

Annular isolation system for cement integrity

Achieve successful isolation with decades
of experience and expertise

Wells aren't the same as they used to be.

Historically, cement has been utilized to provide zonal isolation to ensure well integrity and reduce health, safety and environmental (HSE) risks. However, as wells have become more complex (i.e., deeper, hotter, more deviated, and lower pressured), conventional cementing methods don't always work due to hole washouts, poor centralization, and fluid incompatibilities. This leads to unplanned remediation costs.

Choose the most reliable solution.

Baker Hughes has been able to mitigate these costly issues for the past 60 years with an industry-leading annular isolation system that is more reliable and more robust than any other stage cementing technologies in the market. Drawing on extensive run history, Baker Hughes technical and engineering experts have developed comprehensive run-in procedures to ensure flawless execution, so operators can achieve proper isolation the first time—eliminating the need for remediation.

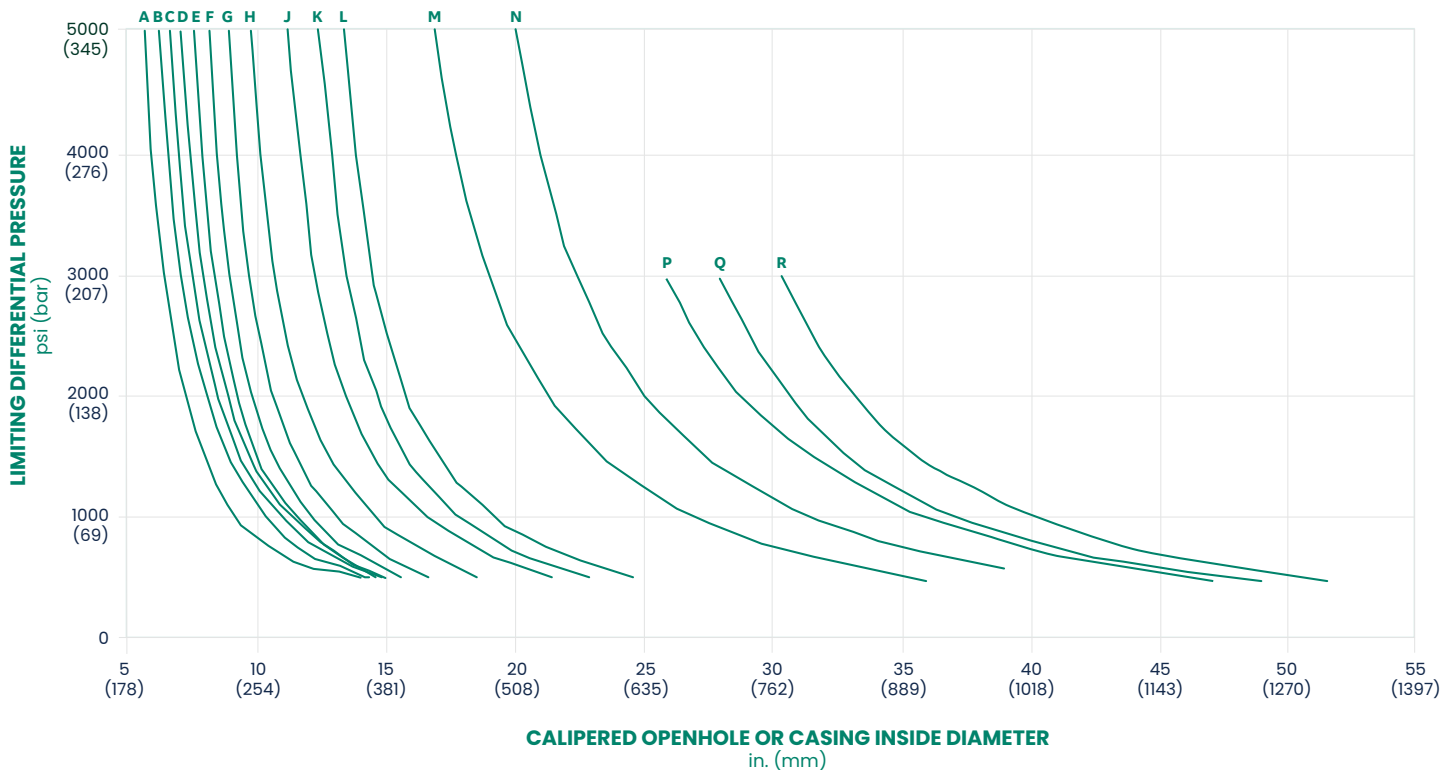
The system includes the patented **ISOZONE™ external casing packer (ECP)**, which provides an immediate seal between the casing and the annulus to block any fluid or gas movement.

We feature two cement placement options: the pressure actuated cementing (PAC) valve and the mechanically-actuated cementing (MAC) valve. Both valves are run above the ECP to provide circulating ports between the inside of the casing or liner and the annulus. This allows for cement placement above the packer. The MAC valve provides a cancellation feature should the second stage not be required.

The system maintains the same integrity as the casing, even during fracing operations. It is also PDC drillable which allows for easy removal once the completion installation is finished.

Contact your local Baker Hughes representative or visit bakerhughes.com/isolation to get the most reliable system and expertise for your annular isolation needs.

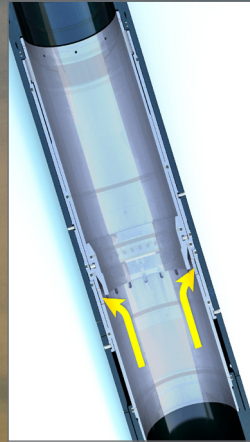
ISOZONE ECP PRESSURE RATINGS



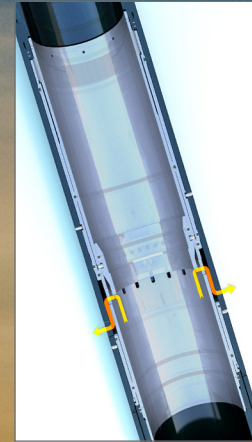
PRESSURE-ACTUATED CEMENTING (PAC) VALVE

- Enables operations in deviated wells with a hydraulic actuation system
- Matches the burst and collapse ratings of the casing string
- Shields the open/close pistons from debris to ensure reliable operation

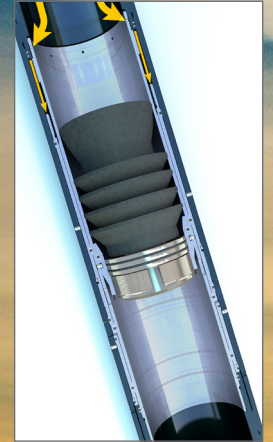
RUN-IN



OPEN



CLOSE

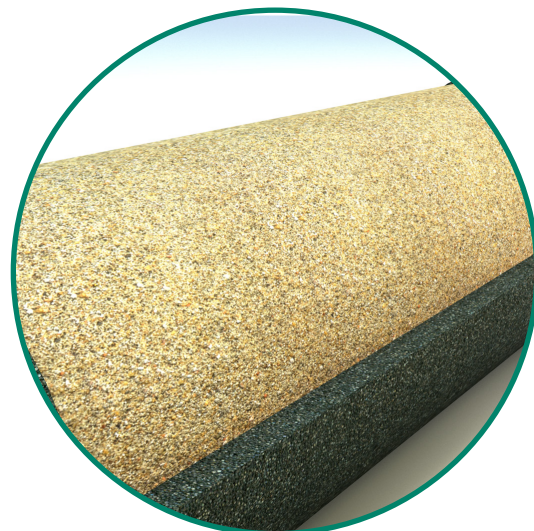


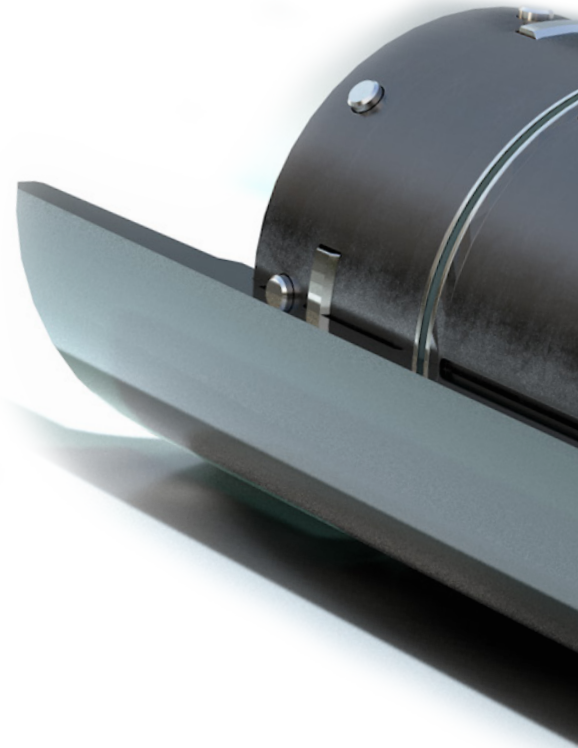
An opening plug lands in the actuating collar, pressuring up the string to inflate the packing element of the ISOZONE ECP and open the PAC valve to start pumping the second stage of cement. A closing plug chases the second cement stage, landing in and closing the PAC valve, resulting in full casing integrity.

	CASING SIZE		TOOL OD	
	in.	mm	in.	mm
A	3-1/2	89	4.30	109
B	2-7/8	73	4.25	108
C	4	102	5.25	133
D	4-1/2	114	5.63	143
E	5	127	6	152
F	5-1/2	140	7	118
G	6-5/8	168	7.63	194
H	7	118	8	203
J	7-5/8	194	9	229
K	8-5/8	219	10.13	252
L	9-5/8	225	11.25	286
M	10-3/4	273	12.75	324
N	13-3/8	340	15.75	400
P	16	406	18.50	460
Q	18-3/8	473	21.50	546
R	20	508	24	610

ISOZONE ECP

- Features a redundant four-valve system and top-mounted valve collar to improve inflation reliability
- Overcomes challenging run-in conditions with rough coated mandrel
- Covers a large hole size range, inflating up to three times the element OD, optimal for irregular hole shapes





MECHANICALLY-ACTUATED CEMENTING (MAC) VALVE

- Enables operations in deviated wells with a hydraulic actuation system
- Matches the burst and collapse ratings of the casing string
- Shields the open/close pistons from debris to ensure reliable operation

RUN-IN



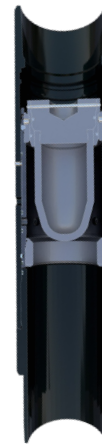
OPEN



CLOSE



CANCEL



A shut-off plug lands on the float collar or baffle collar, isolating the inner string and allowing applied pressure to inflate the ISOZONE ECP. After the packer has been set, the free fall-opening plug is deployed and lands on the upper seat within the MAC valve. Increased inner string pressure opens the MAC valve and allows pumping of the second stage of cement into the annulus. A closing plug chases the second cement stage and lands in the closing seat of the MAC which closes the cementing ports, resulting in full casing integrity. Should a second stage not be needed, the free fall opening plug is fitted with a cancellation sleeve and dropped down-hole to cancel the tool, resulting in full casing integrity.

