



ADVANCEMENTS IN
WELLBORE ISOLATION
TECHNOLOGY



GLOBAL LEADERS IN WELLBORE ISOLATION



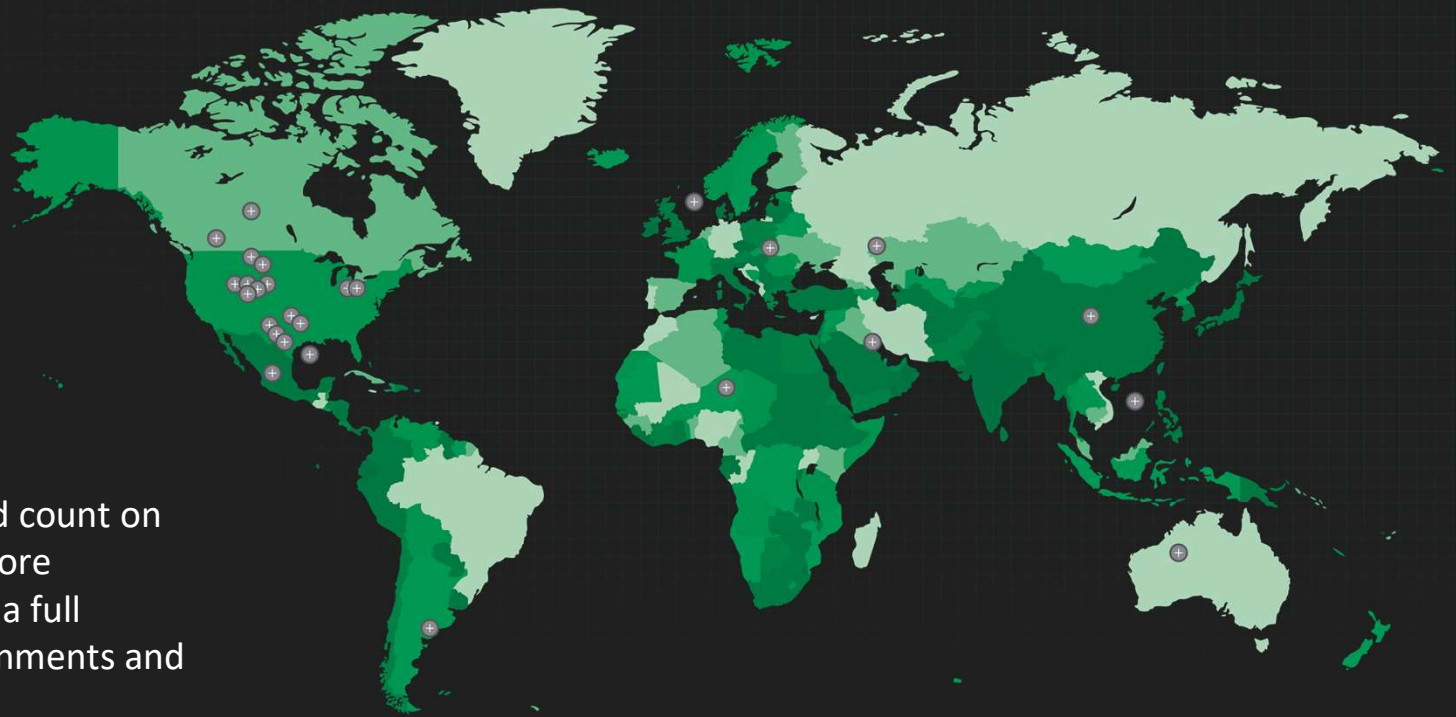
MAGNUM OIL TOOLS WAS FOUNDED WITH A SINGLE FOCUS:
CREATING SMARTER WELLBORE ISOLATION TOOLS.

For many oil and gas technology companies, completion tools are a mere afterthought. But at Magnum, they are our passion and life's work. For more than 30 years, we've worked closely with operators and service companies to develop specialized wellbore isolation innovations that solve a spectrum of completion challenges.

The result? More options for operators and service companies everywhere in the World.



TRUSTED EVERY SINGLE DAY IN EVERY SINGLE PLAY



Operators around the world count on Magnum for superior wellbore isolation tools designed for a full range of challenging environments and applications.

INNOVATION THROUGH COLLABORATION



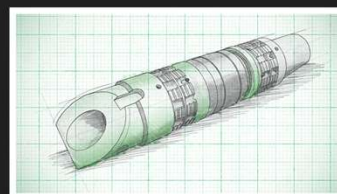
SMARTER PROCESS FOR SMARTER COMPLETIONS

From our composite frac plugs to the MagnumDisk™, every Magnum tool is designed to overcome specific wellbore isolation challenges.



COLLABORATION

Partnering directly with operators and service companies allows Magnum to create custom wellbore isolation solutions that overcome specific downhole challenges.



ENGINEERING

Custom manufacturing features the latest easy-mill composites and tight-tolerance materials for tackling any completion.



MANUFACTURING

Built with absolute precision and quality materials at our private facility, each wellbore isolation tool is carefully inspected and prepped for field service.



TESTING

Our onsite test laboratory and rigorous QA/QC program ensure that all Magnum Oil Tools completion products are up to the challenge.

magnumoiltools.com

MAGNUM PRODUCT LINES



Magnum tools are designed to handle the one wellbore isolation challenge that matters most: Yours.

**COMPOSITE
FRAC PLUGS**



MAGNUMDISKS



**COMPOSITE
CEMENT RETAINERS**



SETTING TOOLS



DISSOLVABLES



**PUMP-OFF
BIT SUB**



**PUMP-DOWN
GUN SUB**



TOE INITIATOR SUBS



Recent Zonal Isolation Innovations



- Magnum continues to make advancements in zonal isolation technology
 - **Magnum Vanishing Plug™ (MVP)** - Dissolvable frac plugs
 - **Fastball™** - Dissolvable Frac Balls
 - **MagnumDisk™** - Single, Dual & Interventionless Barrier Sub
 - **Long Range™** - Slim OD medium expansion frac plugs

Slip Technology



- Dissolvable Slips

- Made of a proprietary dissolvable metal
- Predictably dissolve in common wellbore environments
- Designed to hold strong up to 10k psi



- Composite Slips




- Made of a proprietary composite material
- Aid in faster mill-outs
- Leave less metal downhole



Magnum Vanishing Plug™ (MVP™)



The plug disappears—but the savings don't. Engineered to dissolve within a range of common temperature and pressure settings, the MVP™ offers reliable flowback without the need for costly intervention.

	PRESSURE RATING	10K PSI RATED
	TEMPERATURE	PREDICTABLY DEGRADES IN 180-350°F
	DRILL OUT INFO	NO MILL OUT, NO RETRIEVAL



Dissolvable Technology



- Why this is necessary?
 - Well completion cost impact
 - Risk Mitigation
 - 20,000+ MVPs run to date





Gen 1



Gen 2



Gen 3

Dissolvable Technology



- Areas where MVP™ has been ran
 - Duvernay
 - Montney
 - Eagle Ford
 - Rockies(DJ Basin and Bakken)
 - Utica
 - Permian
 - East Texas(Haynesville)





Formation	MVP (type) Gen	# of Plugs	Size (OD)	Casing (OD)	Casing Weight	Total Depth	Total Vertical Depth	Max Line Speed	Pump Down Rate	Static BHT	Diff Pressure on Plug
Montney	Gen 1	15	87.4	114.3	22.47	4281	2422	80	1.6	90	60
Montney	Gen 1	9	87.4	114.3	22.47	4438	2114	100	1.6	90	52
Montney	Gen 1	16	87.4	114.3	22.47	4606	2196	80	1.6	90	60
Montney	Gen 1	22	87.4	114.3	22.47	4554	2193	100	1.6	90	56.5
Montney	Gen 1	16	87.4	114.3	22.47	4436	2337	80	1.6	90	60
Montney	Gen 1	19	87.4	114.3	22.47	4100	2828	80	1.6	90	58
Montney	Gen 1	22	87.4	114.3	22.47	4871	2155	100	1.6	90	63
Montney	Gen 1	23	87.4	114.3	22.47	4585	2122	100	1.6	90	58.8
Duvernay	Gen 1	6	104.9	139.7	38.69	5918	3000	100	2.2	105	73.4
Duvernay	Gen 1	6	104.9	139.7	38.69	5963	3000	100	2.2	105	73.4
Duvernay	Gen 2	26	104.9	139.7	38.69	6106	3410	130	2.2	115	67
Duvernay	Gen 2	24	104.9	139.7	38.69	5587	3475	130	2.2	115	78
Duvernay	Gen 2	24	104.9	139.7	38.69	5797	3476	130	2.2	115	74
Duvernay	Gen 2	3	87.4	114.3	22.47	5979	3297	125	1.7	115	63.5
Duvernay	Gen 3	28	104.9	139.7	38.69	6020	3388	130	2.2	116	67
Montney	Gen 3	31	104.9	139.7	38.69	6335	3262	150	2.6	106	60
East Duvernay	Gen 3	3	87.4	114.3	22.47	4685	2387	125	1.8	80	45
East Duvernay	Gen 3	3	104.9	139.7	34.23	4778	2388	125	2.4	80	50
East Duvernay	Gen 3	3	104.9	139.7	34.23	4702	2350	135	2.8	80	50
East Duvernay	Gen 3	3	87.4	114.3	22.47	4747	2380	100	1.8	80	45
East Duvernay	Gen 3	7	87.4	114.3	22.47	5031	2167	135	1.6	80	45
East Duvernay	Gen 3	9	87.4	114.3	22.47	4926	2247	140	1.8	80	50
Montney	Gen 3	13	87.4	114.3	22.47	5124	2640	140	1.6	80	65
Montney	Gen 3	12	87.4	114.3	22.47	5777	2770	140	1.8	85	65
East Duvernay	Gen 3	7	87.4	114.3	22.47	5040	2669	140	1.8	80	50

Fastball™



Your days of fetching frac balls are over. The Fastball™ offers the compressive strength to handle downhole conditions, while also dissolving at predictable rates for interventionless sliding sleeve operations. *40,000+ Fastballs have been ran to date.*

	PRESSURE RATING	10K PSI RATED
	TEMPERATURE	PREDICTABLY DEGRADES IN 180-350°F
	SIZES	CUSTOM SIZES AVAIALBE FROM .500" TO 4.500"
	DRILL OUT INFO	NO MILL OUT, NO RETRIEVAL



Degradation Test of MVP™



- Dissolvable solids collected from sample after the test (see sample bag)
- Similar to sand in size and texture
- Small particle size will easily flow from well during production
- No potential problems anticipated with production equipment

Interventionless MagnumDisk™



Features (continued):

- Used to negative test liner top
- Premium threads available
- Available with seals and CRA materials for use in hostile environments (H₂S and CO₂)
- Can be run in heavy muds
- Temperature rated up to 400°F (204°C)
- Little to no interfering debris left in the wellbore
- Can be pressure tested prior to installation
- Used for snubbing applications in live wells*
- Patent Pending Technology





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