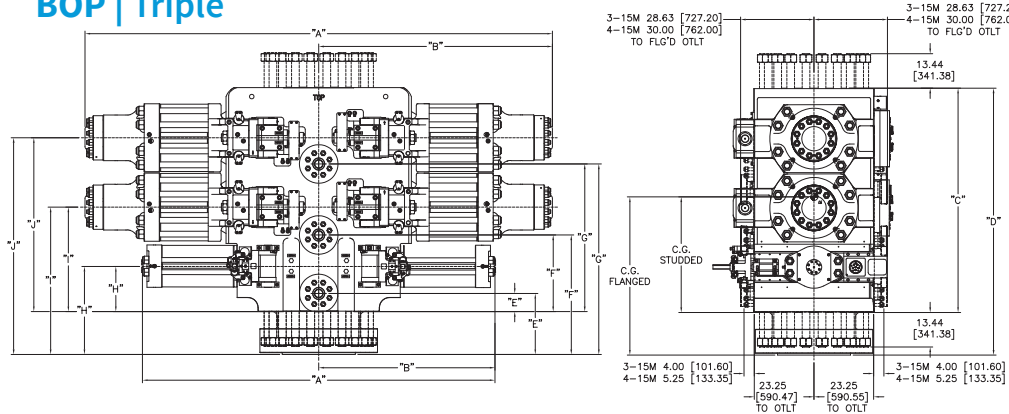


BOP | Triple

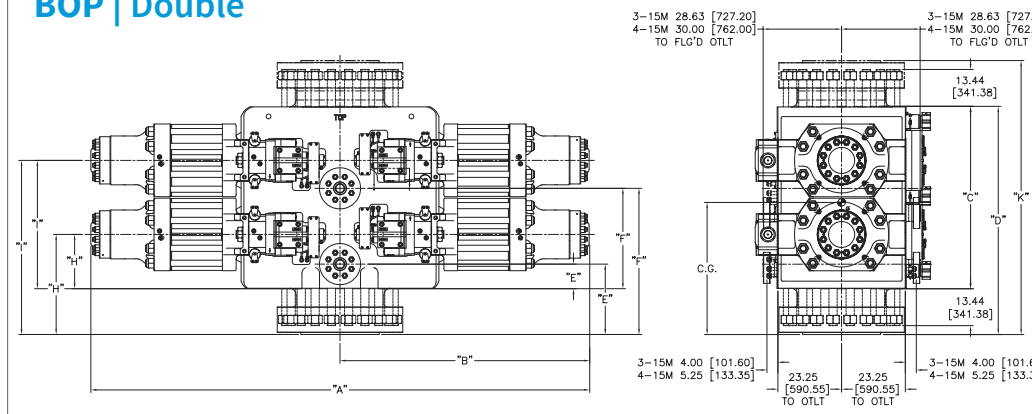


BOP Triple	Flange Configuration	Height		Cavity				Outlet			Est. Assembly Weight w/out blocks (+1000lbs/cavity)
		D	H	I	J	E	F	G			
	14x14x14 SXF	89.3	35.7	52.7	69.7	24.4	44.4	64.4	63,000 lbs		
	22x22x14 SXF	104.1	34.5	57.5	84.5	23.8	46.5	74.2	101,700 lbs		
	22x22x22 SXF	110.3	36.7	63.7	90.7	25.1	52.7	80.4	121,650 lbs		
	14x14x14 SXS	N/A	19.5	36.5	53.5	8.0	28.0	48.8			

Center of Gravity

DIM	BOP	Door Configuration			± 1" (± 25mm)
		Upper	Middle	Lower	
C.G.	14X14X14	14" UIIB	14" UIIB w/ ILF	14" UIIB	50.2 (1274.2)
C.G.	22X22X14	22" PSLK	22" PSLK	14" PSLK	61.7 (1566.3)
C.G.	22X22X22	22" PSLK LFS	22" PSLK LFS	22" PSLK LFS	61.9 (1572.7)

BOP | Double

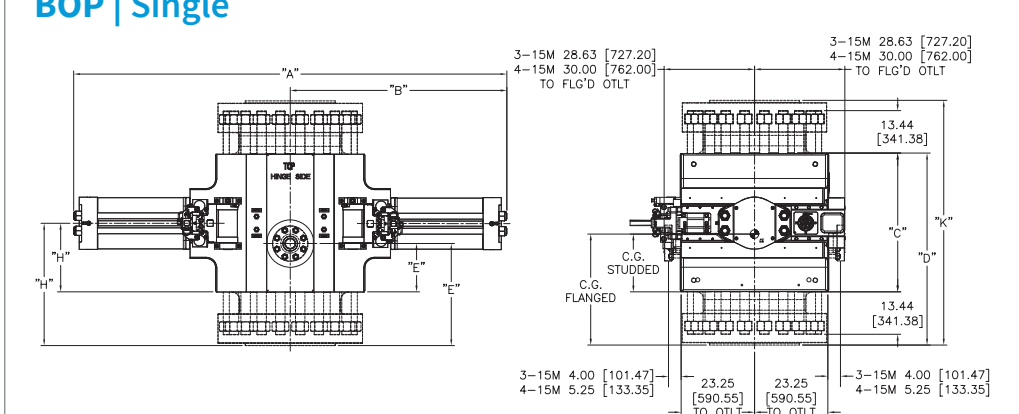


BOP Double	Flange Configuration	Height		Cavity		Outlet		Est. Assembly Weight w/out blocks (+1000lbs/cavity) ± 100 lbs
		D	K	H	I	E	F	
	14x14 SXF	72.3	N/A	35.9	52.9	24.4	44.4	46,700 lbs
	14x14 FXF	N/A	88.7	35.9	52.9	24.4	44.4	51,850 lbs
	22x14 SXF	81.1	N/A	36.4	50.1	28.9	51.6	65,250 lbs
	22x22 SXF	83.2	N/A	36.6	63.6	25.7	53.3	85,100 lbs

Center of Gravity

DIM	BOP	Door Configuration		± 1" (± 25mm)
		Upper	Lower	
C.G.	14X14 SXF	14" UIIB	14" UIIB	41.9 (1064)
C.G.	14X14 FXF	14" PSLK 14" BSTR	14" MNLK	44.9 (1140)
C.G.	22X14 SXF	22" PSLK	14" MNLK	48.4 (1229)
C.G.	22X22 SXF	22" PSLK	22" PSLK	48.2 (1224)

BOP | Single



BOP Single	Flange Configuration	Height			Cavity	Outlet	Est. Assembly Weight w/out blocks (+1000lbs/cavity) ± 100 lbs
		C	D	K			
	14 SXF	N/A	60.8	N/A	38.8	32.3	35,150 lbs
	14 FXF	N/A	N/A	77.3	38.6	32.3	38,200 lbs
	22 SXF	N/A	61.9	N/A	39.1	28.7	56,650 lbs
	22 SXS	45.0	N/A	N/A	22.2	11.8	53,800 lbs

Center of Gravity

DIM	BOP	Door Configuration	± 1" (± 25mm)
C.G.	14 SXF	14" UIIB	35.3 (896.6)
C.G.	14 FXF	14" MNLK	38.5 (978)
C.G.	22 SXF	22" PSLK	37.4 (950.0)
C.G.	22 SXS	22" PSLK	22.5 (571.5)

18-15m NXT BOP Assembly Features

Operator Characteristics	14" UIIB	14" U2B ILF	22" PSLK SMX	14" PSLK 14" BSTR LFS	14" PSLK 14" BSTR
Operator Weight (w/ fluid)	3,300 lbs	3300 lbs	8,600 lbs	4,250 lbs	4,200 lbs
OPEN	15.8 lbs	15.8 Gal	42.8 Gal	32.1 Gal	26.6 Gal
CLOSE	16.8 Gal	16.8 Gal	46.1 Gal	33.7 Gal	27.9 Gal
Max. Working Pressure	3,000 psi	3,000 psi	5,000 psi	3,000 psi	3,000 psi

Boltless BOP Doors

Shaffer™ NXT BOP Systems are unique in providing a means of significantly improving safety and efficiency in the critical path of activity. With the replacement of the door bolts in ram BOPs, National Oilwell Varco has eliminated the time consuming manual practice of using brute force to torque up numerous large door bolts. A number of benefits have been realized with this development:

- Reduced Weight (lightest BOP systems in the industry)
- Reduced Height (smallest BOP systems in the industry)
- Elimination of Manual Labor Under Time Pressure

Multi-Rams

Shaffer™ addresses the need for changing out rams on a tapered drillstring by offering Multi-Ram assemblies to cover a range of varying ODs of drill pipe:

Supported Inner Diameter Range:

3 1/2" - 5 7/8"	3 1/2" - 6 5/8"
4 1/2" - 6 5/8" HT	5" - 7 5/8"

Hydraulic System

Hydraulic power to operate a Model NXT ram BOP can be furnished by any standard oil field accumulator system. Hydraulic passages drilled through the body eliminate the need for external manifold pipes between the hinges. Each set of rams requires only one opening and one closing line. There are two opening and two closing hydraulic ports, clearly marked, on the back side of the BOP. The extra hydraulic ports facilitate connecting the control system to the preventer. A standard hydraulic accumulator unit will close any Model NXT ram with rated working pressure in the well bore.

Ultra-Temp™

The conservative Shaffer™ testing procedures call for maintaining pressure and temperature for the duration of the test. Even with these stringent demands, the UltraTemp rams hold in witnessed testing. Shaffer™ UltraTemp ram assemblies are designed to safely withstand wellbore pressures up to 15,000 psi and extreme temperatures up to 350°F (177°C) for prolonged periods. This translates into rigsite capability to safely evacuate personnel and equipment in the event of a major high temperature, high pressure kick.

Low Force Blind Shear (LFS) Rams

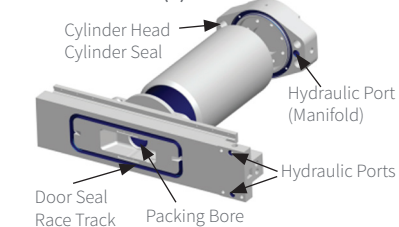
The force required to shear casing is reduced by at least 50%. The LFS Ram sever 14", 113ppf, Q-125 casing at 2700 psi with a 22" operator. Multiple shear and seal sequences can be performed with the same assembly, including conditions where the drill pipe is hung-off below the shear ram cavity, enhancing reliability and extending the length of the BOP stack deployment.

- Less pressure required to shear
- Capable of centering pipe before shearing
- Shearing range
- Wireline to 14"
- Temperature Range: 30°F to 300°F (-1°C to 149°C)

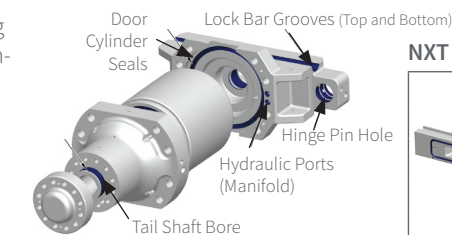
Weldless Cavity

The introduction of no weld cavities in previous Shaffer™ BOP designs is carried on in the NXT models. This feature introduces replaceable parts to the cavity to eliminate extensive in-shop repairs and post weld heat treatments. The seal seat, skid plate and side pads can be replaced upgrading the BOP cavity tolerances to as new condition.

14" Ultra Lock II (B) Door



22" PosLock Door



*For 22" PosLock door-specific applications, refer to the table titles "NXT Door-CREP Level Variants-22"Door" on DOC# 10832351-INF

NXT Body-CREP Level 7

Body Area	Inlay/Coating
Door Seal	Inconel
Top Seat	Inconel
Bottom Seat (reversible cavity only)	Inconel
Hydraulic Ports	Inconel
Left/Right Face	Phosphate
Lock Rod Groove	Phosphate
Ring Groove	Inconel

NXT Door-CREP Levels*

Door Area	CREP Level H	CREP Level J	CREP Level K
Hinge Pin Hole	Phosphate	Phosphate	Inconel
Door Seal Race Track	Inconel	Inconel	Inconel
Hydraulic Ports	Phosphate	Phosphate	Inconel
Cylinder Ports	Phosphate	Phosphate	Inconel
Packing Bore	Inconel	Inconel	Inconel
Lock Bar Groove	Phosphate	Phosphate	Phosphate
Cylinder Bore	Phosphate	Chrome	Inconel