

IMPALA ESP

ESP with extended operating range for conventional and unconventional oil wells



Extended Operating Flow Range

The Impala ESP system delivers the extended operating flow range required to maximize production in both conventional and unconventional oil reservoirs characterized by unstable and rapidly declining production rates. It allows to minimize the number of equipment workover operations and reduces operating expenditures throughout the entire well life cycle.

Reduced Axial Thrust

The Impala ESP system efficiently manages axial loads, which broadens its operating flow range and extends equipment service life. The ability to operate reliably across a wide flow range ensures equipment reliability even as downhole well conditions change. The result is a reliable ESP system that continues to perform efficiently in wells with variable, low, or declining production rates.

Enhanced Reliability in Conditions Complicated by Mechanical Solids

The Impala ESP system comprises three equipment lines suited to different downhole conditions according to the suspended solids content:

- Impala Prime: solids content up to 0.5 g/l
- Impala Classic: solids content up to 1 g/l
- Impala Premium: solids content up to 3 g/l

Deploying the Impala Premium ESP line significantly increases ESP reliability and run life in wells with high concentrations of mechanical solids and abrasive particles.

On customer request, the Impala Premium ESP line can be manufactured with a 1:1 bearing configuration (a radial-thrust bearing in every stage).

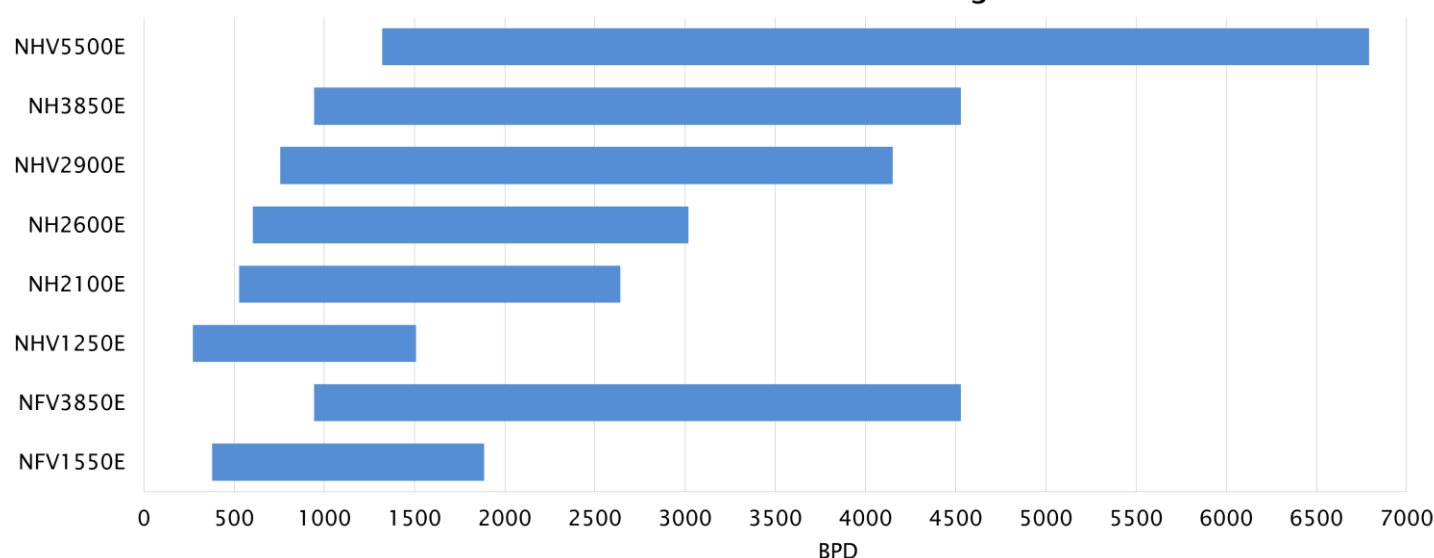
Applications

- Wells complicated by mechanical solids and abrasive particle
- Wells with unstable and declining production rates
- Wells with an uncertain productivity index
- Wells with a low productivity index and high required head

Benefits

- Extended Operating Flow Range
- Minimized downtime associated with pulling and replacing the ESP when well production rates change
- Enhanced operating reliability in environments with mechanical solids and abrasive particles
- Standardized ESP configurations and a reduced equipment inventory in stock
- Semi-compression assembly design eliminates the need for shimming, considerably simplifying equipment installation

IMPALA ESP: Flow Rate Ranges



Impala ESP: Specifications

	NFV1550E	NFV3850E	NHV1250E	NH2100E	NH2600E	NHV2900E	NH3850E	NHV5500E
Stage material ¹	Premium alloy	Premium alloy	Premium alloy	Premium alloy	Premium alloy	Premium alloy	Premium alloy	Premium alloy
		Ni-resist		Ni-resist	Ni-resist	Ni-resist	Ni-resist	Ni-resist
Pump Series	362	362	406	406	406	406	406	406
Stage geometry	Mixed flow	Mixed flow	Mixed flow	Mixed flow	Mixed flow	Mixed flow	Mixed flow	Mixed flow
Abrasion resistance	AR3: 3 g/l	AR3: 3 g/l	AR3: 3 g/l	AR3: 3 g/l	AR3: 3 g/l	AR3: 3 g/l	AR3: 3 g/l	AR3: 3 g/l
		AR2: 1 g/l		AR2: 1 g/l	AR2: 1 g/l	AR2: 1 g/l	AR2: 1 g/l	AR2: 1 g/l
Max solid content in fluid ²				AR1: 0.5 g/l				
Assembly design	SCMP	SCMP	SCMP	SCMP FLT	SCMP	SCMP	SCMP	SCMP
Shaft diameter	0.79 in	0.79 in	0.79 in	0.87 in	0.79 in	0.87 in	0.87 in	0.98 in
Minimum flow rate at 60Hz	377 BPD	943 BPD	272 BPD	528 BPD	604 BPD	755 BPD	943 BPD	1,321 BPD
Maximum flow rate at 60Hz	1,887 BPD	4,528 BPD	1,509 BPD	2,641 BPD	3,019 BPD	4,151 B/D	4,528 BPD	6,792 BPD
Head at BEP at 60Hz	23.3 ft	14.8 ft	26.8 ft	29.2 ft	19.4 ft	28.7 ft	23.7 ft	23.2 ft
Power in BEP at 60Hz	0.45 hp	0.63 hp	0.41 hp	0.68 hp	0.54 hp	0.96 hp	1.07 hp	1.53 hp
BEP efficiency	59%	66%	60%	68%	69%	63%	65%	61%

¹ Stage materials:

- Premium alloy for Impala Premium ESP
- Ni-resist for Impala Classic/Prime ESP

² Maximum solid content in fluid:

- 3 g/l for Impala Premium ESP
- 1 g/l for Impala Classic ESP
- 0.5 g/l for Impala Prime ESP