

# THE INNOMAG® - STRING MAGNETS

## Innovar laser focused magnet technology

### Maximum magnetic force against the pipe wall

#### APPLICATIONS

- Prior to running completions to clean the well
- Run as a part of the drill string when doing a washing or circulation run

#### FEATURES

- Large magnetic area for optimized tool performance
- Magnetic field directed out towards casing and well cavities
- Extreme magnetic range, due to the large magnet mass
- Large fluid by-pass
- Rotating stabilizers and magnet sleeve reduce magnet and casing wear
- Non-rotational versions for reduced redress cost
- Available for 7", 9 5/8", 10 3/4" & 13 3/8" csg.
- Soon available in sizes 1,90", 2,75", 3,75" & 4,50" OD

#### BENEFITS

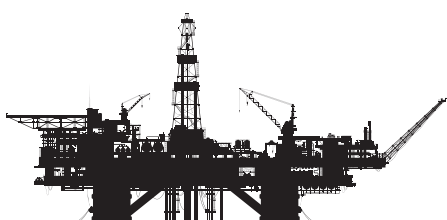
- Excellent cleaning capabilities due to extreme magnet range
- Multiple innomag on one string decrease number of runs
- Easy cleaning and maintenance
- Simplified maintenance with non-rotational version

The use of strong magnets has proven to be a quick and inexpensive method for debris removal. Use of magnets as an integral part of a completion string increases the success of virtually any completion run. The safety enhancement of removing metallic debris is obvious, and in particular when it comes to removing metallic debris from the BOP and marine riser.

The Innovar Innomag® string magnets can be used to retrieve debris with magnetic properties. The Innomag® has an extreme magnetic range due to the Innovar focused magnet technology based on the strongest magnets available. Optimal debris removal is achieved by directing the magnetic field out towards the casing and well cavities. The magnetic area is covered in stainless steel to make maintenance and cleaning easy. The tool is designed for large fluid bypass, and can be provided with or without rotating stabilizers and magnet sleeve based on well requirements.

Several Innomags can be run sequentially on one string, reducing the need for multiple runs.

The Innomag® has several areas of application. It can be run prior to running completions to clean the well and especially the packer setting area, when doing a washing or circulation run, and after milling when cleaning up.



## INNOMAG® STRING MAGNETS

Dimensional data						
Model	IM101	BM101	IM100	IM102	BM100	BM103
Max OD, inch	5,88	6,625	8,30	12,10	13,375	13,375
Min ID, inch	1,75	2,25	3,00	3,00	3,00	3,00
Fish neck OD, inch	4,75	4,50	6,50	6,50	6,378	6,50
Length, mm	1728	1760	2003	2003	1830	2003
Material properties						
Body material	AISI 4145	AISI 4140	AISI 4145	ISI4145	AISI 4140	AISI 4140
Tensile Yield strength, lbs	309 000	550 000	1 030 000	1 030 000	1 416 000	1 030 000
Torsional Yield strength, ft-lbs	5 000*	11 000	25 000*	25 000*	50 500	25 000*
Magnet Ribs on stabilizer	7	6	8	5	8	8
Magnet type	Innovar specified	Innovar specified	Innovar specified	Innovar specified	Innovar specified	Innovar specified
Operational data						
Flow by area, sq.in Inside	5,1 7" 32#	5,65 6,75" BOP	6,8 9 5/8" 53,5#	30,2 13 3/8" 72#	136 18 3/4" BOP	136 18 3/4" BOP
Magnetic field effective reach, inches	10	10	13	18	18 3/4	18 3/4
Connection	NC 38	NC38	NC50	NC50	NC50	NC50
Max rotation, rpm	120	120	120	120	120	120
Transport Data						
Weight, kg	85	107	230	300	530	480

\* This is for internal compressional loads due to the internal threads. For twist off, the tool joint is the weakest member

