



# ANNULAR BLOWOUT PREVENTER (BOP) PACKING ELEMENTS

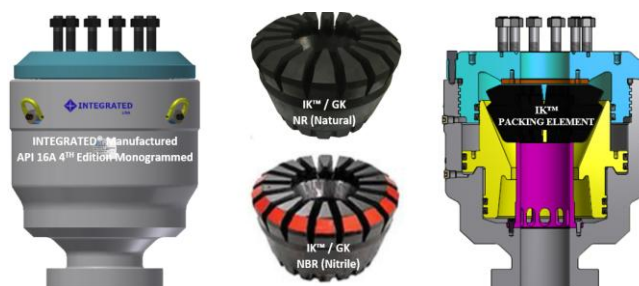
INTEGRATED® is an established OEM manufacturer of engineered elastomeric products designed and validated for use in our manufactured API 16A 4<sup>th</sup> Edition Monogrammed Pressure Control Blowout Preventers (BOP). INTEGRATED® elastomer products are additionally qualified in the “aftermarket” as they are designed for compatibility and interchangeability to fit and function in most industry standard qualified pressure control equipment.

INTEGRATED® Annular Packing Elements utilize our proprietary rubber compounds, engineered metal segments, qualified custom designed production molds and validated operational molding processes and procedures. INTEGRATED® Elastomers will meet or exceed the performance requirements of the latest API 16A - F.A.T. (Factory Acceptance Test), Fatigue, Stripping Life, Packer Access, Sealing Characteristics and Temperature Test (High & Low). Standard Temperature API Rating – FGA (40°F to 180°F).

## INTEGRATED® Manufactured ISA™ Spherical Annular Forged BOP ISA™ Spherical Packing Element



## INTEGRATED® Manufactured IK™ Annular Forged BOP IK™ Annular Packing Element (GK Style)



### ISA™ SPHERICAL ANNULAR PACKING ELEMENTS

Packing Element Size		Pressure Rating		Element Material	Product Code	Weight Per Unit	
(in)	(mm)	(psi)	(bar)			(lbs)	(kg)
7-1/16"	180	3/5k	207   345	NR (Natural Rubber) – Snubbing	82-221-735-01	125	57
				NBR (Nitrile Buna-N Rubber)	82-221-735-02		
7-1/16"	180	10k	689	NR (Natural Rubber)	82-221-710-01	In development	
				NBR (Nitrile Buna-N Rubber)	82-221-710-02		
9"	229	3k	207	NR (Natural Rubber)	82-221-903-01	260	118
				NBR (Nitrile Buna-N Rubber)	82-221-903-02		
11"	279	3k	207	NR (Natural Rubber)	82-221-113-01	302	137
				NBR (Nitrile Buna-N Rubber)	82-221-113-02		
11"	279	5k	345	NR (Natural Rubber)	82-221-115-01	463	210
				NBR (Nitrile Buna-N Rubber)	82-221-115-02		
13-5/8"	346	3/5k	207   345	NR (Natural Rubber)	82-221-135-01	528	239
				NBR (Nitrile Buna-N Rubber)	82-221-135-02		
20-3/4"	527	3k	207	NR (Natural Rubber)	82-221-203-01	847	384
				NBR (Nitrile Buna-N Rubber)	82-221-203-02		
21-1/4"	540	2k	138	NR (Natural Rubber)	82-221-212-01	847	384
				NBR (Nitrile Buna-N Rubber)	82-221-212-02		

### IK™ ANNULAR PACKING ELEMENTS (GK Style)

Packing Element Size		Pressure Rating		Element Material	Product Code	Weight Per Unit	
(in)	(mm)	(psi)	(bar)			(lbs)	(kg)
7-1/16"	180	5k	345	NR (Natural Rubber)	82-220-735-01	125	57
				NBR (Nitrile Buna-N Rubber)	82-220-735-02		
11"	279	5k	345	NR (Natural Rubber)	82-220-113-01	298	136
				NBR (Nitrile Buna-N Rubber)	82-220-113-02		
13-5/8"	346	5k	345	NR (Natural Rubber)	82-220-115-01	456	207
				NBR (Nitrile Buna-N Rubber)	82-220-115-02		

### As Per API 16A Annular BOP Equipment & Elastomer Validation Pressure Testing

Annular BOP – Packing Element  
CSO (Complete Shut Off) Test



Annular BOP – Packing Element  
Pipe Pressure Test



Annular BOP – Packing Element  
Drift Pressure Test



The Annular Packing Element is designed to be placed in an Annular BOP and compressed during closure, creating a sealing surface at the contact point. The closure occurs when the piston pushes upward against the bottom of the element. The upward movement of the piston forces the element to conform to the shape of the upper housing (up and inward) resulting in the rubber movement towards the center of the bore and closes around the tubular string. The engineered designed metal segments are critical to support the rubber to prevent excessive extrusion when containing wellbore pressure. A Complete Shut Off (CSO) will occur when no pipe is in the hole. The piston will continue to move upward, forcing the reinforced rubber to completely seal across the open bore.