# i-FRAC

## Advanced Multi-Stage Valve System

more fracs
more production
less time

| Tubing | 4¹/₂″ | 5¹/₂″ |
|---|---|---|
| Valve OD | 5.60″ | 6.732″ |
| ID after Mill Out | 3.875″ | 4.500″ |
| Length | 37.90″ | 36.40″ |
| Working Pressure | 10 kpsi | 10 kpsi |
| | | 15 kpsi |
| Max Temp | 350 F | 350F |
| | 177 C | 177 C |

### Open Hole

Multiple frac stages in pairs or triples

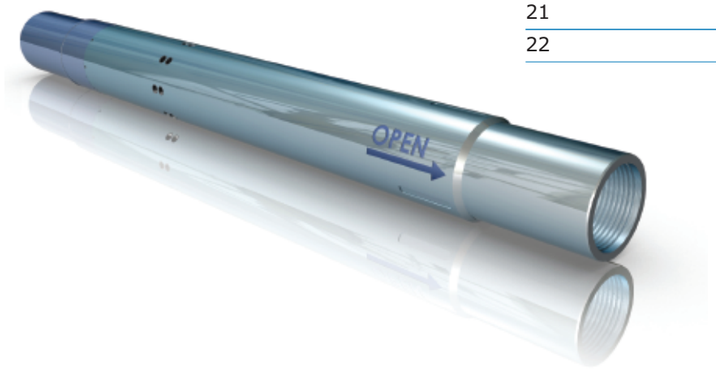
Multiple frac stages with multiple entry points

### Cemented

Multiple stages in clusters

Hybrid combinations with plug and perf

| Tubing | 4¹/₂″ | 5¹/₂″ |
|---|---|---|
| **Ball #** | **Ball sizes** | **Ball sizes** |
| 1 | 1-7/8″ | 1-7/8″ |
| 2 | 2.00″ | 2.00″ |
| 3 | 2-1/8″ | 2-1/8″ |
| 4 | 2-1/4″ | 2-1/4″ |
| 5 | 2-3/8″ | 2-3/8″ |
| 6 | 2-1/2″ | 2-1/2″ |
| 7 | 2-5/8″ | 2-5/8″ |
| 8 | 2-3/4″ | 2-3/4″ |
| 9 | 2-7/8″ | 2-7/8″ |
| 10 | 3.00″ | 3.00″ |
| 11 | 3-1/8″ | 3-1/8″ |
| 12 | 3-1/4″ | 3-1/4″ |
| 13 | 3-3/8″ | 3-3/8″ |
| 14 | 3-1/2″ | 3-1/2″ |
| 15 | 3-5/8″ | 3-5/8″ |
| 16 | n/a | 3-3/4″ |
| 17 | n/a | 3-7/8″ |
| 18 | n/a | 4.00″ |
| 19 | n/a | 4-1/8″ |
| 20 | n/a | 4-1/4″ |
| 21 | n/a | 4-3/8″ |
| 22 | n/a | 4-1/2″ |

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Achilles Joint Qualification System

NS-EN ISO 9001:2000 CERTIFIED COMPANY


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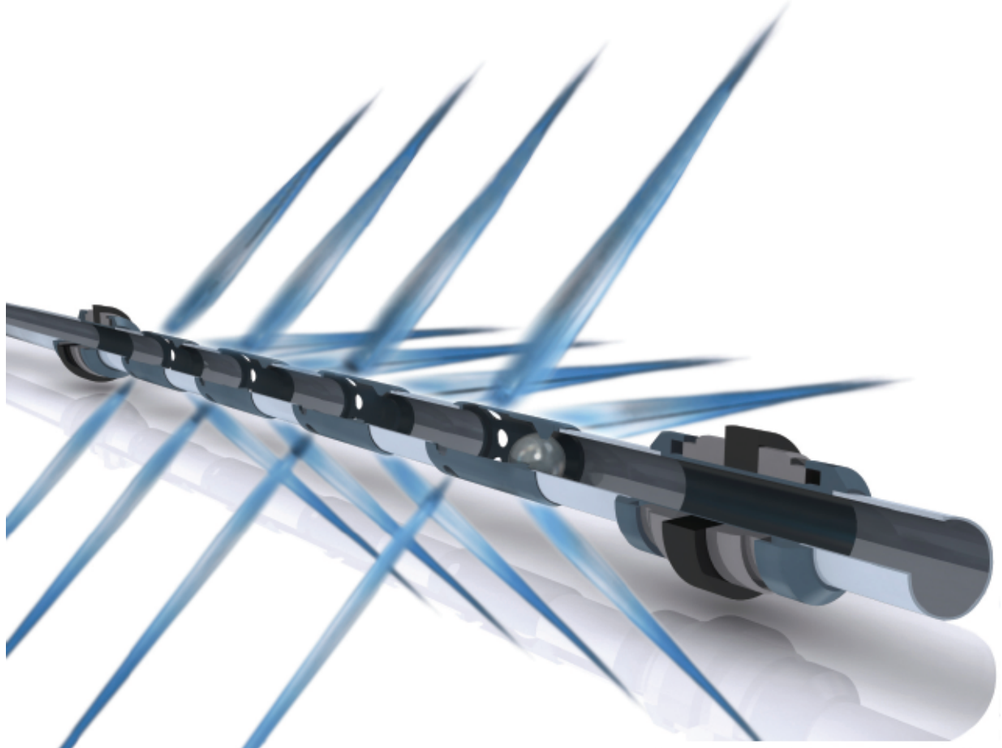

### Product Description

As more operators complete and hydraulically fracture horizontal multi zone wellbores there is a growing concensus that more stages are required to effectively drain microdarcy formations.

With frantic activity in US land plays, availability of frac equipment and in many cases water and sand are limited.  Where standard plug and perf methods are used, increasing the number of stages involves dramatic increase in the time frac equipment needs to be on location and requires a significant volume of water to pump plugs etc.

Ball operated sliding sleeves offer a time efficient alternative to plug and perf but the number of achievable stages has historically been limited.

The **i-***FRAC* system allows the operator to maximize the reservoir contact, the number of initiated fracs, and ultimately the effective stimulated reservoir area for a given wellbore in a much more time efficient manner than plug and perf. The system is qualified for both open hole and cemented liner completions.

### Features & Benefits

- Ball operated system. One ball can open multiple sleeves.
- Up to 20 **i-***FRAC* sleeves can be activated with the same ball
- Up to15,000 psi; 350ºF  rated for HP/HT application
- Qualified for both open and cemented hole applications
- Internal surfaces treated to prevent cement bonding
- Simple and robust design. Only 2 moving parts
- Internals resistant to erosion from frac solids
- Interventionless. Eliminates need for wireline
- Continuous pumping frac operation. Saves frac time
- No pump down of plugs or guns required. Saves water
- Frac ports can be adjusted in number and size to optimize frac/stimulation
- Millable seats for future full bore access

### Applications

The **i-***FRAC* system allows operators to run a multi-zone frac valve completion with almost limitless combinations of frac stages and initiation clusters.  This means maximising reservoir/well contact to achieve best production in tight formations.  The system is designed to run in either open hole or cemented applications with solids rich frac.fluids or for acid stimulation.

In open hole valves can be placed individually between packers to maximize the number of stages or arranged in clusters to increase the number of entry points per zone.  A single ball can be dropped to open up to 20 valves.  Up to 90 zones can be fracced using a series of ball sizes to open multiple valves.

In a cemented application valves can be run in clusters to provide multiple initiation points in each frac stage without the need for plugs or perforating.

After fraccing the balls are produced to surface. If required, the valve seats can be milled out to allow for future access for logging or re-stimulating.