



INTEGRATED[®]

OEM ELASTOMER CATALOG

INTEGRATED[®]

(INTEGRATED ELASTOMERS[®] USA)

is an established OEM manufacturer of engineered elastomeric products designed for use in INTEGRATED[®] API 16A Monogrammed Pressure Control Equipment. INTEGRATED[®] Elastomer products are additionally qualified in the "Aftermarket" as they are designed for compatibility and Interchangeability to fit in industry standard manufactured pressure control equipment. Our Elastomers will meet or exceed the performance requirements of the latest API 16A (Fatigue, Stripping, Packing Element Access and High & Low Temperature).

INTEGRATED RAM BOP ELASTOMERS

Front Packers | Top Seals | VBR | Flex SBR | Stripper Packers & Inserts

IU[™] (U Style) | IWS[™] (LWS Style) | IE[™] (WSI Style) | IWP[™] (LWP Style)
7-1/16" | 9" | 11" | 13-5/8"



INTEGRATED OEM RAM & ANNULAR SEAL KITS

IU[™] Style | IWS[™] Style | IE[™] (WSI) Style | IWP[™] Style
7-1/16" | 9" | 11" | 13-5/8"

ISA[™] Spherical Annular Style | IK[™] (GK) Annular Style
7-1/16" | 9" | 11" | 13-5/8" | 21-1/4"



INTEGRATED I-1360 ROTATING HEAD STRIPPER RUBBER (Washington Style)

2-3/8" | 2-7/8" | 3-1/2" | 4-1/2" | 5-1/2"



INTEGRATED OEM SPHERICAL ANNULAR ISA[™] BOP

Spherical Style Packing Elements

7-1/16" | 9" | 11" | 13-5/8" | 20-3/4" | 21-1/4"



INTEGRATED OEM ANNULAR IK[™] BOP

GK Style Packing Elements

7-1/16" | 11" | 13-5/8"



INTEGRATED PULSATION DAMPENERS

MANUFACTURED DIAPHRAGMS (Bladders)

Materials - NBR | HNBR | FKM | URETHANE

Drilling (K Style) | Emsco Style (PD45, PD55 & PD55A) | Production (IP Style)



INTEGRATED[®] is an API licensed Original Equipment Manufacturer (OEM) of Pressure and Flow Control Equipment for the Global Drilling, Workover, Snubbing, Rental and Production sectors of the Oil and Gas Industry

INTEGRATED[®] holds the following Manufacturing Licenses & Certifications:

API 6A | API 16A | API 16AR | API 16C | API 20E (BSL 1,2 & 3) | ASME U | CRN | NATIONAL BOARD | API Q1 (10th Edition) | ISO-9001-2015

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INTEGRATED® ORIGINAL EQUIPMENT MANUFACTURE (OEM)

API MONOGRAMMED EQUIPMENT & PRODUCT - LICENSES AND CERTIFICATIONS

API 6A-0851 | API 16A-0197 | API 16AR-0015 | API 16C-0564 | API 20E-0087 | ASME U-59670 | CRN (Canadian)

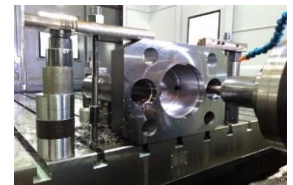
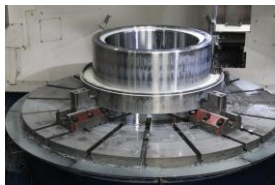
API Q1-4952 (10th Edition) | ISO 9001:2015-RQ91/4505 | ISO 9001:2015 188908-2015-AQ-USA-ANAB | ISO 9001:2015 188908-2015-AQ-USA-ANAB-CC1

API 6A	API 6A	API 16A	API 16A	API 16C	API 20E	ASME U	API 16AR	API Q1 / ISO
PRESSURE CONTROL VALVES	PRESSURE MANIFOLDS WELLHEAD COMPONENTS	BLOWOUT PREVENTERS (RAM BOPS)	BLOWOUT PREVENTERS (ANNULAR BOPS)	WELL CONTROL CHOKES & BUFFER TANKS	EQUIPMENT BOLTING (BSL)	PULSATION DAMPENERS (PD)	REMANUFACTURING (Recertification)	EQUIPMENT & ELASTOMERS
IFC™ (Slab Gate Valve) 2-1/16" to 4-1/16"	Choke & Kill Manifolds	IUT™ Ram Forged BOP Single Double Shear & Non-Shear 7-1/16" to 21-1/4"	ISA™ Spherical Annular Forged BOP Studded Top x Flanged Bottom 7-1/16" to 21-1/4"	Well Control Chokes Positive Choke Adjustable Choke	Ram & Annular BOP Bolting (BSL 1, 2 & 3)	IDPD™ Drilling Pulsation Damper 10 & 20 GALLON Up to 7,500 psi	Ram & Annular BOP Repair and/or Remanufacture All Major Brands	Certified Quality Management System (QMS)
IFLS™ (Slab Gate Valve) 2-1/16" to 7-1/16"	Standpipe & Managed Pressure Drilling Manifolds	IWS™ Ram Forged BOP Single Double 7-1/16" to 13-5/8"	IK™ Annular Forged BOP Studded Top x Flanged Bottom 7-1/16" to 13-5/8" & 29" - MSP	Well Control Choke Actuators	Valve Bolting	IDPD™ Production Pulsation Damper 1 to 20 GALLON 285 to 6,180 psi	Choke & Kill Manifolds	Corporate ERP Manufacturing System (JDE)
AceFlow™ (Expanding Gate Valve) 2-1/16" to 4-1/16"	Cement Manifolds	IE™ Ram Forged BOP Single Double Triple 7-1/16" to 9"	ISA™ & IK™ Annular Spare Parts	Choke & Kill Manifold Buffer Chambers (tanks)	Pulsation Damper Bolting	Pulsation Damper Diaphragm & Kits	API Valves FC & FLS Styles	Global System to connect all Manufacturing, Distribution & Services
Surface Safety Valves (SSV) (PSL 2 & 3)	Kill Wing Valve Manifold	IWP™ Ram Forged BOP Single Double 9"	ISA™ & IK™ Packing Elements Natural (NR) Nitile (NBR)		Customized Bolting	IDPD™ Drilling NBR HNBR FKM IPPD™ Production NBR HNBR FKM Emasco Style PD45 PD55 PD55A NBR HNBR FKM PD Parts Stabilizers, Gaskets & Kits	Pulsation Dampeners Drilling & Production Only Major Brands	QMS for Pressure Control Elastomer Manufacturing as per API 16A
Ball Valves	Hydraulic Fail-Safe Surface Safety Valve Skid Manifold	IUT™ Ram Blocks & Assemblies CSO, Pipe, VBR, IFlex™ & SBR	ISA™ & IK™ Seal Kits					
Plug Valves	Chokes	I70™ (IWS™) Ram Blocks Full Assemblies CSO, Pipe & Mult Ram						
Minor & Major Repair Kits	Tubing & Casing Spools	IE™ Ram Blocks Full Assemblies CSO, Pipe & IFlex™						
Ball Valves	Tubing & Casing Hangers	IWP™ Ram Blocks Full Assemblies CSO & Pipe						
	Adapter Spools	Ram Blocks - Forgings						
	Spacer Spools	IUT™, IWS™, IE™ & IWP™ Ram Spare Parts						
	Cross-Over Connectors	Ram Elastomers						
	Tree Caps	Front Packers, Top Seals, VBR, IFlex™, SBR, Door Seal & Seal Kits						
	Flanges							
	Blind, Companion & Test PE Seals							

INTEGRATED's API Certified – Licensed OEM plants provide state-of-the-art manufacturing of our Engineered-Designed Pressure Control Equipment and Elastomeric Products



INTEGRATED's Oracle - JD Edwards Enterprise Resource Planning (ERP) system integrates our global manufacturing, distribution facilities, and service centers



INTEGRATED® ELASTOMER MANUFACTURING PLANT - USA

INTEGRATED ELASTOMERS® USA was established to manufacture and provide “In-house” engineered elastomeric products designed for INTEGRATED® Pressure Control Industry Equipment (API 6A | API 16A | API 20E | ASME U). INTEGRATED ELASTOMERS® USA provides a complete line of Oilfield Rubber Products. Our manufacturing division produces a variety of engineered rubber products for our pressure control equipment and for the aftermarket (Spare Parts). We take immense pride in producing some of the largest and most precisely engineered Elastomeric parts available. All products are manufactured in accordance with API 16A.



THE INTEGRATED® ADVANTAGE

- All Elastomer products are designed, engineered, and manufactured by INTEGRATED ELASTOMERS® USA in coordination with INTEGRATED® Corporate OEM Pressure Control Equipment specifications.
- OEM Elastomer Manufacturing specific to the Oil & Gas pressure control market.
- INTEGRATED® manufactured aftermarket Premier Oilfield products
- Proven track record with major drilling, workover, snubbing and rental clients.
- Large stock inventory or quick production turnaround to satisfy customer delivery needs.
- Customer 24/7 support and access to purchased product MTRs or COCs through INTEGRATED® FTP site (File Transfer Portal)
- Wide variety of Elastomeric materials to satisfy customers job specific needs.
- Client stocking programs and corporate pricing structures.
- Professional customer focus from inquiry, quotations, delivery and satisfaction follow-up.



**INTEGRATED® OEM MANUFACTURED
PRESSURE CONTROL EQUIPMENT & ELASTOMER VALIDATION**

STRIPPING LIFE TESTING (As per API 16A Edition 4)

Integrated Vertical Strip Life System operates with an automatic control unit and integrated data acquisition system that captures cycle speed, force, gallon leakage, strip cycles and temperatures. The collected data predict precise strip life of ram packers and annular packing elements under API 16A & ISO Specification 13533 specified test conditions and parameters.

**INTEGRATED
ANNULAR BOP
STRIP LIFE
TEST FIXTURE**



**INTEGRATED
RAM BOP
STRIP LIFE
TEST FIXTURE**



**Temperature & Pressure Testing Chamber
(In accordance with Latest Edition API 16A)**

The standard specifies requirements for performance, design, materials, testing, inspection, welding, marking, handling, storing, and shipping of Drill-through equipment used for drilling for oil and gas. This standard defines service conditions in terms of pressure, temperature, and wellbore fluids for which the pressure control equipment will be designed. Equipment & Elastomer validation is conducted utilizing our pressurized temperature environmental chamber that has a capability **range of -40°F to 662°F** and the capacity of up to 21-1/4" size pressure control equipment to perform testing as per API 16A Edition 4 requirements.

**As per API 16A – Annular, Ram Equipment
and Elastomer Validation Pressure Testing**

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



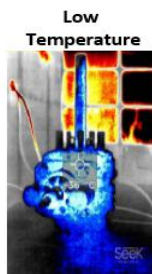
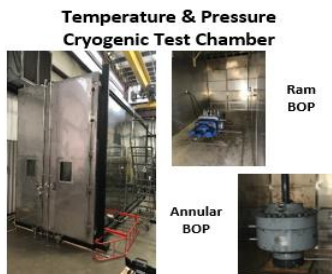
**Annular BOP – Packing Element
Pipe Pressure Test**



**Annular BOP – Packing Element
Drift Pressure Test**



**Ram BOP – Front Packer, Top Seal
& Door Seal Function Pressure Test**



INTEGRATED® OEM MANUFACTURING CAPABILITIES

OEM MANUFACTURING LICENSES AND OPERATING CERTIFICATIONS

API 6A-0851 | API 16A-0197 | API 16C-0564 | API 20E-0087 | ASME U-59670 | NATIONAL BOARD | API Q1-4952 | ISO 9001:2015-RQ91/4505 | CRN

OEM PRESSURE CONTROL EQUIPMENT MANUFACTURER (Monogrammed)

Equipment Description	License	INTEGRATED® MANUFACTURES
➤ Ram Blowout Preventers (BOP)	API 16A Monogrammed	Yes
➤ Annular Blowout Preventers (BOP)	API 16A Monogrammed	Yes
➤ BOP Ram Blocks	API 16A Monogrammed	Yes
➤ Valves (Pressure Control)	API 6A Monogrammed	Yes
➤ Chokes, Choke Controls, Buffer Tanks & Kill Manifolds	API 6A & 16C Monogrammed	Yes
➤ Wellhead Components	API 6A Monogrammed	Yes
➤ Pulsation Dampener	ASME U National Board	Yes
➤ Bolting (BLS 1, 2 & 3)	API 20E Monogrammed	Yes

OEM ELASTOMER MANUFACTURER (Internal)

YES

OEM ELASTOMER PRODUCTS

Elastomer Product	Equipment	Size	INTEGRATED® MANUFACTURES
➤ Ram BOP Front Packers, Top Seals & Door Seals	IE™ (WSI Style)	7-1/16" – 3/5k	Yes
➤ Ram BOP Front Packers, Top Seals & Door Seals	IE™ (WSI Style)	9" – 3/5k	Yes
➤ Ram BOP Front Packers, Top Seals & Door Seals	IWP™ (LWP Style)	9" 3k	Yes
➤ Ram BOP Front Packers, Top Seals & Door Seals	IU™ (U Style)	7-1/16" through 13-5/8"	Yes
➤ Ram BOP Front Packers-Top Seal Units & Door Seals	I70™ (IWS™ / LWS Style)	11" & 13-5/8"	Yes
➤ Annular BOP Packing Elements	ISA™ (Spherical Style)	7-1/16" through 21-1/4"	Yes
➤ Annular BOP Packing Elements	IK™ (GK Style)	7-1/16" through 13-5/8"	Yes
➤ OEM Carded Ram & Annular BOP Seal Kits:	All Styles Above	7-1/16" through 21-1/4"	Yes
➤ Pulsation Dampener Diaphragms (Bladers)	IPPD™ (P Style)	1, 2.5, 5, 10 & 20 gal	Yes
➤ Pulsation Dampener Diaphragms (Bladers)	IDPD™ (K Style)	10 & 20 gal	Yes
➤ Pulsation Dampener Diaphragms (Bladers)	Emsco PD45, PD55 & PD55A	10 & 20 gal	Yes
➤ Stripper Products	I-1360™ (Washington Style)	2-3/8" through 5-1/2"	Yes

SPARE PARTS FOR ALL MAJOR BRANDS

YES

GLOBAL REMANUFACTURER (Recertification) SERVICES: INTEGRATED OEM & API 16AR

Offers

- All Bands (Above Water / Land)
- Meet API 16AR (RSL 1, RSL 2 & RSL3)

YES
YES

WORLDWIDE PRODUCT DISTRIBUTION

YES

BETTER PRICING FOR CONTRACT CUSTOMERS

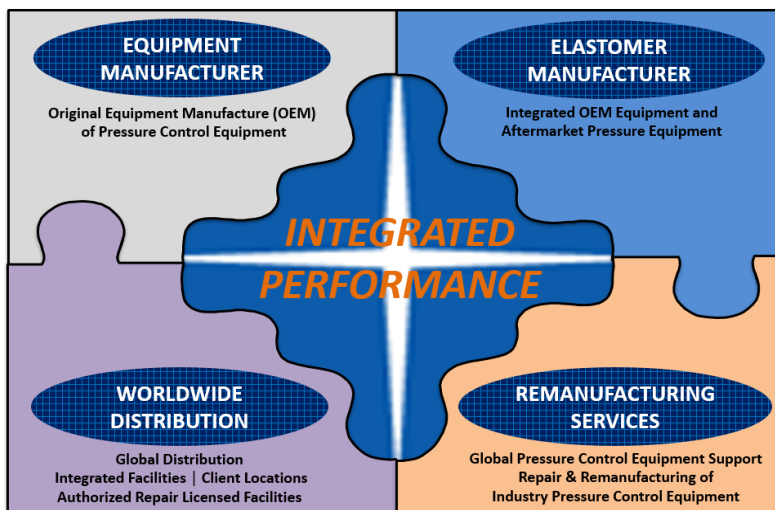
YES

GLOBAL MANUFACTURING & DISTRIBUTION ERP SYSTEM (JDE)

YES

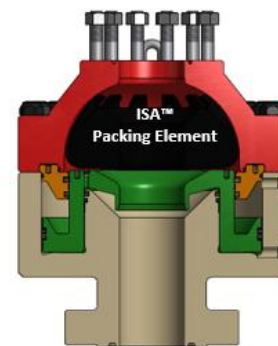
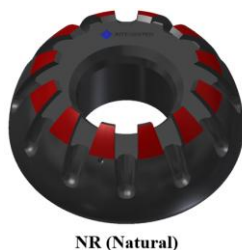
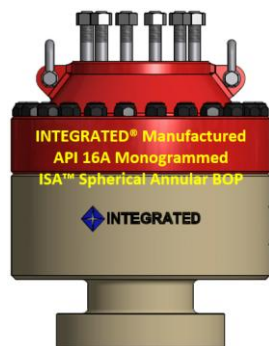
OEM QUALITY SYSTEM (QMS – CERTIFIED THROUGH API & ISO)

YES



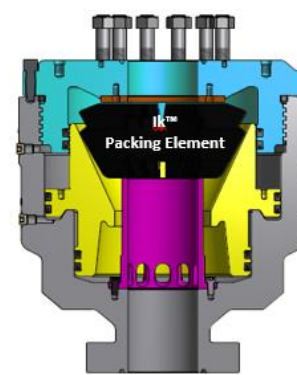
2 ANNULAR BOP PACKING ELEMENTS

2.01 ISA™ SPHERICAL ANNULAR PACKING ELEMENTS (NOV Spherical Style)



Item No.	Packing Element Size		Pressure Rating		Element Material	Part Number	Weight Per Unit	
	in.	mm	psi	bar			lbs	kgs
2.01.01	7-1/16	180	3/5k	207 345	NR (Natural Rubber) - Snubbing	82-221-735-01	116	53
2.01.02	7-1/16	180	3/5k	207 345	NBR (Nitrile Buna-N)	82-221-735-02	116	53
2.01.03	7-1/16	180	10k	689	NR (Natural Rubber) - Snubbing	82-221-710-01	In Development	
2.01.04	7-1/16	180	10k	689	NBR (Nitrile Buna-N)	82-221-710-02		
2.01.05	9	229	3/5k	207 345	NR (Natural Rubber) - Snubbing	82-221-903-01	250	113
2.01.06	9	229	3/5k	207 345	NBR (Nitrile Buna-N)	82-221-903-02	250	113
2.01.07	11	279	3k	207	NR (Natural Rubber) - Snubbing	82-221-113-01	310	141
2.01.08	11	279	3k	207	NBR (Nitrile Buna-N)	82-221-113-02	310	141
2.01.09	11	279	5k	345	NR (Natural Rubber) - Snubbing	82-221-115-01	435	197
2.01.10	11	279	5k	345	NBR (Nitrile Buna-N)	82-221-115-02	435	197
2.01.11	13-5/8	346	3/5k	207 345	NR (Natural Rubber) - Snubbing	82-221-135-01	565	256
2.01.12	13-5/8	346	3/5k	207 345	NBR (Nitrile Buna-N)	82-221-135-02	565	256
2.01.13	20-3/4	527	3k	207	NR (Natural Rubber) - Snubbing	82-221-203-01	945	429
2.01.14	20-3/4	527	3k	207	NBR (Nitrile Buna-N)	82-221-203-02	945	429
2.01.15	21-1/4	540	2k	138	NR (Natural Rubber) - Snubbing	82-221-212-01	945	429
2.01.16	21-1/4	540	2k	138	NBR (Nitrile Buna-N)	82-221-212-02	945	429

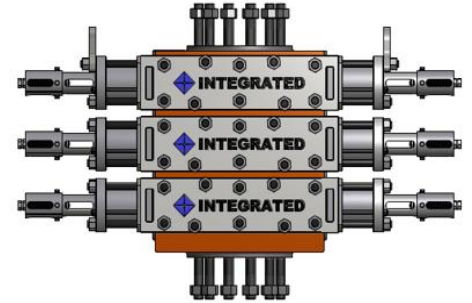
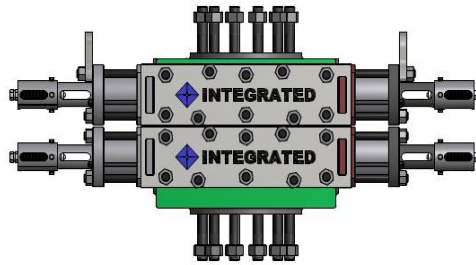
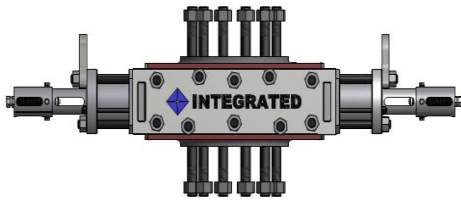
2.02 IK™ ANNULAR PACKING ELEMENTS (Hydril GK Style)



Item No.	Packing Element Size		Pressure Rating		Element Material	Part Number	Weight Per Unit	
	in.	mm	psi	bar			lbs	kgs
2.02.01	7-1/16 (S)	180	3k	207	NR (Natural Rubber) - Snubbing	82-220-073-01	Qualified	
2.02.02	7-1/16 (S)	180	3k	207	NBR (Nitrile Buna-N)	82-220-073-02	Outsource	
2.02.03	7-1/16	180	5k	345	NR (Natural Rubber) - Snubbing	82-220-075-01	120	54
2.02.04	7-1/16	180	5k	345	NBR (Nitrile Buna-N)	82-220-075-02	120	54
2.02.05	11	279	3k	207	NR (Natural Rubber) - Snubbing	82-220-113-01	Qualified Outsource	
2.02.06	11	279	3k	207	NBR (Nitrile Buna-N)	82-220-113-02		
2.02.07	11	279	5k	345	NR (Natural Rubber) - Snubbing	82-220-115-01	367	167
2.02.08	11	279	5k	345	NBR (Nitrile Buna-N)	82-220-115-02	367	167
2.02.09	13-5/8	346	3k	207	NR (Natural Rubber) - Snubbing	82-220-133-01	Qualified Outsource	
2.02.10	13-5/8	346	3k	207	NBR (Nitrile Buna-N)	82-220-133-02		
2.02.11	13-5/8	346	5k	345	NR (Natural Rubber) - Snubbing	82-220-135-01	458	208
2.02.12	13-5/8	346	5k	345	NBR (Nitrile Buna-N)	82-220-135-02	458	208

3 RAM BOP ELASTOMERS

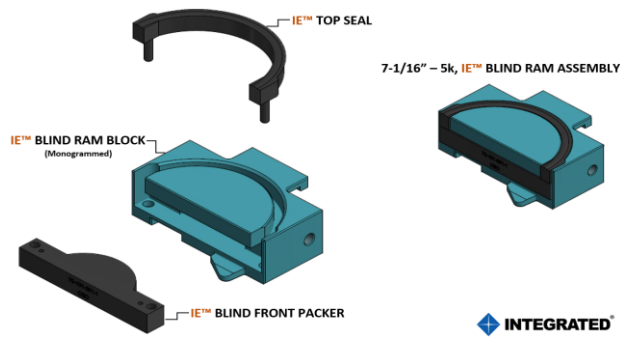
3.01 7-1/16" – 3/5k IE™ RAM ELASTOMERS (WSI | T81 Style)



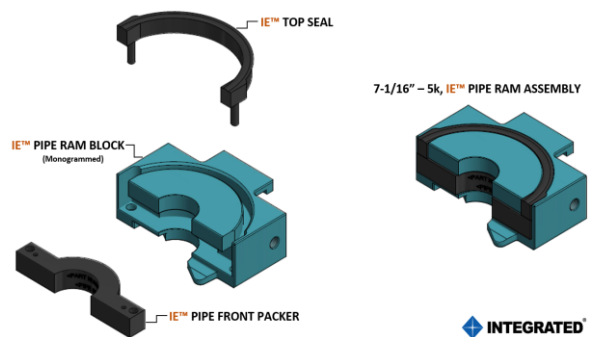
INTEGRATED® 7-1/16" – 3/5k Single (SR) Ram IE™ BOP

INTEGRATED® 7-1/16" – 3/5k Double (DR) Ram IE™ BOP

INTEGRATED® 7-1/16" 3/5k Triple (TR) Ram IE™ BOP



IE™ CSO (Blind) Ram Assembly



IE™ Pipe Ram Assembly

(All IE™ Ram Blocks are manufactured by INTEGRATED® - API 16A Edition 4 Monogrammed)

TOP SEALS:

Part Description		Design	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
							lbs	kgs
3.01.01	Top Seal (Radius)	Flat Face – Low Crown	CSO Thru 5-1/2"	3/5k	XNBR	70-101-000-FL	0.40	0.18
3.01.02	Top Seal (Radius)	Round Face – Low Crown	CSO Thru 5-1/2"	3/5k	XNBR	70-101-000-RL	0.40	0.18
3.01.03	Top Seal (Radius)	Round Face – Mid Crown	CSO Thru 5-1/2"	3/5k	XNBR	70-101-000-RR	0.40	0.18
3.01.02	Top Seal (VBR)	IVBR™	VBR 2-3/8" to 2-7/8"	3/5k	XNBR	70-101-000-VBR	0.40	0.18

FRONT PACKERS:

Part Description		Design	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
							lbs	kgs
3.01.04	Front Packer	Flat Face	CSO	3/5k	XNBR	70-101-001-1	1.80	0.54
3.01.05	Front Packer	Round Face	CSO	3/5k	XNBR	70-0705-00290	1.80	0.54
3.01.06	Front Packer	Flat Face	1.66"	3/5k	XNBR	70-101-002-15	1.40	0.64
3.01.07	Front Packer	Flat Face	1.90"	3/5k	XNBR	70-101-002-1	1.60	0.73
3.01.08	Front Packer	Flat Face	2-1/16"	3/5k	XNBR	70-101-002-11	1.50	0.68
3.01.09	Front Packer	Flat Face	2-3/8"	3/5k	XNBR	70-101-002-2	1.40	0.64
3.01.10	Front Packer	Round Face	2-3/8"	3/5k	XNBR	70-0705-00291	1.40	0.64
3.01.11	Front Packer	Flat Face	2-7/8"	3/5k	XNBR	70-101-002-3	1.40	0.64
3.01.12	Front Packer	Round Face	2-7/8"	3/5k	XNBR	70-0705-00293	1.40	0.64
3.01.13	Front Packer	Flat Face	3-1/2"	3/5k	XNBR	70-101-002-5	1.00	0.45
3.01.14	Front Packer	Round Face	3-1/2"	3/5k	XNBR	70-0705-00294	1.00	0.45
3.01.15	Front Packer	Flat Face	4"	3/5k	XNBR	70-101-002-6	1.20	0.54
3.01.16	Front Packer	Flat Face	4-1/2"	3/5k	XNBR	70-101-002-7	1.20	0.54
3.01.17	Front Packer	Flat Face	5"	3/5k	XNBR	70-101-002-8	0.80	0.36
3.01.18	Front Packer	Flat Face	5-1/2"	3/5k	XNBR	70-101-002-13	0.80	0.36

IFLEX™ PACKERS (IE™ / WSI / T81 Style):

Description		Size	Pressure Rating	Material	Product Code	Weight Per Unit	
						lbs	kgs
3.01.19	IFLEX™ Front Packer	2-3/8" to 2-7/8"	3/5k	XNBR	70-0705-00211	1.40	0.64
3.01.20	IFLEX™ Front Packer	2-7/8" to 3-1/2"	3/5k	XNBR	70-0705-00350	1.40	0.64

IVBR™ PACKERS (IE™ / WSI / T81 Style): Pending

Description		Size	Pressure Rating	Material	Product Code	Weight Per Unit	
						lbs	kgs
3.01.21	IVBR™ Front Packer	2-3/8" to 2-7/8"	3/5k	NBR	70-0705-00447	1.80	0.54

3 RAM BOP ELASTOMERS

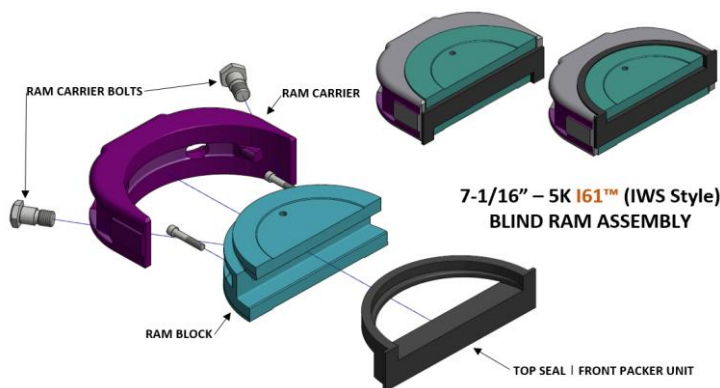
3.02 7-1/16" – 5k I61 RAM ELASTOMERS (LWS Style)



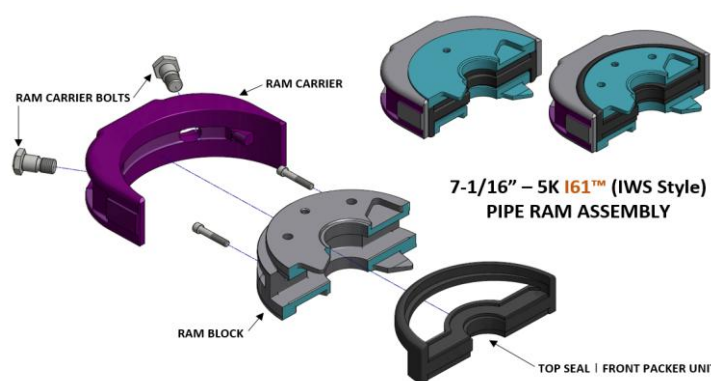
I61 CSO (Blind) Front Packer – Top Seal Unit



I61 Pipe Front Packer – Top Seal Unit



I61 CSO (Blind) Ram Assembly



I61 Pipe Ram Assembly

FRONT PACKER – TOP SEAL UNITS:

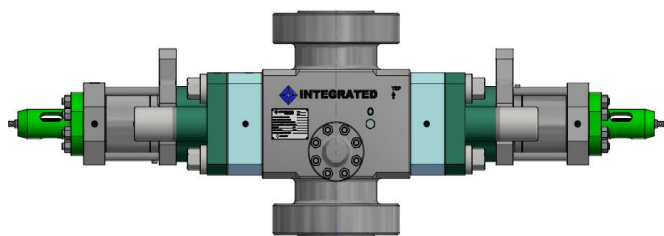
Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.02.01	Front Packer – Top Seal Unit	CSO	5k	NBR	70-135857	4.80	2.18
3.02.02	Front Packer – Top Seal Unit	1.660"	5k	NBR	70-135847	5.00	2.27
3.02.03	Front Packer – Top Seal Unit	2-1/16"	5k	NBR	70-142644	4.80	2.18
3.02.04	Front Packer – Top Seal Unit	2-3/8"	5k	NBR	70-135858	4.40	2.00
3.02.05	Front Packer – Top Seal Unit	2-7/8"	5k	NBR	70-135859	4.20	1.91
3.02.06	Front Packer – Top Seal Unit	3-1/2"	5k	NBR	70-135860	4.20	1.91
3.02.07	Front Packer – Top Seal Unit	4"	5k	NBR	70-135861	4.00	1.81
3.02.08	Front Packer – Top Seal Unit	4-1/2"	5k	NBR	70-135862	3.80	1.72
3.02.09	Front Packer – Top Seal Unit	5"	5k	NBR	70-142725	3.80	1.72
3.02.10	Front Packer – Top Seal Unit	5-1/2"	5k	NBR	70-116116	3.40	1.54

MULTI RAM – TOP SEALS AND FRONT PACKERS:

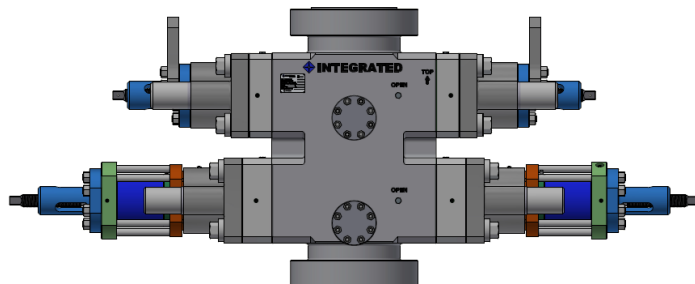
Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.02.11	Multi Ram – Top Seal	2-3/8" to 3-1/2"	5k	NBR	70-122451	1.40	0.64
3.02.12	Multi Ram – Front Packer	2-3/8" to 3-1/2"	5k	NBR	70-122899	6.20	2.81

3 RAM BOP ELASTOMERS

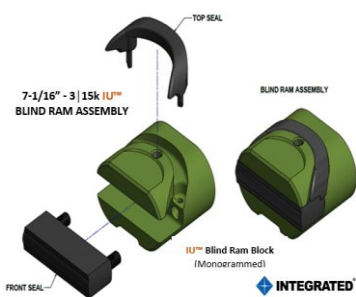
3.03 7-1/16" – 3/15k IU™ RAM ELASTOMERS (U Style)



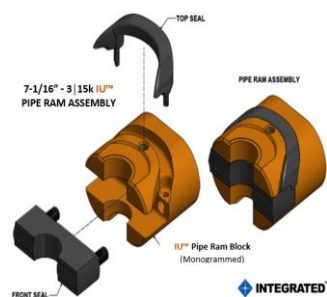
INTEGRATED® 7-1/16" – 3/15k, Single (SR) Ram Forged Shear IU™ BOP



INTEGRATED® 7-1/16" – 3/15k, Double (DR) Ram Forged Shear IU™ BOP



IU™ CSO (Blind) Ram Assembly



IU™ Pipe Ram Assembly



IU™ Variable Bore Ram Assembly (VBR)



IU™ Shear Blind Ram Assembly (SBR)

(All IU™ Ram Blocks are manufactured by INTEGRATED® - API 16A Edition 4 Monogrammed)

TOP SEALS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg
3.03.01 Top Seal	CSO Thru 5-1/2"	3/5/10/15k	XNBR	70-0703-00029	0.80	0.36
3.03.02 Top Seal	Shear Blind Ram (SBR)	3/5/10/15k	XNBR	70-0703-00029	0.80	0.36
3.03.03 Top Seal	Variable Bore Ram (VBR)	3/5/10/15k	XNBR	70-0703-00029-V	0.80	0.36

SAFETY FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg
3.03.04 Front Packer	CSO	3/5/10/15k	XNBR	70-0703-00009	7.00	3.16
3.03.05 Front Packer	2-3/8"	3/5/10/15k	XNBR	70-0703-00010	6.40	2.90
3.03.06 Front Packer	2-7/8"	3/5/10/15k	XNBR	70-0703-00011	6.20	2.81
3.03.07 Front Packer	3-1/2"	3/5/10/15k	XNBR	70-0703-00012	5.80	2.63
3.03.08 Front Packer	4"	3/5/10/15k	XNBR	70-0703-00013	5.60	2.54
3.03.09 Front Packer	4-1/2"	3/5/10/15k	XNBR	70-0703-00014	5.00	2.27
3.03.10 Front Packer	5"	3/5/10/15k	XNBR	70-0703-00015	4.80	2.18
3.03.11 Front Packer	5-1/2"	3/5/10/15k	XNBR	70-0703-00016	4.60	2.09

VARIABLE BORE RAM (VBR): FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg
3.03.12 VBR – Front Packer	2-3/8" to 3-1/2"	3/5/10/15k	NBR	70-0705-00333	8.40	3.81
3.03.13 VBR – Front Packer	2-7/8" to 4"	3/5/10/15k	NBR	95-0710000-V-04	8.10	3.67

IFLEX™: FRONT PACKER:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg
3.03.14 IFLEX™ – Front Packer	2-3/8" to 2-7/8"	3/5/10/15k	NBR	70-0705-00345	8.40	3.81

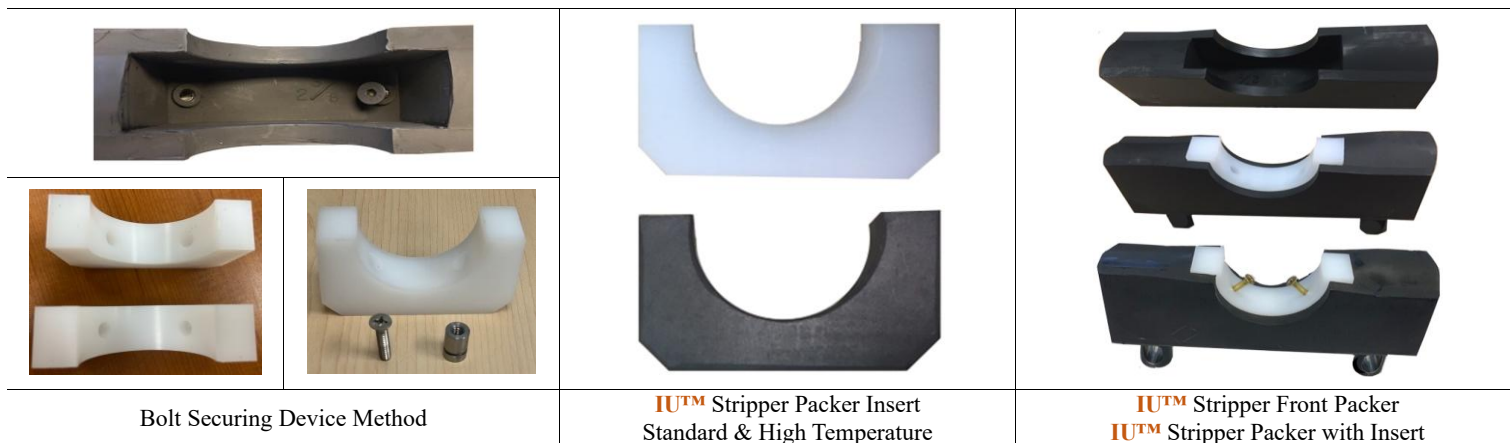
SHEAR BLIND RAM (SBR): BLADE PACKER | SIDE PARKERS | TOP SEAL:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg
3.03.15 SBR – Blade Packer w/Side Combo	7-1/16"	3/5/10/15k	XNBR	70-0703-00100	4.60	2.90
3.03.16 SBR – Right Side Packer 01	7-1/16"	3/5/10/15k	XNBR	70-0703-00101	1.00	0.45
3.03.17 SBR – Left Side Packer 02	7-1/16"	3/5/10/15k	XNBR	70-0703-00102	1.00	0.45

The IU™ SBR Assembly consist of Upper (1) & Lower (1) Shear Blocks, Blade Packer-Side Combo (1), Top Seals (2) and Left (1) and Right (1) Side Packers

3 RAM BOP ELASTOMERS

3.04 7-1/16" – 3/15k IU™ RAM ELASTOMERS (U Style)



Bolt Style: Two threaded lugs are manufactured into each Stripper Front Packer. The insert is locked into the Stripper Front Packer lugs utilizing machine Phillip head bolts

IU™ STRIPPER FRONT PACKER: BOLT STYLE (Standard Temperature)

Part Description	Style	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
						lbs	kg	
3.04.01	Stripper Front Packer	Bolt	2-3/8"	3/15k	XNBR	70-0703-00020	6.00	2.72
3.04.02	Stripper Front Packer	Bolt	2-7/8"	3/15k	XNBR	70-0703-00021	5.80	2.63
3.04.03	Stripper Front Packer	Bolt	3-1/2"	3/15k	XNBR	70-0703-00022	5.40	2.45

IU™ STRIPPER INSERTS (Wear Block): BOLT STYLE

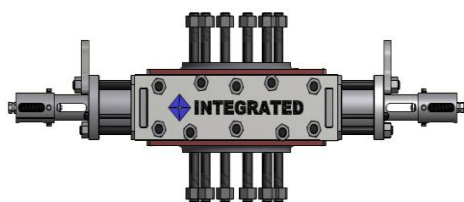
Part Description	Style	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
						lbs	kg	
3.04.04	Stripper Insert	Bolt	2-3/8"	3/15k	UHMW (ST)	70-0703-00026	0.00	0.00
3.04.05	Stripper Insert	Bolt	2-3/8"	3/15k	TEFLON M (HT)	70-0703-00026HT	0.00	0.00
3.04.06	Stripper Insert	Bolt	2-7/8"	3/15k	UHMW (ST)	70-0703-00027	0.00	0.00
3.04.07	Stripper Insert	Bolt	2-7/8"	3/15k	TEFLON M (HT)	70-0703-00027HT	0.00	0.00
3.04.08	Stripper Insert	Bolt	3-1/2"	3/15k	UHMW (ST)	70-0703-00028	0.00	0.00
3.04.09	Stripper Insert	Bolt	3-1/2"	3/15k	TEFLON M (HT)	70-0703-00028HT	0.00	0.00

ST – Standard Temperature | HT – High Temperature

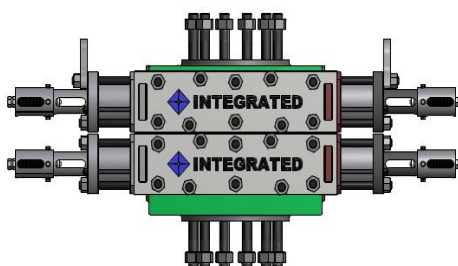
The INTEGRATED® Insert Packer for stripper application in snubbing services is designed with replaceable, wear resistant, non-rotating insert. The insert is manufactured from an ultra-high molecular weight polyethylene (UHMW).

3 RAM BOP ELASTOMERS

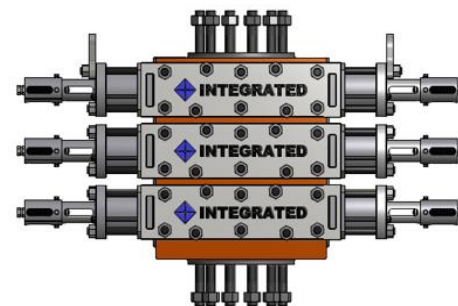
3.05 9" – 3/5k IE™ RAM ELASTOMERS (WSI | T81 Style)



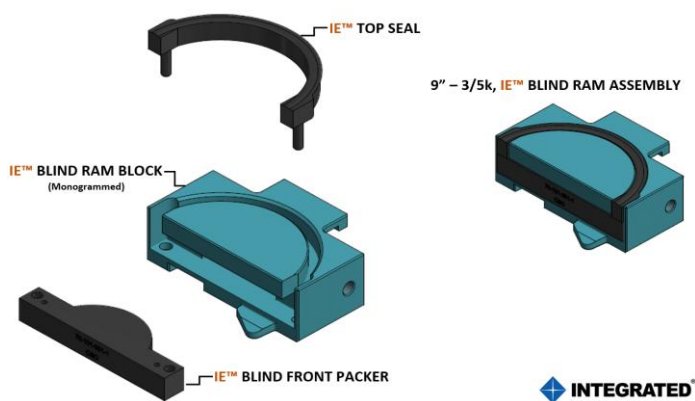
INTEGRATED® 9" – 3/5k Single (SR) Ram IE™ BOP



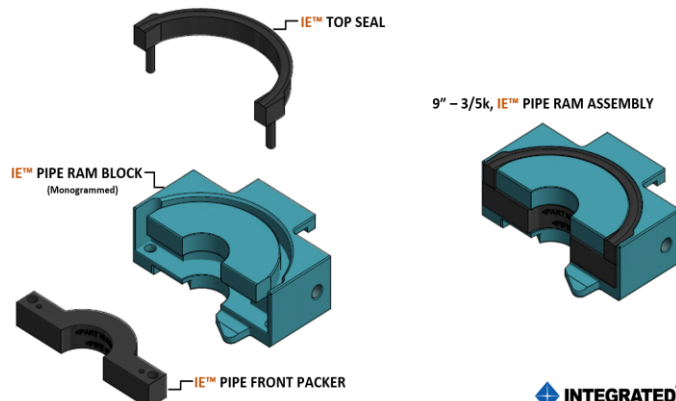
INTEGRATED® 9" – 3/5k Double (DR) Ram IE™ BOP



INTEGRATED® 9" 3/5k Triple (TR) Ram IE™ BOP



IE™ CSO (Blind) Ram Assembly



IE™ Pipe Ram Assembly

(All IE™ Ram Blocks are manufactured by INTEGRATED® - API 16A Edition 4 Monogrammed)

TOP SEAL:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg
3.05.01 Top Seal	CSO thru 7-5/8"	3/5k	XNBR	70-102-000	0.60	0.27

FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg
3.05.02 Front Packer – Radius	CSO	3/5k	XNBR	70-102-001-1	2.40	1.09
3.05.03 Front Packer	2-3/8"	3/5k	XNBR	70-102-002-2	2.40	1.09
3.05.04 Front Packer	2-7/8"	3/5k	XNBR	70-102-002-3	2.40	1.09
3.05.05 Front Packer	3-1/2"	3/5k	XNBR	70-102-002-5	2.40	1.09
3.05.06 Front Packer	4"	3/5k	XNBR	70-102-002-6	3.00	1.36
3.05.07 Front Packer	4-1/2"	3/5k	XNBR	70-102-002-7	2.80	1.27
3.05.08 Front Packer	5"	3/5k	XNBR	70-102-002-9	2.40	1.09
3.05.09 Front Packer	5-1/2"	3/5k	XNBR	70-102-002-19	2.00	0.91
3.05.10 Front Packer	6-5/8"	3/5k	XNBR	70-102-002-15	2.00	0.91
3.05.11 Front Packer	7"	3/5k	XNBR	70-102-002-16	2.00	0.91
3.05.12 Front Packer	7-5/8"	3/5k	XNBR	70-102-002-17	2.00	0.91

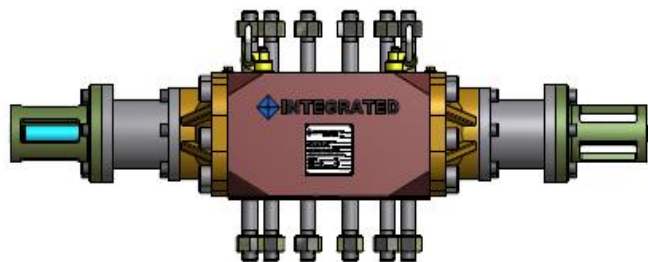
FLEX, MULTI RAM OR VBR – TOP SEALS AND FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg

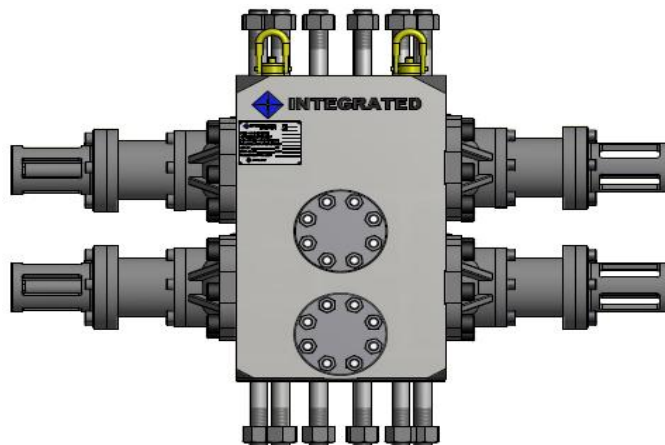
No Flex, Multi Ram or VBR offered for 9" – 3/5k IE™

3 RAM BOP ELASTOMERS

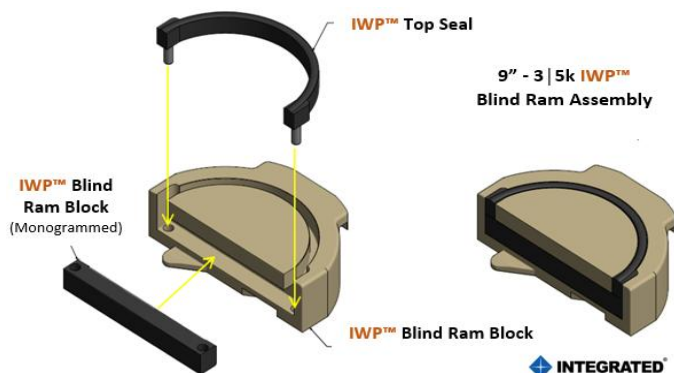
3.06 9" – 3/5k IWPT™ RAM ELASTOMERS (LWP Style)



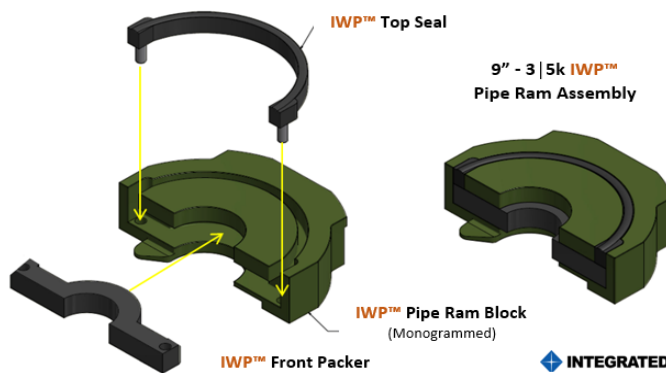
INTEGRATED® 9" – 3/5k, Single (SR) Ram IWPT™ BOP



INTEGRATED® 9" – 3/5k, Double (DR) Ram IWPT™ BOP



IWPT™ CSO (Blind) Ram Assembly



IWPT™ Pipe Ram Assembly

(All IWPT™ Ram Blocks are manufactured by INTEGRATED® - API 16A Edition 4 Monogrammed)

TOP SEAL:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg
3.06.01 Top Seal	Fits CSO Thru 5-1/2"	3/5k	XNBR	70-102-000	0.60	0.27

FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg
3.06.02 Front Packer – Flat Back	CSO	3/5k	XNBR	70-102-001	2.00	0.91
3.06.03 Front Packer – Radius	CSO	3/5k	XNBR	70-102-001-1	2.40	1.09
3.06.04 Front Packer	2-3/8"	3/5k	XNBR	70-102-002-2	2.40	1.09
3.06.05 Front Packer	2-7/8"	3/5k	XNBR	70-102-002-3	2.40	1.09
3.06.06 Front Packer	3-1/2"	3/5k	XNBR	70-102-002-5	2.00	0.91
3.06.07 Front Packer	4"	3/5k	XNBR	70-102-002-6	3.00	1.36
3.06.08 Front Packer	4-1/2"	3/5k	XNBR	70-102-002-7	2.80	1.27
3.06.09 Front Packer	5"	3/5k	XNBR	70-102-002-9	2.40	1.09
3.06.10 Front Packer	5-1/2"	3/5k	XNBR	70-102-002-19	2.00	0.91

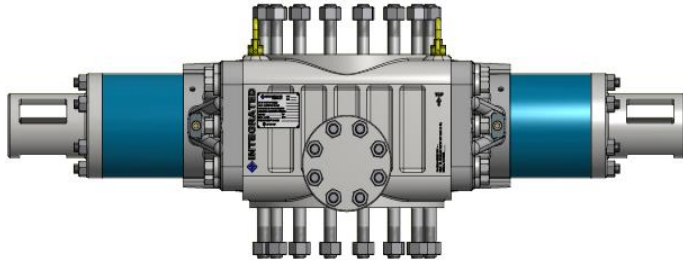
FLEX, MULTI RAM OR VBR – TOP SEALS AND FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg

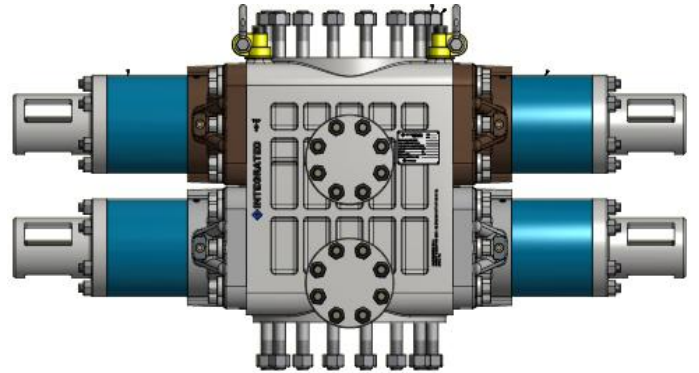
No Flex, Multi Ram or VBR offered for 9" – 3/5k IWPT™

3 RAM BOP ELASTOMERS

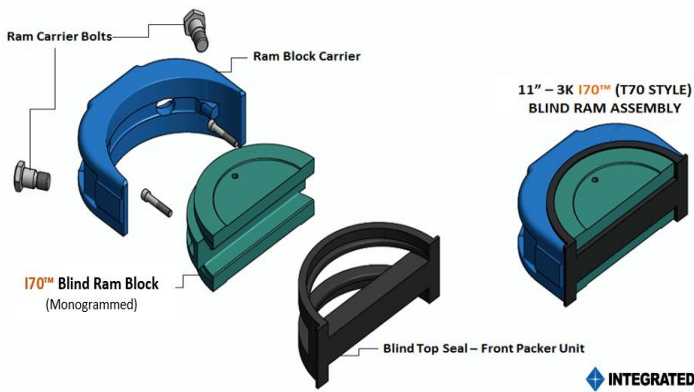
3.07 11" – 3k I70™ (IWS™) RAM ELASTOMERS (LWS Style)



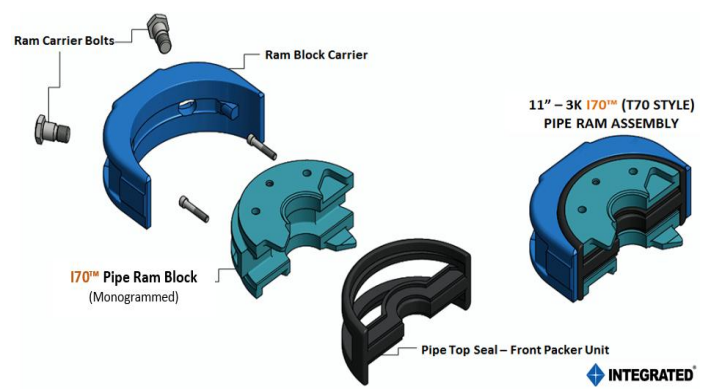
INTEGRATED® 11" – 3k, Single (SR) Ram IWS™ BOP



INTEGRATED® 11" – 3k, Double (DR) Ram IWS™ BOP



170™ CSO (Blind) Ram Assembly



170™ Pipe Ram Assembly

(All I70™ Ram Blocks & Carriers are manufactured by INTEGRATED® - API 16A Edition 4 Monogrammed)

FRONT PACKER – TOP SEAL UNITS:

Part Description	Size	Pressure Rating	Part Number NBR Material	Part Number XNBR Material	Part Number HNBR Material	Weight Per Unit		
						lbs	kg	
3.07.01	Front Packer – Top Seal Unit	CSO	3k	70-401-711	70-401-711-XBR	70-401-711-HSN	6.40	2.90
3.07.02	Front Packer – Top Seal Unit	2-3/8"	3k	70-401-711-1	70-401-711-1-XBR	70-401-711-1-HSN	6.80	3.08
3.07.03	Front Packer – Top Seal Unit	2-7/8"	3k	70-401-711-2	70-401-711-2-XBR	70-401-711-2-HSN	6.80	3.08
3.07.04	Front Packer – Top Seal Unit	3-1/2"	3k	70-401-711-4	70-401-711-4-XBR	70-401-711-4-HSN	6.60	2.99
3.07.05	Front Packer – Top Seal Unit	4"	3k	70-401-711-5	70-401-711-5-XBR	70-401-711-5-HSN	7.00	3.18
3.07.06	Front Packer – Top Seal Unit	4-1/2"	3k	70-401-711-6	70-401-711-6-XBR	70-401-711-6-HSN	7.00	3.18
3.07.07	Front Packer – Top Seal Unit	5"	3k	70-401-711-7	70-401-711-7-XBR	70-401-711-7-HSN	6.80	3.08
3.07.08	Front Packer – Top Seal Unit	5-1/2"	3k	70-401-711-8	70-401-711-8-XBR	70-401-711-8-HSN	6.80	3.08
3.07.09	Front Packer – Top Seal Unit	6-5/8"	3k	70-401-711-9	70-401-711-9-XBR	70-401-711-9-HSN	6.60	2.99
3.07.10	Front Packer – Top Seal Unit	7"	3k	70-401-711-10	70-401-711-10-XBR	70-401-711-10-HSN	6.40	2.90
3.07.11	Front Packer – Top Seal Unit	7-5/8"	3k	70-401-711-11	70-401-711-11-XBR	70-401-711-11-HSN	6.40	2.90

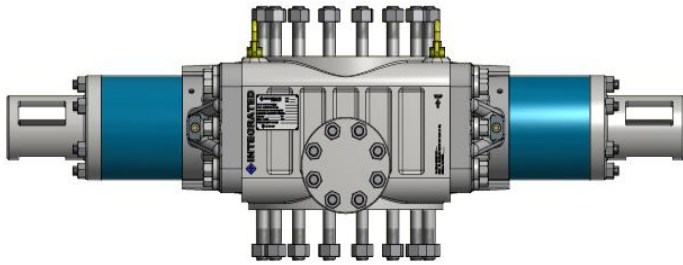
MULTI RAM – TOP SEALS AND FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit	
					lbs	kg

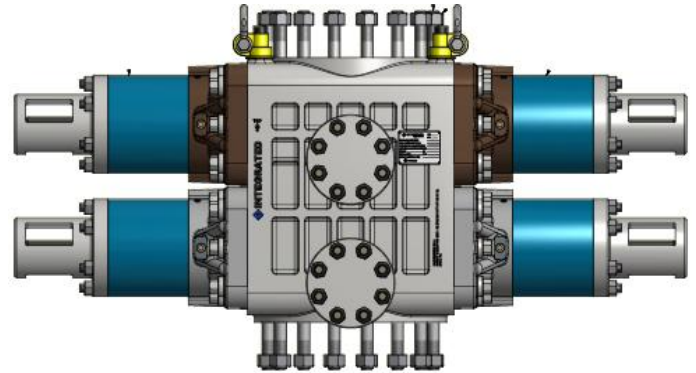
No Multi Ram for 11" – 3k I70™

3 RAM BOP ELASTOMERS

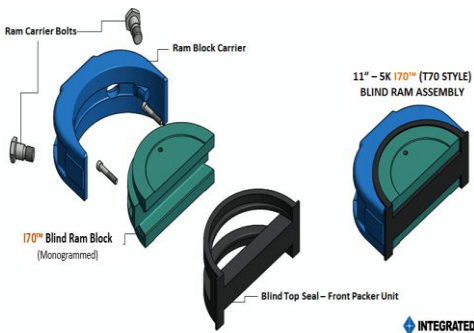
3.08 11" – 5k I70™ (IWS™) RAM ELASTOMERS (LWS Style)



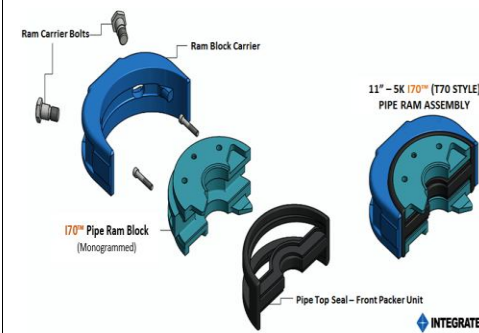
INTEGRATED® 11" – 5k, Single (SR) Ram IWS™ BOP



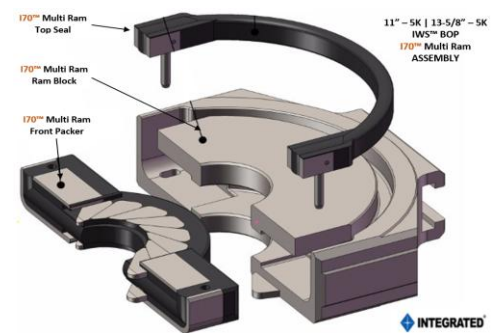
INTEGRATED® 11" – 5k, Double (DR) Ram IWS™ BOP



I70™ CSO (Blind) Ram Assembly



I70™ Pipe Ram Assembly



I70™ Multi Ram Assembly

(All I70™ Ram Blocks & Carriers are manufactured by INTEGRATED® - API 16A Edition 4 Monogrammed)

FRONT PACKER – TOP SEAL UNITS:

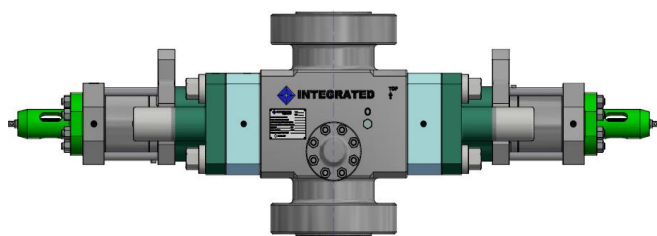
Part Description	Size	Pressure Rating	Part Number NBR Material	Part Number XNBR Material	Part Number HNBR Material	Weight Per Unit		
						lbs	kg	
3.08.01	Front Packer – Top Seal Unit	CSO	5k	70-401-701	70-401-701-XBR	70-401-701-HSN	7.20	3.27
3.08.02	Front Packer – Top Seal Unit	2-3/8"	5k	70-401-701-1	70-401-701-1-XBR	70-401-701-1-HSN	7.20	3.27
3.08.03	Front Packer – Top Seal Unit	2-7/8"	5k	70-401-701-2	70-401-701-2-XBR	70-401-701-2-HSN	7.20	3.27
3.08.04	Front Packer – Top Seal Unit	3-1/2"	5k	70-401-701-4	70-401-701-4-XBR	70-401-701-4-HSN	7.00	3.18
3.08.05	Front Packer – Top Seal Unit	4"	5k	70-401-701-5	70-401-701-5-XBR	70-401-701-5-HSN	7.60	3.45
3.08.06	Front Packer – Top Seal Unit	4-1/2"	5k	70-401-701-6	70-401-701-6-XBR	70-401-701-6-HSN	7.60	3.45
3.08.07	Front Packer – Top Seal Unit	5"	5k	70-401-701-7	70-401-701-7-XBR	70-401-701-7-HSN	7.40	3.36
3.08.08	Front Packer – Top Seal Unit	5-1/2"	5k	70-401-701-8	70-401-701-8-XBR	70-401-701-8-HSN	7.40	3.36
3.08.09	Front Packer – Top Seal Unit	6-5/8"	5k	70-401-701-9	70-401-701-9-XBR	70-401-701-9-HSN	7.20	3.27
3.08.10	Front Packer – Top Seal Unit	7"	5k	70-401-701-10	70-401-701-10-XBR	70-401-701-10-HSN	7.00	3.18
3.08.11	Front Packer – Top Seal Unit	7-5/8"	5k	70-401-701-11	70-401-701-11-XBR	70-401-701-11-HSN	7.00	3.18

MULTI RAM – TOP SEALS AND FRONT PACKERS:

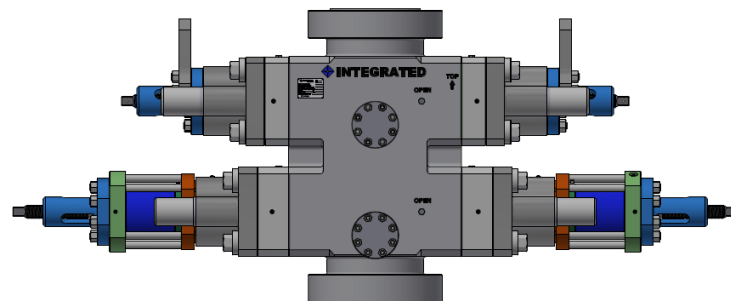
Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.08.12	Multi Ram Top Seal	2-7/8" to 5"	5k	NBR	70-401-701-V1	0.00	0.00
3.08.13	Multi Ram Front Packer	2-7/8" to 5"	5k	NBR	70-401-701-V	9.20	4.17

3 RAM BOP ELASTOMERS

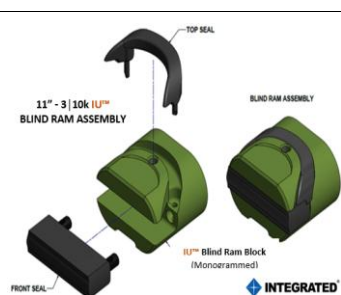
3.09 11" – 3/10k IU™ RAM ELASTOMERS (U Style)



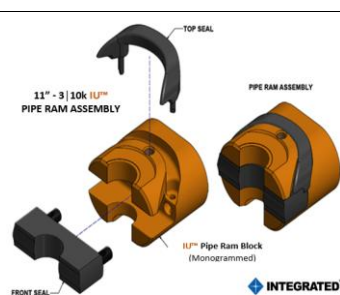
INTEGRATED® 11" – 3/10k, Single (SR) Ram Forged Shear IU™ BOP



INTEGRATED® 11" – 3/10k, Double (DR) Ram Forged Shear IU™ BOP



IU™ CSO (Blind) Ram Assembly



IU™ Pipe Ram Assembly



IU™ Variable Bore Ram Assembly (VBR)



IU™ Shear Blind Ram Assembly (SBR)

(All IU™ Ram Blocks are manufactured by INTEGRATED® - API 16A Edition 4 Monogrammed)

TOP SEALS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.09.01	Top Seal	CSO thru 9-5/8"	3/10k	XNBR	70-1105-00316	1.50	0.73
3.09.02	Top Seal	Shear Blind Ram (SBR)	3/10k	XNBR	70-1105-00316	1.50	0.73
3.09.03	Top Seal	Variable Bore Ram (VBR)	3/10k	XNBR	70-1105-00316	1.50	0.73

Note: The 11" Top Seal is universal to CSO, all Pipe, SBR and VBR

FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.09.04	Front Packer	CSO	3/10k	XNBR	70-1105-00303	11.60	5.26
3.09.05	Front Packer	2-3/8"	3/10k	XNBR	70-1105-00304	10.80	4.90
3.09.06	Front Packer	2-7/8"	3/10k	XNBR	70-1105-00305	10.60	4.81
3.09.07	Front Packer	3-1/2"	3/10k	XNBR	70-1105-00306	10.40	4.72
3.09.08	Front Packer	4"	3/10k	XNBR	70-1105-00307	10.20	4.63
3.09.09	Front Packer	4-1/2"	3/10k	XNBR	70-1105-00308	10.40	4.72
3.09.10	Front Packer	5"	3/10k	XNBR	70-1105-00309	10.40	4.72
3.09.11	Front Packer	5-1/2"	3/10k	XNBR	70-1105-00310	12.00	5.44
3.09.12	Front Packer	6-5/8"	3/10k	XNBR	70-1105-00311	11.00	4.99
3.09.13	Front Packer	7"	3/10k	XNBR	70-1105-00312	9.80	4.45
3.09.14	Front Packer	7-5/8"	3/10k	XNBR	70-1105-00313	9.80	4.45
3.09.15	Front Packer	8-5/8"	3/10k	XNBR	70-1105-00314	9.60	4.35
3.09.16	Front Packer	9-5/8"	3/10k	XNBR	70-1105-00315	9.40	4.26

VARIABLE BORE RAM (VBR): FRONT PACKERS:

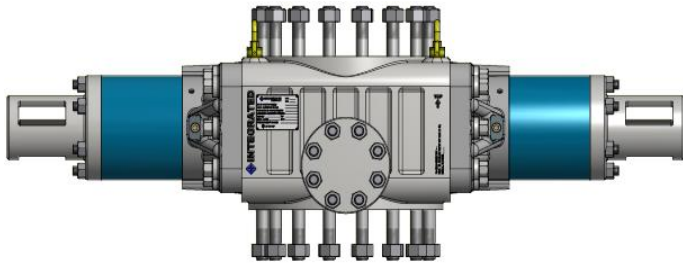
Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.09.17	VBR Front Packer	2-7/8" to 5"	3/10k	NBR	70-1105-00217	27.00	12.3

SHEAR BLIND RAM (SBR): BLADE PACKER | SIDE PARKERS | TOP SEAL:

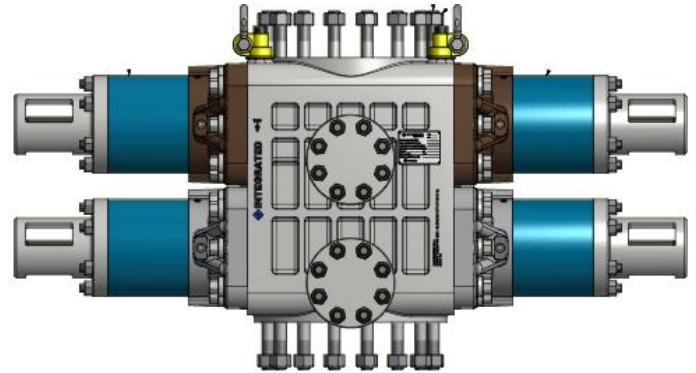
Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.09.18	SBR – Blade Packer	11"	3/10k	XNBR	70-1110-00134	3.00	1.36
3.09.19	SBR – Right Side Packer 01	11"	3.10k	XNBR	70-1110-00135	2.20	0.99
3.09.20	SBR – Left Side Packer 02	11"	3/10k	XNBR	70-1110-00136	2.20	0.99

3 RAM BOP ELASTOMERS

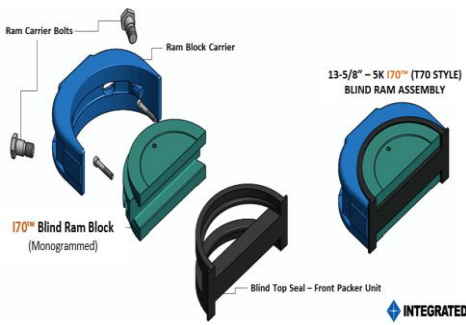
3.10 13-5/8" – 5k I70™ (IWS™) RAM ELASTOMERS (LWS Style)



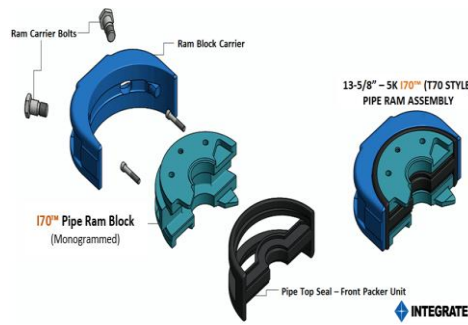
INTEGRATED® 13-5/8" – 5k, Single (SR) Ram IWS™ BOP



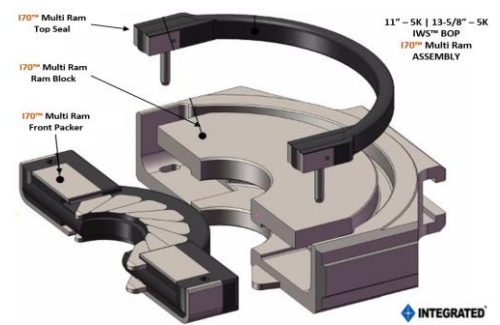
INTEGRATED® 13-5/8" – 5k, Double (DR) Ram IWS™ BOP



170™ CSO (Blind) Ram Assembly



170™ Pipe Ram Assembly



170™ Multi Ram Assembly

(All 170™ Ram Blocks & Carriers are manufactured by INTEGRATED® - API 16A Edition 4 Monogrammed)

FRONT PACKER – TOP SEAL UNITS:

Part Description	Size	Pressure Rating	Part Number NBR Material	Part Number XNBR Material	Part Number HNBR Material	Weight Per Unit		
						lbs	kg	
3.10.01	Front Packer – Top Seal Unit	CSO	5k	70-401-801	70-401-801-XBR	70-401-801-HSN	8.40	3.81
3.10.02	Front Packer – Top Seal Unit	2-3/8"	5k	70-401-801-1	70-401-801-1-XBR	70-401-801-1-HSN	8.40	3.81
3.10.03	Front Packer – Top Seal Unit	2-7/8"	5k	70-401-801-2	70-401-801-2-XBR	70-401-801-2-HSN	8.40	3.81
3.10.04	Front Packer – Top Seal Unit	3-1/2"	5k	70-401-801-3	70-401-801-3-XBR	70-401-801-3-HSN	8.20	3.72
3.10.05	Front Packer – Top Seal Unit	4"	5k	70-401-801-4	70-401-801-4-XBR	70-401-801-4-HSN	8.80	4.00
3.10.06	Front Packer – Top Seal Unit	4-1/2"	5k	70-401-801-5	70-401-801-5-XBR	70-401-801-5-HSN	8.80	4.00
3.10.07	Front Packer – Top Seal Unit	5"	5k	70-401-801-6	70-401-801-6-XBR	70-401-801-6-HSN	8.60	3.90
3.10.08	Front Packer – Top Seal Unit	5-1/2"	5k	70-401-801-7	70-401-801-7-XBR	70-401-801-7-HSN	8.60	3.90
3.10.09	Front Packer – Top Seal Unit	6-5/8"	5k	70-401-801-8	70-401-801-8-XBR	70-401-801-8-HSN	8.40	3.81
3.10.10	Front Packer – Top Seal Unit	7"	5k	70-401-801-9	70-401-801-9-XBR	70-401-801-9-HSN	8.40	3.81
3.10.11	Front Packer – Top Seal Unit	7-5/8"	5k	70-401-801-10	70-401-801-10-XBR	70-401-801-10-HSN	8.40	3.81
3.10.12	Front Packer – Top Seal Unit	8-5/8"	5k	70-401-801-11	70-401-801-11-XBR	70-401-801-11-HSN	7.80	3.54
3.10.13	Front Packer – Top Seal Unit	9-5/8"	5k	70-401-801-12	70-401-801-12-XBR	70-401-801-12-HSN	7.80	3.54

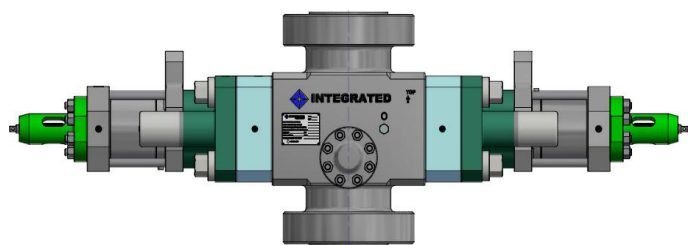
MULTI RAM – TOP SEALS AND FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.10.14	Multi Ram – Top Seal	2-7/8" to 5"	5k	NBR	70-135101-V01	1.00	0.45
3.10.15	Multi Ram – Top Seal	4-1/2" to 7"	5k	NBR	70-135101-V04	1.00	0.45
3.10.16	Multi Ram - Front Packer	2-7/8" to 5"	5k	NBR	70-135101-V02	9.20	4.17
3.10.17	Multi Ram – Front Packer	4-1/2" to 7"	5k	NBR	70-135101-V05	9.20	4.17

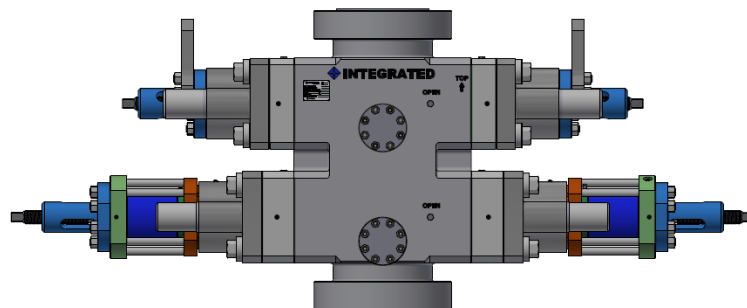
The 13-5/8" – 5k 170™ Multi Ram Top Seal is different for the 2-7/8" to 5" and 4-1/2" to 7"

3 RAM BOP ELASTOMERS

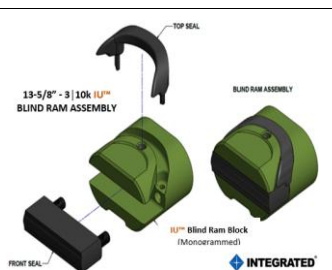
3.11 13-5/8" – 3/10k IU™ RAM ELASTOMERS (U Style)



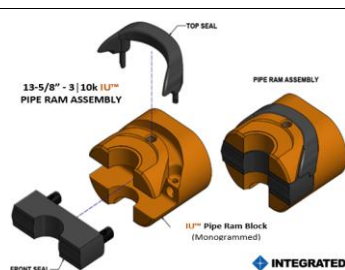
INTEGRATED® 13-5/8" – 3/10k, Single (SR) Ram Forged Shear IU™ BOP



INTEGRATED® 13-5/8" – 3/10k, Double (DR) Ram Forged Shear IU™ BOP



IU™ CSO (Blind) Ram Assembly



IU™ Pipe Ram Assembly



IU™ Variable Bore Ram Assembly (VBR)



IU™ Shear Blind Ram Assembly (SBR)

(All IU™ Ram Blocks & Carriers are manufactured by INTEGRATED® - API 16A Edition 4 Monogrammed)

TOP SEALS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.11.01	Top Seal	CSO Thru 9-5/8"	3/5/10k	XNBR	70-1303-00022	2.00	0.91
3.11.02	Top Seal	Shear Blind Ram (SBR)	3/5/10k	XNBR	70-1303-00022	2.00	0.91
3.11.03	Top Seal	Variable Bore Ram (VBR)	3/5/10k	XNBR	70-1303-00022 -V	2.00	0.91

Note: The 13-5/8" Top Seal is universal to CSO, all Pipe and SBR

FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.11.04	Front Packer	CSO	3/5/10k	XNBR	70-1303-00027	17.00	8.62
3.11.05	Front Packer	2-3/8"	3/5/10k	XNBR	70-1303-00041	16.00	7.26
3.11.06	Front Packer	2-7/8"	3/5/10k	XNBR	70-1303-00042	16.00	7.26
3.11.07	Front Packer	3-1/2"	3/5/10k	XNBR	70-1303-00043	19.00	8.62
3.11.08	Front Packer	4"	3/5/10k	XNBR	70-1303-00044	18.80	8.53
3.11.09	Front Packer	4-1/2"	3/5/10k	XNBR	70-1303-00045	18.20	8.26
3.11.10	Front Packer	5"	3/5/10k	XNBR	70-1303-00046	17.00	7.71
3.11.11	Front Packer	5-1/2"	3/5/10k	XNBR	70-1303-00047	16.60	7.53
3.11.12	Front Packer	6-5/8"	3/5/10k	XNBR	70-1303-00049	17.00	7.71
3.11.13	Front Packer	7"	3/5/10k	XNBR	70-1303-00020	20.60	9.34
3.11.14	Front Packer	7-5/8"	3/5/10k	XNBR	70-1303-00050	19.40	8.80
3.11.15	Front Packer	8-5/8"	3/5/10k	XNBR	70-1303-00051	14.90	8.11
3.11.16	Front Packer	9-5/8"	3/5/10k	XNBR	70-1303-00021	12.80	5.80

VARIABLE BORE RAM (VBR): FRONT PACKERS:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.11.17	VBR – Front Packer	2-7/8" to 5"	3/5/10k	NBR	70-1303-00017	35.00	15.90
3.11.18	VBR – Front Packer	3-1/2" to 5-1/2"	3/5/10k	NBR	70-1303-00017	35.00	15.90
3.11.19	VBR – Front Packer	4-1/2" to 7"	3/5/10k	NBR	70-1303-00016	35.00	15.90

SHEAR BLIND RAM (SBR): BLADE PACKER | SIDE PACKERS | TOP SEAL:

Part Description	Size	Pressure Rating	Material	Part Number	Weight Per Unit		
					lbs	kg	
3.11.20	SBR – Blade Packer	13-5/8"	3/5/10k	XNBR	70-1310-00180	3.80	1.70
3.11.21	SBR – Right Side Packer 01	13-5/8"	3/5/10k	XNBR	70-1310-00181	2.80	1.27
3.11.22	SBR – Left Side Packer 02	13-5/8"	3/5/10k	XNBR	70-1310-00182	2.80	1.27

For 13-5/8" – 3/10k IU™, the VBR Front Packer for the 2-7/8" to 5" and 3-1/2" to 5-1/2" are the same. The only difference is the Ram Block

4 RAM BOP SEAL KITS (CARDED)



INTEGRATED CARDED RAM SEAL KITS

IE™ (WSI Style) RAM SEAL KIT

Part Description	Size	Pressure	Part Number	Weight Per Unit	
				lbs	kg
4.01 7-1/16" 3/5k IE™ Ram Hydraulic Complete Seal Kit	7-1/16"	3/5k	70-102-041k	3.00	1.36

IE™ - T81 COMBO RAM SEAL KIT

Part Description	Size	Pressure	Part Number	Weight Per Unit	
				lbs	kg
4.02 7-1/16" - 3/5k IE™ - T81 Hydraulic Ram Complete Seal Kit	7-1/16"	3/5k	70-IE81-5k	3.00	1.36

T81 (Cameron) | SENTRY (Hydril) | LXT (NOV) | CHASOVOY (NOV) RAM SEAL KITS

Part Description	Size	Pressure	Part Number	Weight Per Unit	
				lbs	kg
4.03 7-1/16" – 5k T81 Hydraulic Ram Seal Kit	7-1/16"	3/5k	70-TH8100 (TH8100)	3.00	1.36
4.04 7-1/16" – 5k T81 Manual Ram Seal Kit	7-1/16"	5k	70-TM8100 (TM8100)	2.20	1.00
4.05 7-1/16" – 5k, LWS Hydraulic Ram Complete Seal Kit	7-1/16"	5k	82-880000	10.20	5.63
4.06 7-1/16" – 5k Sentry Hydraulic Ram Seal Kit	7-1/16"	5k	70-3117169	4.00	1.00
4.07 7-1/16" – 3/5k LXT Hydraulic Ram Complete Seal Kit	7-1/16"	3/5k	70-722001-LXT	4.00	1.00
4.08 7-1/16" – 3/5k, Chasovoy Hydraulic Ram Seal Kit	7-1/16"	3/5k	70-185151	4.00	1.00

IE™ RAM SEAL KIT

Part Description	Size	Pressure	Part Number	Weight Per Unit	
				lbs	kg
4.09 9" - 3/5k IE™ Ram Hydraulic Complete Seal Kit	9"	3/5k	70-1H9100	3.40	1.54

IE™ RAM SEAL KIT

Part Description	Size	Pressure	Part Number	Weight Per Unit	
				lbs	kg
4.10 9" – 3k IWPT™ Ram Complete Seal Kit	9"	3k	70-102-040	3.40	1.54

IWS™ (LWS Style) RAM SEAL KITS

Part Description	Size	Pressure	Part Number	Weight Per Unit	
				lbs	kg
4.11 11" – 3k IWS™ Hydraulic Ram Complete Seal Kit	11"	3k	82-880001	20.00	9.07
4.12 11" – 3k IWS™ Hydraulic Ram Soft Goods Seal Kit	11"	3k	82-880001-SG	4.00	1.80
4.13 11" – 5k IWS™ Hydraulic Ram Complete Seal Kit	11"	5k	82-881100	20.00	9.07
4.14 11" – 5k IWS™ Hydraulic Ram Soft Goods Seal Kit	11"	5k	82-881100-SG	4.00	1.80
4.15 13-5/8" – 5k IWS™ Hydraulic Ram Complete Seal Kit	13-5/8"	5k	82-80011	22.00	9.98
4.16 13-5/8" – 5k IWS™ Hydraulic Ram Soft Goods Seal Kit	13-5/8"	5k	82-80011-SG	4.00	1.80

4 RAM BOP SEAL KITS (CARDED)

IUTM (U Style) RAM SEAL KITS | MUD SEAL KIT | CONROD SEAL

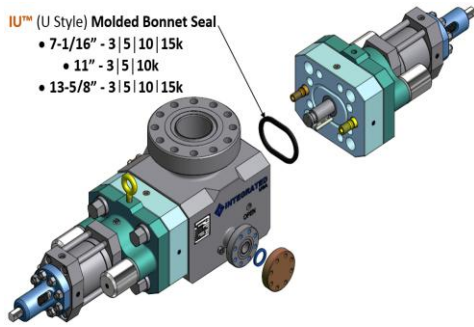
	Part Description	Size	Pressure	Part Number	Weight Per Unit	
					lbs	kg
4.17	7-1/16" - 3/15k IUTM Ram Standard Complete Seal Kit	7-1/16"	3/10k	95-076449092-SB-CRK	6.50	2.95
4.18	7-1/16" - 3/15k IUTM Ram Standard Soft Goods Seal Kit	7-1/16"	3/10k	95-076449092-SB-SGK	2.50	1.15
4.19	7-1/16" - 3/15k IUTM Ram Standard Hard Goods Seal Kit	7-1/16"	3/10k	95-076449062-SB-HGK	4.00	1.80
4.20	7-1/16" - 3/15k IUTM Ram Large Bore Complete Seal Kit	7-1/16"	3/10k	95-07644860-LB-CRK	8.00	3.63
4.21	7-1/16" - 3/15k IUTM Ram Large Bore Soft Goods Seal Kit	7-1/16"	3/10k	95-07644860-LB-SGK	2.50	1.15
4.22	7-1/16" - 3/15k IUTM Ram Large Bore Hard Goods Seal Kit	7-1/16"	3/10k	95-07644860-LB-HGK	4.00	1.80
4.23	7-1/16" - 3/15k IUTM Ram Tandem Booster Complete Seal Kit	7-1/16"	3/10k	95-0702232403-TB-CRK	7.00	3.17
4.24	7-1/16" - 3/15k IUTM Ram Tandem Booster Soft Goods Seal Kit	7-1/16"	3/10k	95-0702232403-TB-SGK	1.75	0.80
4.25	7-1/16" - 3/15k IUTM Ram Tandem Booster Hard Goods Seal Kit	7-1/16"	3/10k	95-0702232403-TB-HGK	5.25	2.27
4.26	7-1/16" - 3/15k IUTM Ram Mud Seal Kit	7-1/16"	3/10k	70-0703-MSK	1.00	0.45
4.27	7-1/16" - 3/15k IUTM Ram Conrod Seal	7-1/16"	3/10k	82-117-4137	0.00	0.00

	Part Description	Size	Pressure	Part Number	Weight Per Unit	
					lbs	kg
4.28	11" - 3/10k IUTM Ram Standard Complete Seal Kit	11"	3/5/10k	95-116449092-SB-CRK	10.00	4.54
4.29	11" - 3/10k IUTM Ram Standard Soft Goods Seal Kit	11"	3/5/10k	95-116449092-SB-SGK	6.00	2.74
4.30	11" - 3/10k IUTM Ram Standard Hard Goods Seal Kit	11"	3/5/10k	95-116449092-SB-HGK	4.00	1.80
4.31	11" - 3/10k IUTM Ram Large Bore Complete Seal Kit	11"	3/5/10k	95-11644860-LB-CRK	14.00	6.35
4.32	11" - 3/10k IUTM Ram Large Bore Soft Goods Seal Kit	11"	3/5/10k	95-11644860-LB-SGK	10.00	4.55
4.33	11" - 3/10k IUTM Ram Large Bore Hard Goods Seal Kit	11"	3/5/10k	95-11644860-LB-HGK	4.00	1.80
4.34	11" - 3/10k IUTM Ram Tandem Booster Complete Seal Kit	11"	3/5/10k	95-11132164148-TB-CRK	10.00	4.54
4.35	11" - 3/10k IUTM Ram Tandem Booster Soft Goods Seal Kit	11"	3/5/10k	95-11132164148-TB-SGK	2.25	1.02
4.36	11" - 3/10k IUTM Ram Tandem Booster Hard Goods Seal Kit	11"	3/5/10k	95-11132164148-TB-HGK	7.75	3.52
4.37	11" - 3/10k IUTM Ram Conrod Seal	11"	3/5/10k	82-117-4138	0.00	0.00

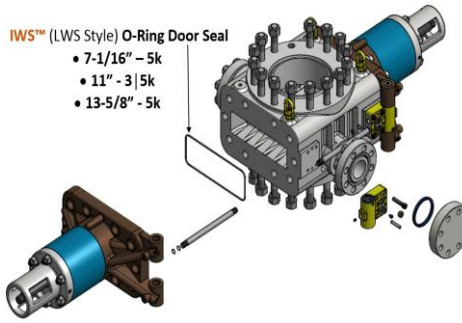
	Part Description	Size	Pressure	Part Number	Weight Per Unit	
					lbs	kg
4.38	13-5/8" - 3/10k IUTM Ram Standard Complete Seal Kit	13-5/8"	3/5/10k	95-136449092-SB-CRK	12.00	4.54
4.39	13-5/8" - 3/10k IUTM Ram Standard Soft Goods Seal Kit	13-5/8"	3/5/10k	95-136449092-SB-SGK	8.00	3.63
4.40	13-5/8" - 3/10k IUTM Ram Standard Hard Goods Seal Kit	13-5/8"	3/5/10k	95-136449092-SB-HGK	4.00	1.80
4.41	13-5/8" - 3/10k IUTM Ram Large Bore Complete Seal Kit	13-5/8"	3/5/10k	95-13644860-LB-CRK	16.00	6.35
4.42	13-5/8" - 3/10k IUTM Ram Large Bore Soft Goods Seal Kit	13-5/8"	3/5/10k	95-13644860-LB-SGK	12.00	4.55
4.43	13-5/8" - 3/10k IUTM Ram Large Bore Hard Goods Seal Kit	13-5/8"	3/5/10k	95-13644860-LB-HGK	4.00	1.80
4.44	13-5/8" - 3/10k IUTM Ram Tandem Booster Complete Seal Kit	13-5/8"	3/5/10k	95-11132164148-TB-CRK	10.00	4.54
4.45	13-5/8" - 3/10k IUTM Ram Tandem Booster Soft Goods Seal Kit	13-5/8"	3/5/10k	95-11132164148-TB-SGK	2.25	1.02
4.46	13-5/8" - 3/10k IUTM Ram Tandem Booster Hard Goods Seal Kit	13-5/8"	3/5/10k	95-11132164148-TB-HGK	7.75	3.52
4.47	13-5/8" - 3/10k IUTM Ram Conrod Seal	13-5/8"	3/5/10k	82-117-4136	0.00	0.00

5 RAM BOP DOOR SEALS

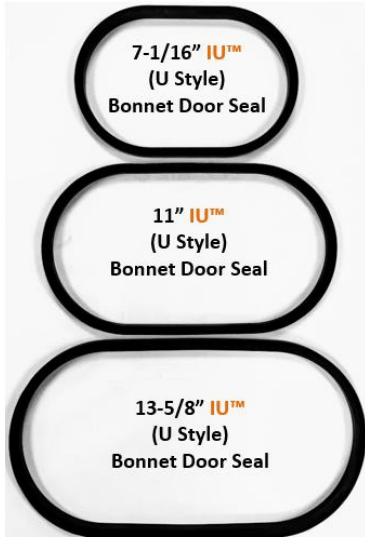
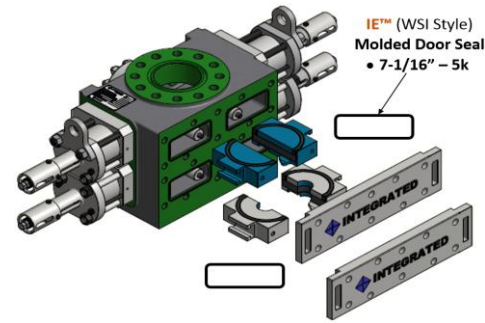
IU™ (U Style) Molded Bonnet Seal
 • 7-1/16" - 3/5 | 10 | 15k
 • 11" - 3/5 | 10k
 • 13-5/8" - 3/5 | 10 | 15k



IWS™ (LWS Style) O-Ring Door Seal
 • 7-1/16" - 5k
 • 11" - 3/5k
 • 13-5/8" - 5k



IE™ (WSI Style) Molded Door Seal
 • 7-1/16" - 5k



IU™ (U Style) Molded Bonnet Door Seal

IWS™ (LWS Style) Door Seal

IE™ (WSI Style) Molded Door Seal

DOOR SEALS

Part Description	Size	Pressure	Part Number	Weight Per Unit	
				lbs	kg
5.01 7-1/16" - 5k IE™ Door Seal (O-Ring Style) (442-70)	7-1/16"	5k	70-0705-00025	0.00	0.00
5.02 7-1/16" - 5k IE™ Door Seal High Temp (O-Ring Style)	7-1/16"	5k	70-0705-00025-HT	0.00	0.00
5.03 7-1/16" - 5k IE™ Door Seal (Molded Style)	7-1/16"	5k	17-110-102	0.00	0.00
5.04 7-1/16" - 5k LWS Door Seal – O-Ring Style (451-90)	7-1/16"	5k	17-100-100	0.00	0.00
5.05 7-1/16" - 3/15k IU™ Bonnet Door Seal (Molded Style)	7-1/16"	3/15k	82-190-6012	0.00	0.00
5.06 9" - 3/5k IE™ Door Seal – O-Ring Style (451-90)	9"	3/5k	82-880442 (70-0451-9001)	0.00	0.00
5.07 9" - 3k IWP™ Door Seal – O-Ring Style (451-90)	9"	3k	17-110-100	0.00	0.00
5.08 11" - 3k IWS™ Door Seal – O-Ring Style (457-90)	11"	3k	70-02110320514	0.00	0.00
5.09 11" - 5k IWS™ Door Seal – O-Ring Style (460-90)	11"	5k	70-02110520514	0.00	0.00
5.10 11" - 3/10k IU™ Bonnet Door Seal (Molded Style)	11"	3/10k	82-906-013	0.00	0.00
5.11 13-5/8" - 5k IWS™ Door Seal – O-Ring Style (460-90)	13-5/8"	5k	70-02110520514	0.00	0.00
5.12 13-5/8" - 3/10k IU™ Bonnet Door Seal (Molded Style)	13-5/8"	3/10k	17-080-067	0.00	0.00

6 ANNULAR BOP SEAL KITS



ISA™ & IK™ Annular BOP Carded Seal Kit

Annular BOP Inspection & Seal Replacement

ISA™ | SPHERICAL ANNULAR SEAL KIT

	Part Description	Size	Pressure	Part Number	Weight Per Unit	
					lbs	kg
6.01	7-1/16" - 3/5k Spherical Annular ISA™ Seal Kit	7-1/16"	5k	82-221-55079	7.00	3.18
	7-1/16" - 3/5k Spherical Annular ISA™ Seal Kit w/Wear Band	7-1/16"	5k	82-221-55079-WB	10.00	4.54
	7-1/16" - 3/5k, Spherical Annular ISA™ Seal Kit w/I-Filter™ Seal	7-1/16"	5k	82-221-55079-WPR	7.00	3.18
	7-1/16" - 3/5k, Spherical Annular I-Filter™ Seal	7-1/16"	5k	95-0705-00012	0.00	0.00
6.02	9" - 3k Spherical Annular ISA™ Seal Kit	9"	3k	82-221-55077	7.00	3.18
	9" - 3k Spherical Annular ISA™ Seal Kit w/Wear Band	9"	3k	82-221-55077-WB	10.00	4.54
6.03	11" - 3k Spherical Annular ISA™ Seal Kit	11"	3k	82-221-55075	13.00	5.90
	11" - 3k Spherical Annular ISA™ Seal Kit w/Wear Band	11"	3k	82-221-55075-WB	15.00	6.80
6.04	11" - 5k Spherical Annular ISA™ Seal Kit	11"	5k	82-221-55030	14.00	6.35
	11" - 5k Spherical Annular ISA™ Seal Kit w/Wear Band	11"	5k	82-221-55030-WB	16.00	7.26
6.05	13-5/8" - 3/5k Spherical Annular ISA™ Seal Kit	13-5/8"	5k	82-221-55070	20.00	9.07
	13-5/8" - 3/5k Spherical Annular ISA™ Seal Kit w/Wear Band	13-5/8"	5k	82-221-55070-WB	23.00	10.43
6.06	21-1/4" - 2k Spherical Annular ISA™ Seal Kit	21-1/4"	2k	82-221-55067	28.00	12.70
	21-1/4" - 2k Spherical Annular ISA™ Seal Kit w/Wear Band	21-1/4"	2k	82-221-55067-WB	31.00	14.06

ISA™ | SPHERICAL ANNULAR WEAR BANDS

	Part Description	Pressure	Part Number	Weight Per Unit	
				lbs	kg
6.07	1" Wear Band x .093" (per inch)	1" x .093"	95-05110520172	0.00	0.00
	1" Wear Band x .125" (per foot)	1" x .125"	95-49223-1000	0.00	0.00
	0.5" Wear Band x .093" (per inch)	.5" x .093"	95-05110520180	0.00	0.00
	0.5" Wear Band x .125" (per foot)	.5" x .125"	95-49223-0500	0.00	0.00

IK™ | ANNULAR SEAL KIT (GK Style)

	Part Description	Size	Pressure	Part Number	Weight Per Unit	
					lbs	kg
6.08	7-1/16" - 3k Annular GK Style "Shortly" Seal Kit	7-1/16"	3k	82-200-50683	Qualified Outsource	
6.09	7-1/16" - 5k Annular IK™ Seal Kit	7-1/16"	5k	82-200-50684	12.00	5.44
6.10	11" - 5k Annular IK™ Seal Kit	11"	5k	82-200-50688	16.00	7.26
6.11	13-5/8" - 5k Annular IK™ Seal Kit	13-5/8"	5k	82-200-50690	19.00	8.62

7 ANNULAR BOP SEAL LAYOUT

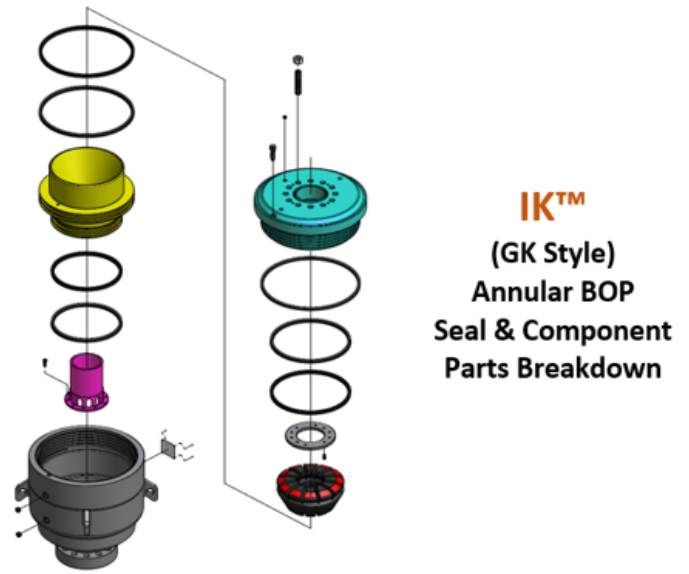
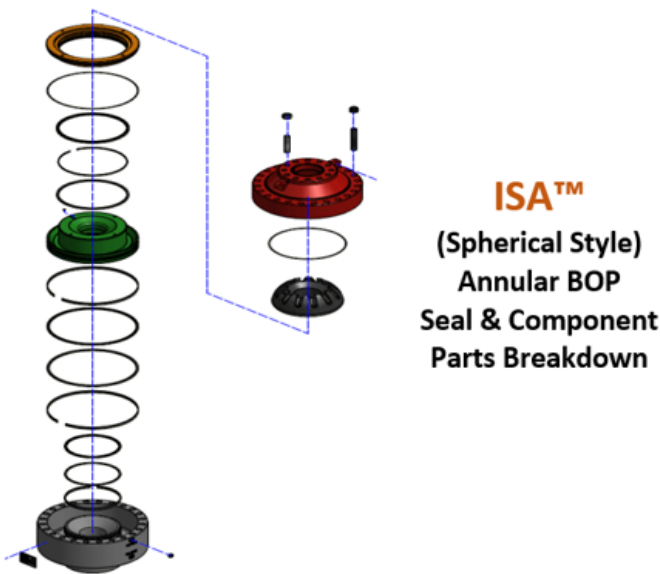
ISA™ SPHERICAL ANNULAR SEAL KIT BUILD OF MATERIAL (BOM):

Seal Description	Qty	7-1/16" – 3/5k	9" – 3k	11" – 3k	11" – 5k	13-5/8" – 3/5k	21-1/4" – 2k
Complete Carded Seal Kit Part Number		82-221-55079-WB	82-221-55077-WB	82-221-55075-WB	82-221-55030-WB	82-221-55070-WB	82-221-55067-WB
INDIVIDUAL SEALS / WEAR BANDS IN EACH COMPLETE CARDING KIT							
Piston I.D. Upper Seal	1	82-221-31105	82-221-31110	95-05110320173	95-05110320173	95-06130520173	30-000022
Piston I.D. Lower Seal	1	82-221-31000	82-221-31002	95-05110320174	95-05110320174	95-06130520174	30-000023
Piston O.D. Seal	2	82-221-30780	82-221-31012	95-05110320175	95-05110320175	95-06130520175	30-000019
Piston Skirt Seal	1	Not Required	Not Required	Not Required	Not Required	Not Required	30-000050
Adapter I.D. Upper Seal	1	82-221-31104	82-221-31109	95-05110320176	95-05110320176	95-06130520178	30-000026
Adapter I.D. Lower Seal	1	82-221-31002	82-221-31037	95-05110320177	95-05110320177	95-06130520177	30-000024
Adapter O.D. Seal	1	82-221-30408	82-221-30784	95-05110320181	95-05110320181	95-06130520181	30-000027
Adapter Top Seal	1	82-221-30405	82-221-31145	95-05110320182	95-05110320182	95-06130520176	30-000020
Adapter IFilter® Seal	1	95-0705-00012	Not Available	Not Available	Not Available	Not Available	Not Available
Wear Band - Lower Housing 1" Wide x .093" Thickness	2	95-05110520172 48" Length	95-05110520172 64" Length	95-05110520172 66" Length	95-05110520172 72" Length	95-05110520172 76" Length	95-05110520172 88" Length
Wear Band - Piston 1" Wide x .093" Thickness	1	95-05110520172 76" Length	95-05110520172 95" Length	95-05110520172 106" Length	95-05110520172 119" Length	95-05110520172 126" Length	95-05110520172 136" Length
Wear Band - Adapter 1/2" Wide x .093" Thickness	1	95-05110520180 58" Length	95-05110520180 77" Length	95-05110520180 86" Length	95-05110520180 85" Length	95-05110520180 99" Length	95-05110520180 115" Length

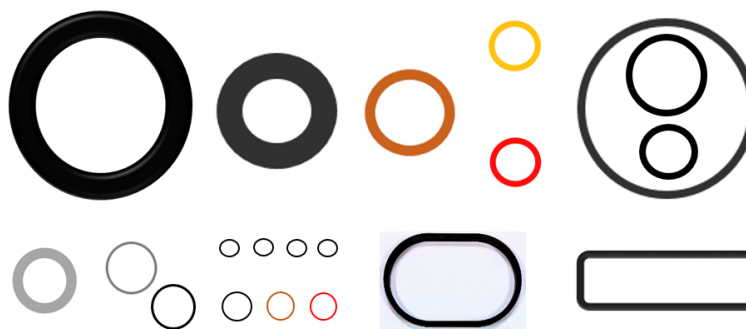
Note: The Adapter IFilter™ Seal (T Style Seal) was designed for Snubbing applications. We currently offer this in our 7-1/16" – 3/5k, Spherical Annular Forged ISA™ BOP. Our IFilter™ Seal can be offer in our 9", 11" and 13-5/8" Spherical Annular Forged ISA™ BOPs upon request.

IK™ (GK) ANNULAR SEAL KIT BUILD OF MATERIAL (BOM):

SEAL DESCRPTION	7-1/16" - 3K	7-1/16" – 5k	11" – 3k	11" – 5k	13-5/8" - 3K	13-5/8" - 5K
Complete Carded Seal Kit Master No.	82-200-50683	82-200-50684	82-200-50687	82-200-50688	82-200-50689	82-200-50690
INDIVIDUAL SEALS IN EACH KIT						
Head Gasket (Cap Seal)	82-200-31602	82-200-30690	82-200-31809	82-200-31402	82-200-30738	82-200-38150
Upper U Seal	82-200-31608	82-200-30689	82-200-31808	82-200-31408	82-200-30736	82-200-38151
Middle U Seal	82-200-30604	82-200-30688	82-200-31807	82-200-30736	82-200-30737	82-200-38152
Inner U Seals	Non-Required	Not Required	Not Required	Not Required	Not Required	Not Required
Lower U Seals	82-200-15614	82-200-30705	82-200-31604	82-200-32599	82-200-30735	82-200-38165



8 RAM AND ANNULAR INDIVIDUAL SEALS



Integrated Individual Seals

8.01 IUTM RAM BOP ELASTOMERS SEALS (U Style)

IUTM RAM INDIVIDUAL HARDWARE PARTS (U Style)

Part Description	Size	Pressure	Part Number	Weight Per Unit	
				lbs	kg
8.01.01 Connecting Rod Seal	7-1/16"	3/15k	82-117-4137	0.00	0.00
8.01.02 Modified Washer	7-1/16"	3/15k	82-485-004	0.00	0.00
8.01.03 Retaining Ring	7-1/16"	3/15k	82-485-003	0.00	0.00
8.01.04 Back Up Ring	7-1/16"	3/15k	82-217-9221	0.00	0.00
8.01.05 Packing Ring	7-1/16"	3/15k	82-124-6936	0.00	0.00
8.01.06 Connecting Rod Seal	11"	3/10k	82-117-4138	0.00	0.00
8.01.07 Modified Washer	11"	3/10k	82-485-002	0.00	0.00
8.01.08 Retaining Ring	11"	3/10k	82-485-001	0.00	0.00
8.01.09 Back Up Ring	11"	3/10k	82-219-7222	0.00	0.00
8.01.10 Packing Ring	11"	3/10k	82-124-6938	0.00	0.00
8.01.11 Connecting Rod Seal	13-5/8"	3/10k	17-080-053	0.00	0.00
8.01.12 Modified Washer	13-5/8"	3/10k	17-080-064	0.00	0.00
8.01.13 Retaining Ring	13-5/8"	3/10k	17-080-061	0.00	0.00
8.01.14 Back Up Ring	13-5/8"	3/10k	17-080-054	0.00	0.00
8.01.15 Packing Ring	13-5/8"	3/10k	17-080-051	0.00	0.00

8.02 IWSM | IWPTM RAM BOP ELASTOMERS SEALS (LWS & LWP Styles)

IWSM | IWPTM RAM INDIVIDUAL HARDWARE PARTS (LWS & LWP Styles)

Part Description	Size Pressure Style	Part Number	Weight Per Unit	
			lbs	kg
8.02.01 Packing Adapter	7-1/16" – 5k, LWS 11" – 3k, IWSM	70-02110320242	0.00	0.00
8.02.02 Packing Adapter	7-1/16" – 5k, IWSM 9" – 3k, IWPTM	70-300-013	0.00	0.00
8.02.03 Thrust Bushing	7-1/16" – 5k, IWSM 9" – 3k, IWPTM 11" – 3k, IWSM	70-02110320244	0.00	0.00
8.02.04 Packing Adapter	11" – 5k, IWSM 13-5/8" – 5k, IWSM	70-02110520242	0.00	0.00
8.02.05 Thrust Bushing	11" – 5k, IWSM 13-5/8" – 5k, IWSM	70-02110520526	0.00	0.00

8.03 ISATM SPHERICAL ANNULAR BOP ELASTOMERS SEALS (Spherical Styles)

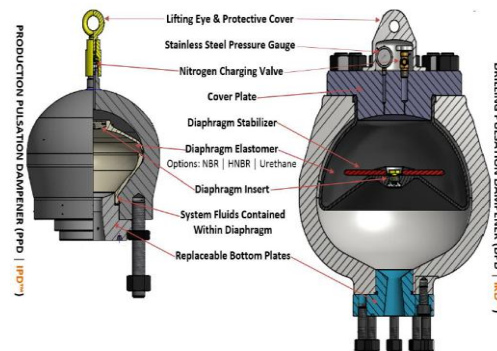
ISATM SPHERICAL ANNULAR INDIVIDUAL SEALS

Part Description	Size	Pressure	Part Number	Weight Per Unit	
				lbs	kg
8.03.01 Adapter Top Seal	7-1/16"	5k	82-221-10405	0.00	0.00
8.03.02 I-Filter™ Wiper Seal	7-1/16"	5k	95-0705-00012	0.00	0.00
8.03.03 Adapter Top Seal	9"	3k	82-221-31145	0.00	0.00
8.03.04 Adapter Top Seal	11"	3k	95-05110320176	0.00	0.00
8.03.05 Adapter Top Seal	11"	5k	95-05110520176	0.00	0.00
8.03.06 Adapter Top Seal	13-5/8"	5k	95-05130520176	0.00	0.00
8.03.07 Adapter Top Seal	21-1/4"	2k	30-000020	0.00	0.00

9 PULSATION DAMPENER DIAPHRAGMS



INTEGRATED OEM PULSATION DAMPENER PRODUCT LINE



- Integrated Product Pulsation Dampeners
- Integrated Drilling Pulsation Dampeners

- Integrated IPD™ - PPD Diaphragms (Bladders)
- Integrated IKD™ - DPD Diaphragms (Bladders)
- Emsco PD45, PD55 & PD55A Diaphragms

- Integrated IPD™ Layout
- Integrated IKD™ Layout

9.01 Production Pulsation Dampener (IPD™) Diaphragms

IPD™ - PPD (Production Pulsation Dampener Diaphragms)

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.01.01	1 Gallon PPD Diaphragm	NBR	73-011004	4.00	1.80
9.01.02	1 Gallon PPD Diaphragm	HNBR	73-012004	4.00	1.80
9.01.03	1 Gallon PPD Diaphragm	FKM	73-013004	4.00	1.80
9.01.04	2.5 Gallon PPD Diaphragm	NBR	73-251004	7.00	3.20
9.01.05	2.5 Gallon PPD Diaphragm	HNBR	73-252004	7.00	3.20
9.01.06	2.5 Gallon PPD Diaphragm	FKM	73-253004	7.00	3.20
9.01.07	5 Gallon PPD Diaphragm	NBR	73-051004	10.00	4.50
9.01.08	5 Gallon PPD Diaphragm	HNBR	73-052004	10.00	4.50
9.01.09	5 Gallon PPD Diaphragm	FKM	73-053004	10.00	4.50

9.02 Drilling Pulsation Dampener (IKD™) Diaphragms

IPD™ - PPD (Production Pulsation Dampener Diaphragms) | IKD™ - DPD (Drilling Pulsation Dampener Diaphragms)

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.02.01	10 Gallon PPD Diaphragm	NBR	73-101004	17.00	7.70
9.02.02	10 Gallon PPD Diaphragm	HNBR	73-102004	17.00	7.70
9.02.03	10 Gallon PPD Diaphragm	FKM	73-103004	17.00	7.70
9.02.04	20 Gallon PPD Diaphragm	NBR	73-201004	28.00	12.70
9.02.05	20 Gallon PPD Diaphragm	HNBR	73-202004	28.00	12.70
9.02.06	20 Gallon PPD Diaphragm	FKM	73-203004	28.00	12.70

9.03 Emsco Pulsation Dampener Diaphragms

EMSCO (PD Diaphragms)

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.03.01	PD 45 Diaphragm	NBR	71-6922-4503	16.00	7.26
9.03.02	PD 45 Diaphragm	HNBR	71-6922-4507	16.00	7.26
9.03.03	PD 45 Diaphragm	FKM	71-6922-4509	16.00	7.26
9.03.04	PD 55 Diaphragm	NBR	71-6922-5503	26.00	11.80
9.03.05	PD 55 Diaphragm	HNBR	71-6922-5507	26.00	11.80
9.03.06	PD 55 Diaphragm	FKM	71-6922-5509	26.00	11.80
9.03.07	PD 55A Diaphragm (w/insert)	NBR	71-6922-5503A	28.00	12.70
9.03.08	PD 55A Diaphragm (w/insert)	HNBR	71-6922-5507A	28.00	12.70
9.03.09	PD 55A Diaphragm (w/insert)	FKM	71-6922-5509A	28.00	12.70

9 PULSATION DAMPENER ACCESSARY & SPARE PARTS

Integrated IPD & IKD Spare Parts & Accessories



9.04 Pulsation Dampener Parts: Charge Hoses, Charging Valves, Stabilizer Plates & Bottom Gaskets

PPD (Production Pulsation Dampener): 1 Gallon

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.04.01 1 Gallon PPD Charging Valve	1 gal	-	71-210-014	0.25	0.11
9.04.02 1 Gallon PPD Charging Hose Assembly	1 gal	-	71-200-021	6.00	2.72

PPD (Production Pulsation Dampener): 2.5 Gallon

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.04.03 2.5 Gallon PPD Charging Valve	2.5 gal	-	71-210-014	0.25	0.11
9.04.04 2.5 Gallon PPD Charging Hose Assembly	2.5 gal	-	71-200-021	6.00	2.72

PPD (Production Pulsation Dampener): 5 Gallon

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.04.05 5 Gallon PPD Charging Valve	5 gal	-	71-210-014	0.25	0.11
9.04.06 5 Gallon PPD Charging Hose Assembly	5 gal	-	71-200-021	6.00	2.72

PPD | DPD (Production Pulsation Dampener | Drilling Pulsation Dampener): 10 Gallon

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.04.07 10 Gallon DPD Stabilizer Plate	10 gal	NBR	73-201005	2.00	0.91
9.04.08 10 Gallon Bottom Gasket, HSN	10 gal	NBR	71-100-002	0.50	0.23
9.04.09 10 Gallon PPD Charging Valve	10 gal	-	71-210-014	2.00	0.91
9.04.10 10 Gallon PPD Charging Hose Assembly	10 gal	-	71-200-021	6.00	2.72
9.04.11 10 Gallon DPD Charging Hose Assembly	10 gal	-	71-200-020	6.00	2.72

PPD | DPD (Production Pulsation Dampener | Drilling Pulsation Dampener): 20 Gallon

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.04.12 20 Gallon PPD / DPD Stabilizer	20 gal	NBR	73-2000005	5.00	2.27
9.04.13 20 Gallon DPD Stabilizer Plate	20 gal	NBR	73-201005	2.00	0.91
9.04.14 20 Gallon Bottom Gasket, HSN	20 gal	NBR	71-100-004	0.50	0.23
9.04.15 20 Gallon PPD Charging Valve	20 gal	-	71-210-014	2.00	0.91
9.04.16 20 Gallon PPD Charging Hose Assembly	20 gal	-	71-200-021	6.00	2.72
9.04.17 20 Gallon DPD Charging Hose Assembly	20 gal	-	71-200-020	6.00	2.72

EMSCO PD-45

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.04.18 PD-45 Charging Valve	PD-45	-	71-6922-402FMAC	3.00	1.36
9.04.19 PD-45 Charging Hose Assembly	PD-45	-	71-6922-040	6.00	2.72

EMSCO PD-55

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.04.20 PD-55 Charging Valve	PD-55	-	71-6922-402FMAC	3.00	1.36
9.04.21 PD-55 Charging Hose Assembly	PD-55	-	71-6922-040	6.00	2.72

EMSCO PD-55A

Part Description	Size	Material	Part Number	Weight Per Unit	
				lbs	kg
9.04.22 PD-55A Stabilizer	PD-55A	NBR	71-6922-0109	5.00	2.27

K10 HNBR DIAPHRAGM KIT:
Kit Part Number: 73-1020041

Part Number	Part Description
73-1022004	10 Gallon HNBR Diaphragm
73-101005	10 Gallon NBR Stabilizer Rubber
73-100005	10/20 Gallon Stabilizer Plate
26-017-001	10 Gallon Lock Washer
26-016-000	10 Gallon Bolt

K20 HNBR DIAPHRAGM KIT:
Kit Part Number: 73-2020041

Part Number	Part Description
73-202004	20 Gallon HNBR Diaphragm
73-201005	20 Gallon NBR Stabilizer Rubber
73-100005	10/20 Gallon Stabilizer Plate
26-017-000	20 Gallon Lock Washer
26-012-151	20 Gallon Bolt

PD55A HNBR DIAPHRAGM KIT:
Kit Part Number: 71-6922-5507AK

Part Number	Part Description
71-6922-5507A	PD55A Gallon HNBR Diaphragm
71-6922-0109	20 Gallon NBR Stabilizer Rubber
73-100005	10/20 Gallon Stabilizer Plate
26-017-000	20 Gallon Lock Washer
26-012-151	20 Gallon Bolt

10 I-1360 ROTATING HEAD STRIPPER RUBBER (Washington style)



INTEGRATED® I1360 Standard Style

INTEGRATED® I1360 with O-Ring Style

I1360™ STRIPPER RUBBER – STANDARD (No O-Ring)

	Part Description	Size	Part Number	Weight Per Unit	
				lbs	kg
10.01	I1360 Stripper Rubber – Standard Style	2-3/8"	31-001427-01	53.20	24.13
10.02	I1360 Stripper Rubber – Standard Style	2-7/8"	31-001427-02	48.80	22.14
10.03	I1360 Stripper Rubber – Standard Style	3-1/2"	31-001427-03	45.00	20.41
10.04	I1360 Stripper Rubber – Standard Style	4-1/2"	31-001427-04	41.20	18.69
10.05	I1360 Stripper Rubber – Standard Style	5-1/2"	31-001427-05	37.50	17.01

I1360™ STRIPPER RUBBER – MODIFIED (With O-Ring)

	Part Description	Size	Part Number	Weight Per Unit	
				lbs	kg
10.06	I1360 Stripper Rubber – With O-Ring	2-3/8"	31-001427-01A	53.20	24.13
10.07	I1360 Stripper Rubber – With O-Ring	2-7/8"	31-001427-02A	48.80	22.14
10.08	I1360 Stripper Rubber – With O-Ring	3-1/2"	31-001427-03A	45.00	20.41
10.09	I1360 Stripper Rubber – With O-Ring	4-1/2"	31-001427-04A	41.20	18.69
10.10	I1360 Stripper Rubber – With O-Ring	5-1/2"	31-001427-05A	37.50	17.01

INTEGRATED® I1360 is a Washington Style 1360 model Stripper Rubber designed to work inside of a Stripper-Tubing Head. The I1360 is designed to seal on the O.D. of a casing or tubing string while raising, lowering, or rotating. The I1360 is made from an elastic abrasion resistant compound and an engineered designed metal insert which generates a longer lasting part.

I1360 General Dimensions



11 ELASTOMER TECHNICAL INFORMATION**11.01 Elastomer Material Technical Description:
• NR • NBR • HNBR • XNBR • FKM • UHMW • URETHANE****POLYISOPRENE****➤ NR - ASTM D1418 Designation:**

Natural Rubber features high tensile strength, high resilience, high abrasion and high tear resistance properties, with a good friction surface and excellent adhesion to metals. Until the invention of synthetic elastomers in the 1930's, Natural Rubber was the only polymer available for O-ring manufacture. Natural Rubber features good resistance to organic acids and alcohols, with moderate resistance to aldehydes. General Temperature Range: 0°F to 200°F

ACRYLONITRILE BUTADIENE POLYMER**➤ NBR - ASTM D1418 Designation:**

Nitrile rubber (NBR) is the general term for acrylonitrile butadiene copolymer. The acrylonitrile content of nitrile sealing compounds varies considerably (18% to 50%) and influences the physical properties of the finished material. The higher the acrylonitrile content, the better the resistance to oil and fuel. At the same time, elasticity and resistance to compression set is adversely affected. In view of these opposing realities, a compromise is often drawn, and a medium acrylonitrile content selected. NBR has good mechanical properties when compared with other elastomers and high wear resistance. NBR is not resistant to weathering and ozone. General Temperature Range: -20°F to 250°F

CARBOXYLATED ACRYLONITRILE BUTADIENE POLYMER**➤ XNBR - ASTM D1418 Designation:**

Carboxylated Nitrile is similar to Nitrile rubber, but the polymer backbone has been chemically modified with Carboxylic Acid containing group. This result is XNBR with more excellent abrasion and tear resistance than traditional NBR. General Temperature Range: -20°F to 250°F

HYDROGENATED ACRYLONITRILE BUTADIENE POLYMER**➤ HNBR - ASTM D1418 Designation:**

HNBR is widely used in oil industry and maintains excellent resistance to motor oils, sour gas, amine/oil mixtures, oxidized fuels, and lubricating oils. HNBR is resistant to mineral oil-based hydraulic fluids, animal and vegetable fats, diesel fuel, ozone, sour gas, dilute acids and bases. It also resists new bio-oils (biological oils). It is suitable for high dynamic loads and has a good abrasion resistance.

FLUOROCARBON POLYMER**➤ FKM - ASTM D1418 Designation:**

FKM has excellent resistance to high temperatures, ozone, oxygen, mineral oil, synthetic hydraulic fluids, fuels, aromatics and many organic solvents and chemicals. Low temperature resistance is normally not favorable and for static applications it is limited to approximately -26°C (-15°F) although certain compounds are suitable down to -46°C (-50°F). Under dynamic conditions, the lowest service temperature is between -15°C and -18°C (5°F and 0°F). Gas permeability is very low and similar to that of butyl rubber. Special FKM compounds exhibit an improved resistance to acids and fuels. General Temperature Range: -20°F to 350°F (Some FKM can extend to 450°F)

ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE**➤ UHMW:**

UHMW is a thermoplastic material made up of extremely long chains of polyethylene. The polyethylene chains give the material a high abrasion resistance. Its high wear strength makes it most suitable for applications such as stripping where abrasion is a its most prolific.

POLYURETHANE**➤ URETHANE:**

Polyurethane elastomers, as a class, have excellent wear resistance, high tensile strength and high elasticity in comparison with any other elastomers. Permeability is good and comparable with butyl.



11 ELASTOMER TECHNICAL INFORMATION

11.02 Elastomer Material Compatibility

ELASTOMERIC MATERIAL GENERAL COMPATIBILITY GUIDE

Application	Natural Rubber (NR)	Nitrile (NBR)	Carboxylated Nitrile (XNBR)	Hydrogenated Nitrile (HNBR)	Fluorocarbon (FKM)
Tensile Strength (Psi)	Over 3000	Over 2000	Over 3000	Over 3000	Over 1000
Hardness (Shore A)	30 - 90	40 - 90	40 - 90	40 - 90	40 - 90
Adhesion to metals	Excellent	Excellent	Good	Excellent	Fair to Good
Adhesion to fabrics	Excellent	Good	Good	Good	Good
Tear Resistance	Good	Fair	Excellent	Good	Fair to Good
Abrasion Resistance	Excellent	Good	Excellent	Excellent	Good
Compression Set	Excellent	Good	Excellent	Good	Good
Resilience - Hot	Excellent	Fair	Good	Good	Good
Resilience - Cold	Excellent	Fair	Good	Good	Fair
Dielectric Strength	Excellent	Poor	Good	Good	Good
Electrical Insulation	Good to Excellent	Poor	Good	Good	Good
Impermeability to Gases	Good	Excellent	Excellent	Excellent	Excellent
Acid Resistance - Dilute	Fair to Good	Good	Good	Good	Good - Excellent
Acid Resistance - Concentrated	Fair to Good	Good	Good	Good	Excellent
Solvent Resistance - Aliphatic Hydrocarbons	Poor	Excellent	Excellent	Excellent	Excellent
Solvent Resistance - Aromatic Hydrocarbons	Poor	Good	Good	Excellent	Excellent
Solvent Resistance - Oxygenated	Poor	Poor	Good	Excellent	Poor
Solvent Resistance - Lacquer	Poor	Fair	Good	Good	Poor
Solvent Resistance - Lubricating Oils	Poor	Good	Good	Excellent	Excellent
Resistance - Oil & Gas	Poor	Excellent	Excellent	Excellent	Excellent
Resistance - Water Absorption	Good	Good	Good	Good	Excellent
Resistance - Oxidation	Good	Good	Good	Excellent	Excellent
Resistance - Ozone	Poor	Poor	Poor	Excellent	Excellent
Resistance - H2S	Poor	Poor	Fair	Fair	Good
Resistance - CO2	Poor	Poor	Fair	Fair	Good
Resistance - Sunlight Aging	Poor	Poor	Good	Excellent	Excellent
Resistance - Heat Aging	Fair	Good	Excellent	Excellent	Excellent
Resistance - Low Temperature	Good	Fair	Good	Good	Fair
Resistance - Flame	Poor	Poor	Good	Good	Excellent
Resistance - Chlorinated Hydrocarbons	Poor	Fair	Poor	Good	Good - Excellent

11.03 Elastomer Recommended Operating Range

ELASTOMER RECOMMENDED OPERATING TEMPERATURE

Elastomer Material (Packing Elements)	Recommended Operating Range			
	Low Temperature		High Temperature	
	°C	°F	°C	°F
Natural (NR)	4	40	82	180
Carboxylated Nitrile Rubber (XNBR)	4	40	82	200 (Rams)
Nitrile Rubber (NBR)	4	40	82	180 (Elements) 200 (Rams)
Hydrogenated Nitrile Butadiene Rubber (HNBR)	4	40	107	225

11.04 Temperature Rating for Non-Metallic Sealing Material

TEMPERATURE RATING FOR NON-METALLIC SEALING MATERIAL

Low Temperature Limit (First letter / digit)			Continuous Elevated Temperature Limit (Second letter / digit)			Extreme Temperature Limit (Third letter / digit)		
As per API 16A Edition 4 (Table 4)								
Code	Temperature		Code	Temperature		Code	Temperature	
	°C	°F		°C	°F		°C	°F
A	-26	-15	A	66	150	A	82	180
B	-18	0	B	82	180	B	93	200
C	-12	10	C	99	210	C	104	220
D	-7	20	D	116	240	D	121	250
E	-1	30	E	132	270	E	149	300
F	4	40	F	149	300	F	177	350
G	Other	Other	G	Other	Other	G	Other	Other

*NOTE: These components may carry a temperature class 4 °C to 82 °C (40°F to 180°F) without performing temperature verification testing provided they are marked as temperature class "XX".

**Example: Material "EDE" has a low temperature rating of 30°F, an intermediate temperature (continuous) of 240°F and a high temperature limit of 300°F. As per API 16A, the middle code letter "G" is used for products temperature tested to PRI

11.05 PROCEDURE FOR Warming Annular BOP Packing Element

This document outlines the procedure for warming up annular BOP Packing Elements in a cold environment before they can be energized and subjected to wellbore pressure.

- Methods of warming: any combination of conduction (Packing Element in contact with heated surfaces) and convection (using air, steam, or chemically compatible fluids) is permissible. Forced convection (using fans or pumps) is required. If only natural convection is available with no heated surfaces, increase the times shown in table by 50%.
- Recommended temperature of warming surfaces or fluids is within the 250-285 °F range (120 – 140 °C). Do not exceed 300°F, even for short time intervals, to avoid permanent damage to the elastomer.
- It is essential that the Packing Element is heated from both inside (bore) and outside all around.
- The temperature of warming fluids and surfaces must be stabilized and maintained before the process starts.
- After heating time is completed, a minimum of 1 hour wait time at room temperature is required before testing begins. If having the Packing Element in room temperature is not possible, stop the heating for 1 hour before energizing the element.

Warm up times in hours after warming temperature is stabilized

Starting Temperature Of Packing Element		7-1/16” – 3/5k NBR SPHERICAL ANNULAR ISA™ PACKING ELEMENT									
		STABILIZED WARMING TEMPERATURE									
		122°F	140°F	158°F	176°F	194°F	212°F	230°F	248°F	266°F	284°F
		50°C	60°C	70°C	80°C	90°C	100°C	110°C	120°C	130°C	140°C
(°F)	(°C)	ESTIMATED NUMBER OF HOURS TO ACHIEVE 40°F									
-22	-30	8.5	7.9	7.4	6.8	6.4	5.9	5.5	5.1	4.7	4.4
-13	-25	7.3	6.8	6.3	5.9	5.5	5.1	4.7	4.4	4.1	3.8
-4	-20	6.1	5.7	5.3	4.9	4.6	4.2	3.9	3.6	3.4	3.2
5	-15	4.9	4.5	4.2	3.9	3.6	3.4	3.1	2.9	2.7	2.5
14	-10	3.7	3.4	3.2	2.9	2.7	2.5	2.4	2.2	2.0	1.9
23	-5	2.5	2.3	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3
32	0	1.2	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.7	0.7
41	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Starting Temperature Of Packing Element		11” - 5k NBR SPHERICAL ANNULAR ISA™ PACKING ELEMENT									
		STABILIZED WARMING TEMPERATURE									
		122°F	140°F	158°F	176°F	194°F	212°F	230°F	248°F	266°F	284°F
		50°C	60°C	70°C	80°C	90°C	100°C	110°C	120°C	130°C	140°C
(°F)	(°C)	ESTIMATED NUMBER OF HOURS TO ACHIEVE 40°F									
-22	-30	17.0	15.8	14.7	13.6	12.7	11.8	10.9	10.1	9.4	8.8
-13	-25	14.6	13.6	12.6	11.7	10.9	10.1	9.4	8.7	8.1	7.5
-4	-20	12.2	11.3	10.5	9.7	9.1	8.4	7.8	7.2	6.7	6.3
5	-15	9.7	9.0	8.4	7.8	7.2	6.7	6.2	5.8	5.4	5.0
14	-10	7.3	6.8	6.3	5.8	5.4	5.0	4.7	4.3	4.0	3.8
23	-5	4.9	4.5	4.2	3.9	3.6	3.4	3.1	2.9	2.7	2.5
32	0	2.4	2.3	2.1	1.9	1.8	1.7	1.6	1.4	1.3	1.3
41	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Starting Temperature Of Packing Element		13-5/8” – 3/5k NBR SPHERICAL ANNULAR ISA™ PACKING ELEMENT									
		STABILIZED WARMING TEMPERATURE									
		122°F	140°F	158°F	176°F	194°F	212°F	230°F	248°F	266°F	284°F
		50°C	60°C	70°C	80°C	90°C	100°C	110°C	120°C	130°C	140°C
(°F)	(°C)	ESTIMATED NUMBER OF HOURS TO ACHIEVE 40°F									
-22	-30	22.1	20.5	19.1	17.7	16.5	15.3	14.2	13.1	12.2	11.4
-13	-25	19.0	17.7	16.4	15.2	14.2	13.1	12.2	11.3	10.5	9.8
-4	-20	15.9	14.7	13.7	12.6	11.8	10.9	10.1	9.4	8.7	8.2
5	-15	12.6	11.7	10.9	10.1	9.4	8.7	8.1	7.5	7.0	6.5
14	-10	9.5	8.8	8.2	7.5	7.0	6.5	6.1	5.6	5.2	4.9
23	-5	6.4	5.9	5.5	5.1	4.7	4.4	4.0	3.8	3.5	3.3
32	0	3.1	3.0	2.7	2.5	2.3	2.2	2.1	1.8	1.7	1.7
41	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: It is recommended that a temperature measurement device should be utilized to make sure a minimum of 40°F (5°C) temperature has been reached throughout the entire unit (top, bottom and bore) prior to energizing the element.

11 ELASTOMER TECHNICAL INFORMATION**11.06 Storage and Age Control Guideline**

The following outlines the proper storage of elastomeric products to achieve maximum acceptable condition and their storage shelf life as defined in Table A & B. ISO 2230:2002 provides guidelines for storage and for determining the shelf life of vulcanized rubber products. All Elastomers either manmade or natural, are susceptible to eventually degrading over time; storage conditions can have a significant impact on the rate of degradation.

TEMPERATURE:

- The optimum temperature for the storage of rubber products is between 50°F (10°C) and 77°F (25°C). Higher temperatures cause a gradual hardening of the rubber and accelerate the deterioration of rubber products, so sources of heat in storage rooms should be arranged such that the temperature of stored items never exceeds 85°F (29°C).

Note: Storing products at 95°F (35°C) will reduce the potential storage periods by approximately 50%.

- Elastomers' parts undergo several kinds of change when they are exposed to low temperatures. In temperatures of -20°F (-20°C), the rubber becomes brittle and will shatter when dropped or handled roughly. Some changes occur immediately, others after prolonged exposure. All are reversible; the rubber regains its original properties when it is returned to 65°F (18°C) or room temperature.

HUMIDITY:

- All elastomer products shall be stored in moisture proof bags, if not the relative humidity level shall be less than 65%. Condensation should not be allowed to occur.

LIGHT:

- All elastomeric products must be protected from Ultraviolet radiation (either indoor lighting and/or sunlight). Polyethylene (PE) bags stored in large cardboard containers and polyethylene lined craft bags offer good protection against light. Integrated elastomer recommends 4 mil minimum thickness, opaque, polyethylene plastic wrap and/or sealed as far as practical.

OZONE (O3) AND OXYGEN (O2):

- INTEGRATED parts must be stored in airtight containers to protect them from circulating air. Or else this will cause cracks, which can be formed in many different elastomers (Natural rubber, polybutadiene, Styrene-butadiene rubber and NBR) by ozone attack and causes a breaking of the carbon backbone polymer chain into smaller chains. This weakens the rubber by lowering its molecular weight, and cracks start to grow in the regions affected.

DEFORMATION:

- All elastomeric products should be stored in a relaxed state, free from tension, compression, or other deformation since these may lead to cracking or change of shape. Packing elements should not be stored on pegs as this may cause severe deterioration.

EXPOSURE TO CHEMICALS:

- Chemical degradation can change polymers properties due to a chemical reaction such as breaking its double bonds (rubber more brittle followed by crack) or swelling of rubber. This can reduce the product's overall functional life. So, all elastomer products shall not encounter any chemicals unless these materials are by design an integral part of the component or Integrated Elastomer's packaging.

STRUCTURAL DAMAGE TO PRODUCT:

- Permanent deformations (folds, wrinkles, or flattening areas)
- Mechanical damage (cuts, cracks, worn or dissolved areas)
- Changes to the surface (stiffening, softness, stickiness, discoloration, or dirtiness)

The variations in size, composition and function of the rubber parts prevent defining a precise shelf life. Large rubber parts might suffer the same amount of deterioration as small parts and still be usable, whereas small parts become useless and should be thrown away. Both Natural and Synthetic rubber parts are susceptible to deterioration from various solvents such as oilfield liquid hydrocarbons, which cause swelling or shrinkage. In the final analysis, ownership judgement determines whether a rubber part should be used. If there is doubt, replace the part.

11 ELASTOMER TECHNICAL INFORMATION

TABLE A

STORAGE CONDITIONS FOR RUBBER AND ELASTOMERIC PRODUCTS

Storage Parameter	Recommended Storage	Minimum Acceptable	Unacceptable Storage
Temperature	Less than 77°F (25°C)	Less than 95°F (35°C)	Greater than 120°F (49°C)
Light	Complete Darkness	Indirect Light	Direct Light
Stress	Separate Packages	Sacks of Loose Parts	Pinched, Stretched, Creased
Environment	Clean Dry Air	Humid Air	Oil, Grease and / or Water
Oxygen and Ozone	Sealed Package	Open Air	Near Electric Motors / Arcs

TABLE B

RUBBER AND ELASTOMERIC PRODUCTS STORAGE LIFE GUIDELINE:

If the above Storage Conditions (see section 11.06) have been maintained and followed, Elastomeric products will be capable of achieving the timescales as shown in “Initial Storage” listed in the following table.

For customers to apply the “Extended Storage” times, they will need to perform additional inspection activities to confirm that there has been no deterioration of the physical properties of the products at the end of the Initial Storage period.

Type of Components	Type of Elastomer	Initial Storage Life	Extended Storage Life
Annular BOP Packing Elements	Natural Rubber (NR)	5 Years	2 Years
Annular BOP Packing Elements	Nitrile (NBR)	7 Years	3 Years
Annular BOP Packing Elements	Hydrogenated Nitrile (HSN & XHSN)	7 Years	3 Years
Annular BOP Square Seals, Lip Seals, Headers	Nitrile (NBR)	7 Years	3 Years
Annular BOP O-Ring Cross Sections	Nitrile (NBR)	7 Years	3 Years
BOP Ram Block Elements	Hydrogenated Nitrile (HSN & XHSN)	7 Years	3 Years
BOP Ram Block Top and Lateral Seals	Nitrile (NBR) / Carboxylated Nitrile (XNBR)	7 Years	3 Years
Ram BOP Bonnet Seals	Nitrile (NBR) / Carboxylated Nitrile (XNBR)	7 Years	3 Years
Polypack, Wipers, etc.	Polyurethanes and combinations with Nitriles (NBR, HSN and U)	7 Years	3 Years
Drill Stem Valve Seals (Packing and Molded Lip Seals)	Nitrile (NBR)	7 Years	3 Years
Seal Kits, Annular & Ram BOPs	Nitrile (NBR) & Hydrogenated Nitrile (HNBR)	9 Years	3 Years
Pulsation Dampeners, PD – Diaphragms	Nitrile (NBR) & Hydrogenated Nitrile (HNBR)	7 Years	3 Years
Pulsation Dampeners, PD – Diaphragms	Fluoropolymers (FKM)	10 Years	5 Years
Pipe Wipers	Natural Rubber (NR)	5 Years	-
Stripper Rubbers & Red Wipers	Natural Rubber (NR) and Neoprene (CR)	5 Years	-

Maximum Total Storage life specified in Table B is applicable only if minimum acceptable storage conditions are maintained as per Table A.

REFERENCED DOCUMENTS

API 6A – 20TH Edition | API 16A – 4TH Edition | ISO 2230:2002

11.07 Elastomer Packaging Coding System (as per latest API 16A Edition)

Table 42 (API 16A Edition 4) – Code System for Non-Metallic Sealing Materials

Example of Product Code on Elastomer Packing: AA BBBB CCCC DDDD EEE FFF

CODE	DESCRIPTION
AA	Compound hardness (durometer)
BBBB	Elastomer Compound Marking Code (see Table 43 and ASTM D 1418)
CCCC	Date of manufacture (see 8.4.2.5)
DDDD	Lot / Serial number (in accordance with manufacturer’s specifications)
EEE	Temperature class (see Table 4)
FFF	Date of expiration

12 INTEGRATED TERMS AND CONDITIONS

All INTEGRATED[®] (Integrated Equipment, Integrated Elastomers, Integrated Tubular Solutions and “INTEGRATED”) products and services are sold, leased or otherwise furnished in accordance with these General Terms and Conditions. These Terms and Conditions supersede all prior terms and conditions and shall be the sole terms and conditions which apply to any sale, lease or other furnishing of products or services. Acceptance by Buyer, lessee or user (hereinafter collectively referred to as “Buyer”) of the products and/or services provided by Seller pursuant to any order or request from Buyer shall be deemed a full acceptance by Buyer of all of the Terms and Conditions set forth herein. Different or additional terms proposed by Buyer are deemed material alterations and are objected to and rejected unless agreed to by INTEGRATED in writing. INTEGRATED is referred to as “Seller” in these General Terms and Conditions.

1. (a) Subject to the limitations hereafter set forth, Seller warrants the products and services sold by it to be free from defects in workmanship or material for one year from (I) shipment from Seller's date of shipment in the case of products or (II) the completion of performance of services in the case of services. Seller's obligation under this warranty for any products or services found by Seller to be defective in workmanship or material is limited to, at Seller's option, repairing or replacing such products, or performing such services, or refunding the amount which Seller received from Buyer for such products or services. In no event shall Seller be liable for special, indirect, incidental or consequential damages including environmental damage or remediation claims, WHETHER OR NOT CAUSED BY THE NEGLIGENCE OR FAULT OF SELLER. It is expressly agreed that THIS WARRANTY SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, WHICH ARE HEREBY EXPRESSLY DISCLAIMED. To the full extent allowed by law, Seller disclaims any warranty to any persons other than Buyer.

(b) In addition, this warranty shall not apply if the product or service has been subject to misuse, negligence or accident, modification, heating, machining, bending, welding, or alteration of any kind, or has not been operated or installed in accordance with Seller's instructions or has been operated under conditions more severe than, or otherwise exceeding, those set forth in the specifications for the product or service. This warranty does not extend to Seller products used with components which are not manufactured or approved by Seller.

(c) Seller does not warrant that its products or services meet the requirements of any safety code of any state, municipality or other jurisdiction or that they will perform as anticipated or desired by Buyer and Buyer assumes all risk and liability whatsoever resulting from the use thereof, whether used singly or in combination with other machines, apparatus, or equipment.

(d) Products furnished by Seller but not manufactured by Seller will carry only the warranty of the manufacturer of such products, if any. Seller does not warrant any products not manufactured by Seller.

(e) Products and services shall be subject to Seller's stated manufacture variations. All tables published by Seller are based upon information believed reliable; however, Seller does not guarantee accuracy of same. All measurements and weights set forth in such tables are subject to reasonable tolerance variations.

(f) Any claim on account of defective materials or services, shall conclusively be deemed waived by Buyer, lessee or user unless (I) Seller is promptly given notice in writing of any such defect during the warranty period set forth in (a) above; (II) Buyer has kept such products or results of services in condition so that Seller can examine same. Unless otherwise agreed, Buyer shall at its expense return any product claimed to be defective to Seller's plant of manufacture. If Seller confirms the product to be defective, Seller will reimburse Buyer for transportation costs and provide Buyer with a repaired or replacement product ex works Seller's plant of manufacture at no cost to Buyer.

(g) In the event of a warranty claim, all parts to the capital equipment in question shall be Integrated Equipment, Inc. brand, original equipment manufactured goods; including, but not limited to rubber seals, packers and elements. Any unauthorized modifications to original parts or replacement goods installed in or on the capital equipment in question shall void any stated or implied warranty and any and all repair work shall be charged at current facility rates including freight.

(h) The liability of Seller for any loss or damage in any way resulting to Buyer or any other person from any failure of a product or service to conform to order or specification, or on account of breach of warranty, or NEGLIGENCE or failure to conform to any standard of care in anything done or omitted by Seller or any employee or agent, or on account of patent infringement, shall not in any event exceed the amount which Seller received from Buyer for the product or service found to be defective. Where other manufacturers or suppliers' products used in Seller products prove defective, Seller's liability shall exist only to the extent that Seller is able to recover from such manufacturers or suppliers for said defects. The foregoing applies whether such damage was caused by the negligence or fault of Seller.

(i) Seller's liability for damage to or loss of property of Buyer or others during performance of work thereon by Seller or while in Seller's possession shall not exceed the price received by Seller for its work on the article lost or damaged whether such damage was caused by the negligence or fault of Seller.

2. Seller retains the right to make substitutions and modifications to its product or services, provided that said changes do not affect the performance of those items.

3. Seller retains the ownership of all proprietary rights in and to all designs, engineering details and data concerning the services or products sold by it.

4. Any taxes or charges which Seller may be required to pay or collect under any existing or future law upon or applicable to the sale, purchase, lease, furnishing, manufacture, processing, transportation, delivery, storage, use or consumption of the product or services shall be for the account of Buyer and Buyer shall reimburse Seller upon receipt of Seller's invoice.

5. Failure of Seller to enforce any of these conditions or to exercise any right arising from the default of Buyer shall not affect or impair Seller's rights in case such default continues or in the event of any subsequent fault of Buyer nor shall failure constitute a waiver of any of these conditions.

6. (a) Seller shall make delivery of all products EX WORKS (Unpacked) at Seller's designated facility. Seller will use its best efforts in good faith to deliver the goods on or before the agreed delivery date, as adjusted in accordance with the terms hereof. Products stored at the request of the Buyer shall be so stored at the risk of Buyer. Buyer shall pay Seller reasonable storage charges and shall reimburse Seller for any additional sales and/or use tax liability caused by such storage.

(b) Seller is not liable for delays in delivery or failure to make delivery caused by the elements, acts of God, lack of or inability to obtain materials, fuel or supplies, acts of Buyer, acts of civil or military authorities, breakdown of equipment, differences with workmen, fire, flood, or other casualty, labor shortages, governmental regulations or requirements, orders bearing priority rating established pursuant to law, shortages or failure of raw materials, supplies, fuel, power or transportation, or other causes beyond the reasonable control of Seller, whether similar or dissimilar to those enumerated, and whether or not foreseeable, and any delivery date will be extended accordingly.

(c) Seller shall maintain a purchase money security interest in the products for any portion of the purchase price not paid at the time of delivery and shall retain this interest until Buyer has paid the full purchase price. Buyer agrees to execute any documents required by Seller to perfect its security interest.

12 INTEGRATED TERMS AND CONDITIONS

7. Subject to the limitations set forth in Paragraph 1 above and in this Paragraph 7, Seller shall indemnify and hold harmless Buyer from and against all claims, suits, actions, and costs for patent infringement (excluding any consequential damages, liabilities, costs, and loss of revenue or profit resulting from loss of use of the product, but including costs of replacing the infringing product or otherwise curing the infringement), provided that:

(a) Buyer shall give Seller prompt written notice of any suit for or claim of infringement.

(b) Seller's liability under this indemnity shall not exceed the amount received by Seller from Buyer for such product. This indemnity shall not apply to any product not manufactured by Seller or to any product made, in whole or in part, to Buyer's specifications, and also shall not apply to the use of a product in combination with other materials in such a manner that the combination (and not the product manufactured by Seller) is the basis for the claim of infringement. Seller shall be entitled, at its option, to settle or compromise any claim or suit for infringement and to intervene in and/or to control the defense of any infringement suit. Indemnity in this Paragraph 7 is in lieu of any other warranty or indemnity, express or implied, with respect to infringement.

8. The partial invalidity of any of these Terms and Conditions arising by operation of law shall not affect the validity and applicability of the remainder thereof. Seller may assign its rights under this order to any entity that is controlled by Seller, controls Seller, or is under common control with Seller.

9. No statement or recommendation made, or assistance given by Seller or its representatives to Buyer or its representatives shall constitute a warranty by Seller or a waiver or modification of any of the provisions hereof or create any liability for Seller. There are no understandings or agreements between Buyer and Seller relative hereto which are not fully expressed herein. These General Terms and Conditions contain the entire agreement of the parties regarding the subject matter hereof.

10. With respect to any tubular goods acquired from Seller by Buyer, Buyer agrees to handle such goods in accordance with API Publication RP 5C1, Care and Use of Casing and Tubing, including without limitation section 6.3 thereof, Storage, and with good industry practice, and to defend, indemnify and hold harmless Seller from any loss, cost or damage resulting from Buyer's failure to perform its obligations under this section ten (10).

11. RETURN GOODS POLICY:**Authorization:**

All Integrated returns must be processed through the Integrated Returns Department. All returns must be accompanied by a return authorization number. Any returns made without approval will not be accepted and will be returned to the sender at their expense.

Policy (For Sales through Stock Inventory):

Seventy-Five percent (75%) of the original invoice value (excluding shipping) will be credited on all Integrated products that are returned, in unused, as new condition within 2 months of the invoice date. Merchandise sold to Distributors is considered a final sale and no returns will be accepted or credit issued. Commissions or other fees to agents and or distributors will not be paid on returned goods. This policy does not affect or alter our warranty policy.

Policy (For Production Orders)

Integrated holds the right to reject cancellations of production orders.

12. PAYMENT TERMS:

- North America Region: Customer credit application is reviewed to determine credit acceptance. If payment terms are established, standard terms are net thirty (30) days.
- International (Outside of USA): Standard stock products payment terms are 100% due at time of order placement. For Capital Equipment that requires production, progress payments are required (typically 65% due to order placement and 35% due prior to shipment).

13. Buyer agrees to transmit a copy of the Terms and Conditions set forth herein to any and all persons to whom Buyer sells, leases or otherwise furnishes the products and/or services provided by Seller and to obtain such person's agreement hereto, and Buyer agrees to defend and indemnify Seller for any liability, loss, costs and attorneys' fees which Seller may incur by reason, in whole or part, of failure by Buyer to transmit the Terms and Conditions as provided herein, whether or not such damage was caused in whole or in part by the negligence or fault of Seller.

14. These General Terms and Conditions and any Special Conditions which may apply shall be construed under and governed by the laws of the State of Texas, U.S.A., excluding any conflict of laws principles which would call for the application of the law of another jurisdiction. To the extent the laws of any other jurisdiction are held to apply, Buyer hereby waives to the full extent permitted under such laws all rights given Buyer under such laws which are not also afforded by the laws of the State of Texas.

15. Buyer agrees to and shall defend, indemnify and hold harmless Seller Group from and against any and all claims, losses, damages, causes of action, suits, judgments, contractual indemnity obligations and liability of every kind, including all expenses of litigation, court costs, and reasonable attorney's fees, for or by reason of any injury to or death of any person or persons employed by Buyer or its suppliers and/or subcontractors, or for damage to any property owned or rented by Buyer (other than the Goods being purchased under this Purchase Order prior to delivery to Buyer) or any of its suppliers and/or subcontractors regardless of the cause of such injury, death or damage. Seller accepts the same responsibility towards Buyer Group for injury or death to employees of Seller and its other contractors and damage to property of Seller or its other contractors regardless of the cause of such injury, death, or damage. In the event of claims for injury or death to any person or persons or damage to property owned by any person or persons not covered in the preceding two sentences, each party shall defend, indemnify, and hold the other party harmless in the proportion that the indemnifying party's negligence, fault or omission caused or contributed to the alleged injury, death or damage. If for any reason this indemnity provision violates public policy, it shall be enforceable to the extent that these indemnity and hold harmless obligations are limited to the Seller's insurance or self-insurance coverage, which Seller shall obtain to cover its obligation herein and which does not exceed the amount of insurance coverage allowed by law. Without limitation, "any person or person" shall include purchasers or users of the items ordered herein. "Buyer Group" and "Seller Group" mean Buyer or Seller, respectively, and its parent company, all subsidiaries and affiliates, and its and their officers, directors, employees, agents, insurers, licensors, shareholders and invitees.

16. Buyer acknowledges that these General Terms and Conditions include provisions for the indemnification and/or exoneration of Seller against the consequences of its own negligence or fault and agrees that these General Terms and Conditions comply with the express negligence rule, are conspicuous and afford fair notice.

17. Force Majeure. Seller shall not be in default or liable to the Buyer for any costs on account of any failure to perform or for any delay in making deliveries hereunder if the same are attributable to a Force Majeure condition. In all cases involving a Force Majeure condition this Order shall continue in effect and shall be unaffected thereby (except for delivery dates). As used herein, the term "Force Majeure" shall mean all acts and events beyond the reasonable control of Seller or any of its suppliers or contractors including, but not limited to acts of God, acts of the public enemy, insurrections, riots, civil disturbances, strikes, boycotts and other direct consequences of a labor dispute or an industrial disturbance, fires, explosions, floods, severe weather conditions, breakdowns of or damage to machinery, tools, equipment or production facilities, freight embargoes, power or utility failures, laws, rules, regulations, ordinances, restraining orders and preliminary injunctions, shortages of or the inability to contract for or obtain equipment, materials, supplies or transportation facilities, and any orders, acts or other similar causes beyond the reasonable control of Seller.

13 INTEGRATED CORPORATE STATEMENTS

13.01 Integrated Quality Policy

INTEGRATED® maintains an organizational culture, commitment, and determination to achieve excellence in quality and complete customer satisfaction by delivering defect-free products and unmatched service on time every time through continual improvement in all processes.



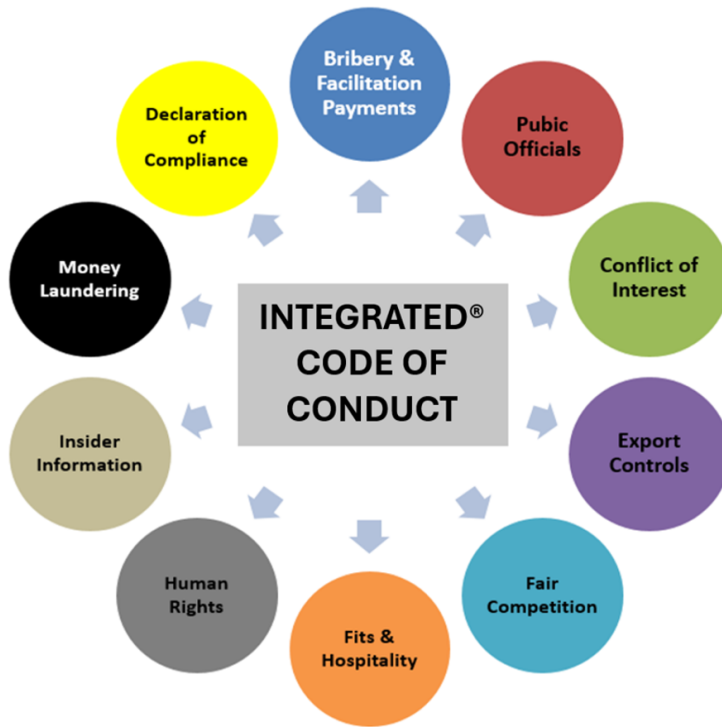
13.02 INTEGRATED Mission Statement

To support our customers by providing superior products and services of exceptional value which will help them gain a competitive advantage in their markets. To sustain our mission and vision by constantly seeking renewal via continuous education and learning and the application of new technologies and best business practices. To provide a pleasant, nurturing and growth-oriented environment which encourages our employees to be highly productive and to grow personally and professionally. To develop diversified markets which provide stability and adequate financial returns which allow us to achieve our vision and to provide opportunities for INTEGRATED® employees that follow us.



13 INTEGRATED CORPORATE STATEMENTS

13.03 INTEGRATED Code of Conduct



The CODE of Conduct Outlines INTEGRATED® ethical commitments and requirements and sets expectations for personal conduct and business practices.

INTEGRATED® shall conduct its business with integrity, respecting the laws, cultures, dignity and rights of individuals in all the countries where we operate. All INTEGRATED® employees are expected to live by our values.

Together with INTEGRATED® values, this Code of Conduct constitutes the basis and framework for our performance culture and governing documents. INTEGRATED® governing documents consist of policies with associated standards and tools, that in some instances will address the issues below in more detail, but also addressing important issues that are complementary to the business integrity matters subject to this Code of Conduct.

13.04 Health, Safety, Security and Environment

INTEGRATED® provides a healthy, safe and sustainable place to work and we know that creating such a work environment produces better business outcomes. We partner with our customers to ensure our products and work sites meet global environmental and safety requirements. We are accountable for our own safety and the safety of others in the workplace. All INTEGRATED® employees are vigilant to security concerns when they travel; health and safety risks when we plan project deployments; and environmental consideration when we design and build products.



HSE POLICY INCLUDES CLEAR GOALS FOR ALL OUR OPERATIONS

- Expect 100% Compliance in all places INTEGRATED® operates or sells products
- Provide Safe and Environmentally friendly workplace
- Minimize the Use and Release of hazardous materials
- Asses all new activities and products for Environment, Health and Safety impacts
- Implement the HSE Management System in all locations.



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