### Inflow Control Devices



# FloReg<sup>™</sup> Carbonate Reservoir Drainage (CARD) System

Weatherford's *FloReg* carbonate reservoir drainage (CARD) system is designed to maximize reservoir recovery and sweep efficiency by minimizing water production from fractures and high-permeability zones, which tend to dominate a well's production and encourage the contribution of low-permeability zones.

The CARD system uses Weatherford's *FloReg* inflow control device (ICD), short screen sections as a strainer, and annular/zonal isolation to reduce water production and provide uniform inflow profile along a well. In carbonate reservoirs the system prevents annular flow and evenly distributes the flow along the production string.

The *FloReg* CARD system creates a predetermined pressure drop along the producing interval through multiple open and closed flow ports in the *FloReg* ICD, ensuring even contribution along the well and thus maximizing hydrocarbon production and recovery.

# Features, Advantages and Benefits

- The CARD system maximizes well life by extending the plateau production period, minimizing water and/or gas production, and avoiding annular flow for increased recovery.
- Pressure drop in each flow port of the *FloReg* ICD is dependent on fluid density and is insensitive to fluid viscosity. With this capability, the CARD system inhibits water production and allows for more oil to be produced.
- Each CARD system is supplied with a debris filter or a strainer consisting of direct-wrap technology assembled on nonperforated base pipe. Produced fluid flows between the screen jacket and base pipe and is routed to the multiple flow ports of the *FloReg* ICD, allowing unique, predetermined setup of flow contribution from each screen joint to control the production flow profile.



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### Features, Advantages and Benefits (continued)

- The number of open flow ports is set on the surface, before shipment or on location while the screens are still on the pipe rack, saving rig time.
- *FloReg* flow ports are made of tungsten carbide to mitigate flow-induced erosion.
- The CARD system is available in various metallurgical options to ensure longevity in the most common downhole environments.

# **Specifications**

Size (in.)	2-3/8	2-7/8	3	4	4-1/2	5	5-1/2	6-5/8	7
Suitable screen selection	Wire wrap screens (Ultra-Grip <sup>™</sup> or <i>Ultra-Grip</i> HD)								
Suitable zonal isolation	Swell packer technology								
Overall tool length (in./mm)	456 11,582.4								
FloReg OD (in./mm)	3.32 84.33	3.90 99.06	4.44 112.78	5.00 127.00	5.44 138.18	6.00 152.40	6.50 165.10	7.69 195.33	8.12 206.25
Screen length (in./mm)	72 1,828.8								
Flow port quantity	5 10								
Flow port size (in./mm)	1/8 or 3/32 3,175 or 2,381								
Flow port length (in./mm)	0.5 12.7								
Flow port material	Tungsten carbide								
Base material <sup>a</sup> and stress intensity (ksi/ <i>MPa</i> )	13Cr L80 110 or 80 758 551								
Elastomer material <sup>b</sup>	FKM95								

<sup>a</sup>Alternative base material is available on request. <sup>b</sup>Alternative elastomer material is also available.

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