)	75 (1905)
Height over fluid cylinders, inches (mm)	62 19/16 (1599)
Maximum input horsepower (kW)	1600 (1193)
Rated pump speed, spm	120
Maximum fluid cylinder liner bore, inches (mm)	7 ¼ (184.2)
Stroke, inches (mm)	12 (304.8)
Hydrostatic test pressure of fluid cylinders, psi (kg/cm²)	10,000 (703)
Gear ratio	3.439
Suction connection ASA-150 lb. R.J. flange, inches	10"
Discharge connection, cross w/ API-10,000 psi. R.J. flange, inches	6"
Valve pot, API number	MOD. 7
Weight-complete, less sheave, lbs. (kg)	54,700 (24,810)

Performance 12-P-160



*Both 5,000 psi or 7,500 psi are available