

## stage cementing equipment

**TECHNICAL SHEET****TYPE 664 - Hydraulic Stage Collar with BHI Non-PT Insert**

Type 664 - Hydraulic Stage Collar features two internal sleeves that shift during the stage cementing operations. A specially designed upper/closing seat is used to match the nose profile of Baker Hughes (BHI) liner latch-down plug. With this modification, the stage collar can be closed using BHI's liner plugs without any need of modification to the plug nose. The stage collar can be field set to open hydraulically at different opening pressures. This is achieved through the addition or removal of the brass shear screws from the stage cementing tool.

**Primary Application:**

Type 664 - Hydraulic Stage Collar is designed for use in liner applications when used with BHI's liner plug.

**Performance Features:**

- Latch-down insert ensures plug does not get dislodged due to back pressure.
- Boasts a robust locking mechanism.
- Consistent shifting pressure that is field adjustable.
- Externally installed set screws.
- Standard tools are furnished with API L-80 material suitable for sour gas service.
- Standard seals rated for -15°F to +400°F and suitable for sour service and high pressure gas environments.
- PDC drillable.

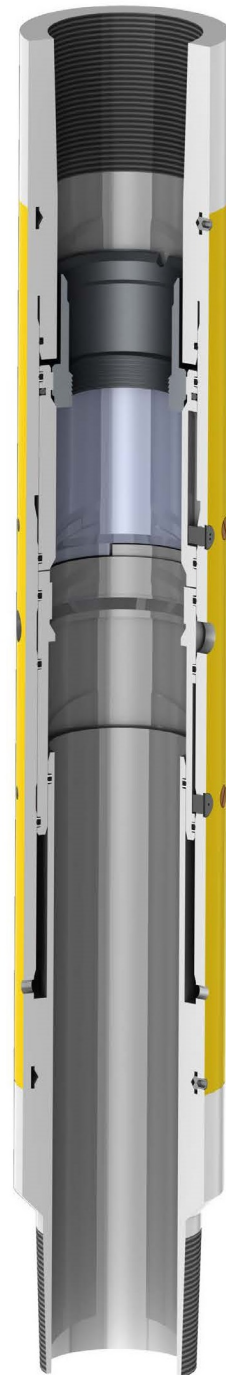
**Options:**

- Tools can be manufactured with premium connections and special clearance outside diameters.

**Drill Out Torque Limit:**

SIZE	TORQUE (ft/lbs)	TORQUE (Nm)
<b>4-1/2"</b>	19,544	26,498

*Top-Co's Type 664 - Hydraulic Stage Collar with BHI Insert is covered by US Patent Number: US 8,496,051 B2*



**Type 664**  
Hydraulic Stage Collar  
with BHI Insert

stage cementing equipment

**TECHNICAL SHEET****TYPE 662 - Hydraulic Stage Collar with SLB Insert****Sequence of Operation:****Step 1.**

Stage collar in running in and first stage cementing position. First stage shut-off plug will pass through the stage cementing collar while displacing first stage cement, landing on baffle plate located in float collar.

**Step 2.**

**Hydraulic Opening**—Opening (bottom) sleeve shifted down after applying pressure (refer to operating specs table), allowing second stage cement to be displaced through ports.

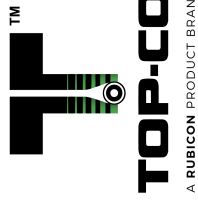
**Step 3.**

Second stage cement complete. Second stage closing displacement plug landed in Stage cementing collar closing seat. Applying pressure above the plug will close the sleeve, cover the stage collar ports. Two stage cement job and tool operation complete.

stage cementing tool

**TECHNICAL SHEET**

**TYPE 662 - Hydraulic Stage Collar with SLB Insert**



**Operating Specifications - English**

SIZE (mm)	CASING WEIGHT (lbs./ft)	OPENING PRESSURE - HYDRAULIC (psi)								CLOSING PRESSURE (psi)	CLOSING FORCE (lbs)	L80		P-110	
		Screws										MAXIMUM BURST PRESSURE (psi)	MAXIMUM COLLAPSE PRESSURE (psi)	MAXIMUM BURST PRESSURE (psi)	MAXIMUM COLLAPSE PRESSURE (psi)
		8	7	6	5	4	3	2							
4-1/2"	9.5 - 11.6	3,600	3,150	2,700	2,250	1,800	1,350	900	1,200 - 1,500	15,240 - 17,160	8,948	8,408	12,303	15,500	
	13.5 - 15.1														
5"	11.5 - 13	3,600	3,150	2,700	2,250	1,800	1,350	900	1,000 - 1,300	17,240 - 19,160	8,252	7,152	11,319	8,711	
	15 - 18														
7"	20 - 26	3,600	3,150	2,700	2,250	1,800	1,350	900	800 - 1,100	27,400 - 29,400	6,236	3,650	8,575	4,271	
	29 - 32														
9-5/8"	32.3 - 36	3,600	3,150	2,700	2,250	1,800	1,350	900	500 - 800	38,600 - 40,600	5,440	2,738	7,480	2,978	
	40 - 53.5														

SIZE (in)	LOAD BELOW THE TOOL (lbs)	MAX TEMP RATING (°F)	CEMENTING PORTS	OD (in)	STAGE TOOL BODY		
					MAX DRILLOUT ID (in)	CLOSING SEAT ID (in)	
4-1/2"	135,000	400	8 x Dia. 0.875"	5.750	3.975	3.000	
					3.805		
5"	150,000	400	8 x Dia. 0.875"	6.250	4.445	3.250	
					4.293		
7"	200,000	400	8 x Dia. 0.875"	8.250	6.351	5.250	
					6.161		
9-5/8"	300,000	400	10 x Dia. 0.875"	11.125	8.855	7.760	
					8.689		

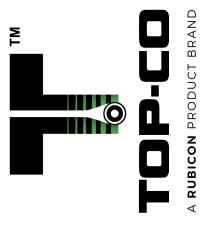
NOTE:

1. Casing weight ranges apply to API 8RD and Buttress connections only.
2. Do not remove more than 6 of the 8 shear screws.
3. Max Temperature rating of 400°F.
4. Cementing Ports Configuration (# of ports x diameter): 8 x 0.875".

stage cementing tool

**TECHNICAL SHEET**

**TYPE 662 - Hydraulic Stage Collar with SLB Insert**



**Operating Specifications - Metric:**

SIZE (mm)	CASING WEIGHT (kg/m)	OPENING PRESSURE - HYDRAULIC								CLOSING FORCE (kN)	L80		P-110		
		Screws									CLOSING PRESSURE (MPa)	MAXIMUM BURST PRESSURE (MPa)	MAXIMUM COLLAPSE PRESSURE (MPa)	MAXIMUM BURST PRESSURE (MPa)	MAXIMUM COLLAPSE PRESSURE (MPa)
		8	7	6	5	4	3	2							
114.30	14.14 - 17.26	24.82	21.72	18.62	15.51	12.41	9.31	6.21	67.79 - 76.33	61.70	57.97	84.93	106.87		
	20.09 - 22.47														
127.00	17.11 - 19.35	24.82	21.72	18.62	15.51	12.41	9.31	6.21	76.69 - 85.23	56.76	49.31	78.04	60.06		
	22.32 - 26.79														
177.80	29.76 - 38.69	24.82	21.72	18.62	15.51	12.41	9.31	6.21	121.88 - 130.78	43.00	25.17	59.12	29.45		
	43.16 - 47.62														
244.48	48.07 - 53.57	24.82	21.72	18.62	15.51	12.41	9.31	6.21	171.70 - 279.94	37.51	18.88	51.57	20.53		
	59.53 - 79.62														

SIZE (mm)	LOAD BELOW THE TOOL (kN)	MAX TEMP RATING (°C)	CEMENTING PORTS	OD (mm)	STAGE TOOL BODY		
					MAX DRILLOUT ID (mm)	CLOSING SEAT ID (mm)	
114.30	600	204	8 x Dia. 22mm	146.05	100.97	76.20	
					96.65		
127.00	667	204	8 x Dia. 22mm	158.75	112.90	82.55	
					109.04		
177.80	890	204	8 x Dia. 22mm	209.55	161.32	133.35	
					156.49		
244.48	1,334	204	10 x Dia. 22mm	282.58	224.92	197.10	
					220.70		

NOTE:

1. Casing weight ranges apply to API 8RD and Buttress connections only.
2. Do not remove more than 6 of the 8 shear screws.
3. Max Temperature rating of 400°F.
4. Cementing Ports Configuration (# of ports x diameter): 8 x 0.875".