

Hydraulic Actuated Well Completion (HAWC™) System

The HAWC™ System is the fourth generation intelligent well completion package that includes an isolation packer and two independently operated hydraulic control sleeves. Monitoring equipment is an easy retrofit; a mandrel with premium connections is assembled in the upper break assembly along with a modification to the packers' EASY-CAP subs for additional control line passage. The system is deployed in wells with multiple producing/injector intervals and hydraulically set at a desired depth. Operators are able to remotely access, isolate, and adjust interval flow to improve production or injection characteristics. Multiple release options are incorporated to insure system release and retrieval.

Applications

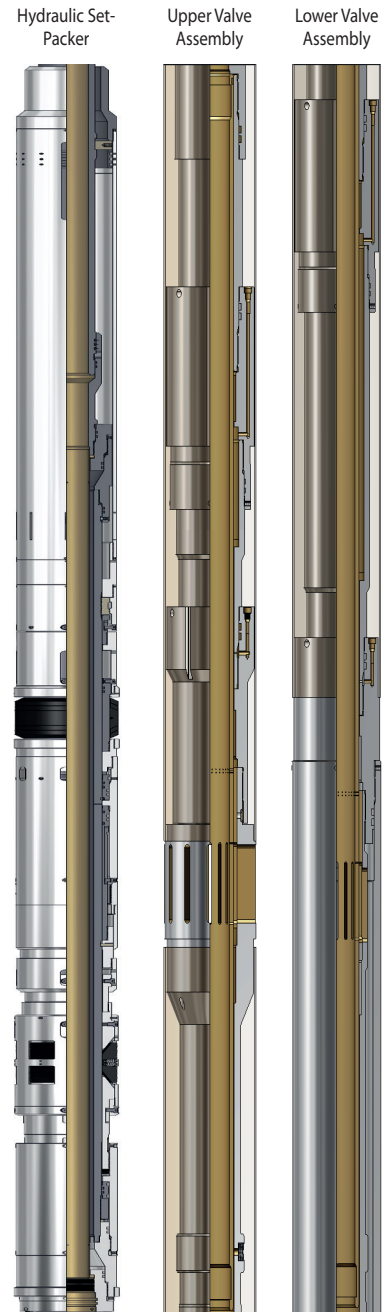
- » Deepwater/wet tree environments
- » Multizone completions
- » Remote production/injection access
- » High-angle completions
- » Production field management

Features and Benefits

- » Reliably and economically controls multiple completions in a single well-and remotely shifts production between zones to optimize field production
- » Provides an additional barrier for well control operations when demobilizing the rig
- » The HAWC well completion package includes:
 - › HAWC system valves that allow remote flow control of multiple zones
 - › High pressure isolation production packer with multiple pass-throughs
 - › The integration of surveillance equipment that provides real-time, reliable, multizone measures of downhole temperature and pressure

System Components

- » Hydraulic Set Instring Pass Through Packer (cut or shear release)
- » Break assembly
- » Upper HAWC System Valve (w/ "R" Profile Sub)
- » Lower HAWC System Valve (w/ "R" Profile Sub)
- » Pressure containing shroud assembly



Technical Data

Differential pressure rating 12,500 psi (86.2 MPa) V-O Rated w/ 10% Safety Factor and Temperature De-Rated

Maximum temperature 350 °F (177 °C)

Casing Size		Casing Drift Diameter		Lower Sleeve				Upper Sleeve				Packer ID	
				Size		ID		Size		ID			
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
9 5/8	244.5	8.5	2.159	3.5	88.9	2.75	69.9	3.5	88.9	2.75	69.9	3.437	76.2
						2.813	71.45	4.5	114.3	2.813	71.45		
						2.813	71.45	4.5	114.3	3.347	85.013		
9 7/8	250.8	8.5	2.159	3.5	88.9	2.75	69.9	3.5	88.9	2.75	69.9	3.437	76.2
						2.813	71.45	4.5	114.3	2.813	71.45		
						2.813	71.45	4.5	114.3	3.347	85.013		
10 1/8	257.17	8.5	2.159	3.5	88.9	2.75	69.9	3.5	88.9	2.75	69.9	3.437	76.2
						2.813	71.45	4.5	114.3	2.813	71.45		
						2.813	71.45	4.5	114.3	3.347	85.013		

References

- » HydroSeal HP-PT packer data sheet
- » HAWC system accessories data sheet
- » HAWC system valve data sheet
- » TIP-PT packer data sheet
- » Turner, D. 2006. Smart Well, Deepwater Solutions Petroleum Africa 4 (1)
- » Burman, J.W., Renfro, K.D., Conrad, M., Parker, C., Turner, D., and Franklin, B. 2005. Design Considerations for Interventionless , Commingled Multizone Selective Sand Control Deepwater Completions. Paper SPE 95598 presented at SPE Annual Technical Conference and Exhibition, Dallas, Texas, 9-12 October.
- » Johnson D.E., Turner, D., Walker, D.J., Harris, D. and McDaniel D. 2002. Reliable and Completely Interventionless Intelligent Well Completion Technology: Application and Field Study. Paper OTC 14252 presented at the Offshore Technology Conference, Houston, Texas 6-9 May/