



TCI SHORT-TECH10

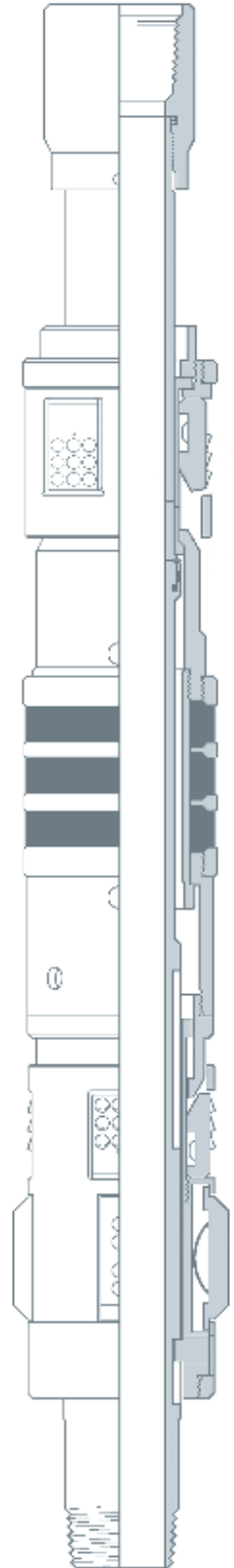
The TCI Short-Tech10 is a retrievable packer that functions like a permanent drillable packer. It is ideal for many injection, production and zone isolation functions. Once it is set, it mechanically locks for no movement and will hold pressure from above or below with no requirement for set down weight, tension, or hydraulic hold down to maintain its pack-off. When run with an on/off tool, the tubing string can be disconnected and removed while leaving the packer in its set position.

This packer is ideal for isolating bad sections of casing in pumping wells, and allows the tubing to be set in neutral so seasonal fluid temperature changes in water flood wells do not cause problems. Tubing elongation will not affect the pack-off. The tubing also can be in tension, allowing the packer to be used as a tubing anchor/catcher when required.

Since it is a short packer, the TCI Short-Tech10 is extremely useful in highly deviated wells and is designed to withstand up to 10,000 PSI differential pressure. Its slips and drag blocks are carbide-tipped.

The slips are contained inside a slip window to minimize the possibility of hanging up on casing ID abnormalities. The combination of the TCI Short-Tech10 packer's short length and enclosed slips make this tool an excellent choice for horizontal applications.

Using a standard pressure setting device, the TCI Short-Tech10 Packer is also designed to be run and set on wireline.



size	Weight	Gage ring OD	Packer Bore	Connections
2 7/8	8.6-8.7	2.125	0.69	1.660 EU10Rd
	6.4-6.5	2.300		
3 1/2	9.2-10.3	2.78	1.25	1.900 EU10Rd
	7.7-9.3	2.844		
4 1/2	9.5-13.5	3.771	1.75	2 3/8 EU8Rd Box x 2 3/8 NU10Rd Pin
5 1/2	17-23	4.500	2.00	2 3/8 EU8Rd
	14-20	4.641		
	13-15.5	4.781		
	17-23	4.500	2.38	
14-20	4.641			
13-15.5	4.781			
7	32-38	5.625	2.44	2 7/8 EU8Rd
	26-35	5.844		
	23-29	5.969		
	17-26	6.078		



TCI SHORT-TECH7 PACKER:

The **TCI SHORT-TECH7** Packer is the most versatile of the mechanically set retrievable packers and may be used in any production application. The **TCI SHORT-TECH7** Packer is suited for treating, testing or injection applications, in pumping or flowing wells, either deep or shallow. The packer can be left in tension or compression, depending on well conditions and the required application. An internal by-pass reduces swabbing when running and retrieving. The by-pass closes when the packer is set and opens prior to releasing the upper slips when retrieving to allow pressure equalization. The J-Slot design allows easy setting and releasing: ¼ turn to set and release.

The **TCI SHORT-TECH7** Packer is rated to 7K PSI and can be configured with different elastomers and metallurgies to suit down hole conditions.

SPECIAL FEATURES:

- By-pass below upper slips to wash debris when valve is opened
- By-pass is opened before upper slips are released
- Can be set with tension for shallow well applications
- Can be left in tension, compression or neutral
- ¼ turn right hand set, right hand release standard
- Additional J-Slot arrangements available
- Short, compact design

PRODUCT SPECIFICATIONS:

Casing		Recommended Hole Size (in)	Tool OD (in)	Tool ID (in)	Thread Connection (Box Up / Pin Down)	TCI Part No.
Size (in)	Weight (ppf)					
4 ½	9.5 – 13.5	3.920 – 4.090	3.750	1.94	2 3/8" EUE	TB.75.A.37.23
7	17 – 26	6.276 – 6.538	6.062	2.50	2 7/8" EUE	TB.75.A.60.27





TCI 10K Mechanical Set Double Grip Retrieval Packer

The TCI 10K is a multi-purpose double grip, retrievable packer. This mechanically set packer can be used in any production application. It is also well suited for treating, testing and injecting in shallow to deep pumping or flowing wells. The packer features a large internal bypass to reduce swabbing when running or retrieving. The bypass closes when the packer is set and opens before releasing the upper slip to allow for pressure equalization. The packer is designed to withstand pressure differentials up to **69000 kpa (10000 psi)**.

Features:

- Can be set with tension and compression
- Can be landed in tension, compression and neutral
- 1/4 turn right hand set, right hand release (left hand set/release options available)
- Bypass below upper slips to assist in washing debris when the valve is opened
- Bypass is opened before slips are released for safe release of packer
- Secondary shear release option available
- Carbide button slips available for P-110 casing applications

CASING		PRODUCT INFO: TCI 10K					
O.D. in/mm	WEIGHT lb/ft / kg/m	CASING I.D. RANGE		MINIMUM O.D. in/mm	MINIMUM I.D. in/mm	THREAD CONNECTION	TCI PART REFERENCE
		Min in/mm	Max in/mm				
4.5 114.3	9.5-13.5	3.920	4.090	3.75	1.94	2.375" EUE	TA.10.Q.37.23
	14.14-20.1	99.57	103.89	95.25	49.28	60.3 mm EUE	
5.5 139.7	13.0-14.0	5.012	5.044	4.813	2.38	2.875" EUE	TA.10.Q.47.27
	19.35-20.83	127.30	128.12	122.25	60.45	73.0 mm EUE	
	15.5-17.0 23.07-25.30	4.892 124.26	4.950 125.73	4.625 117.48	2.38 60.45	2.875" EUE 73.0 mm EUE	TA.10.Q.46.27
7.0 177.8	17.0-26.0	6.276	6.538	6.062	2.50	2.875" EUE	TA.10.Q.60.27
	25.3-38.69	159.41	166.07	153.98	63.5	73.0 mm EUE	
	26-32 38.69-47.62	6.094 154.78	6.276 159.41	5.875 149.23	2.50 63.5	2.875" EUE 73.0 mm EUE	TA.10.Q.58.27

Other sizes and weight ranges available upon request. Contact your TCI sales representative for details and delivery.





TCI 7.5K Mechanical Set Double Grip Retrievable Packer

The TCI 7.5K mechanical set double grip retrievable packer is a multi purpose double grip, retrievable packer. This mechanically set packer can be used in any production application. It is also well suited for treating, testing and injecting in shallow to deep pumping or flowing wells. The packer features a large internal bypass to reduce swabbing when running or retrieving. The bypass closes when the packer is set and opens before releasing the upper slip to allow for pressure equalization. The packer is designed to withstand pressure differentials up to 52500 kpa (7500 psi) and is manufactured with NACE compatible materials.

Features:

- Can be set with tension and compression
- Can be landed in tension, compression and neutral
- 1/4 turn right hand set, right hand release (left hand set/release options available)
- Bypass below upper slips to assist in washing debris when the valve is opened
- Bypass is opened before slips are released for safe release of packer
- Secondary shear release option available
- Carbide button slips available for P-110 casing applications

CASING		PRODUCT INFO: TCI 7.5K					
O.D. in/mm	WEIGHT lb/ft / kg/m	CASING I.D. RANGE		MAXIMUM O.D. in/mm	MINIMUM I.D. in/mm	THREAD CONNECTION	TCI PART REFERENCE
		Min in/mm	Max in/mm				
4.5 114.3	9.5-13.5	3.920	4.090	3.75	1.94	2.375" EUE	TA.75.Q.37.23
	14.14-20.1	99.57	103.89	95.25	49.28	60.3 mm EUE	
5.5 139.7	13.0-14.0	5.012	5.044	4.813	2.38	2.875" EUE	TA.75.Q.47.27
	19.35-20.83	127.30	128.12	122.25	60.45	73.0 mm EUE	
	15.5-17.0	4.892	4.950	4.625	2.38	2.875" EUE	TA.75.Q.46.27
7.0 177.8	23.07-25.30	124.26	125.73	117.48	60.45	73.0 mm EUE	
	17.0-26.0	6.276	6.538	6.062	2.50	2.875" EUE	TA.75.Q.60.27
	25.3-38.69	159.41	166.07	153.98	63.5	73.0 mm EUE	
	26-32	6.094	6.276	5.875	2.50	2.875" EUE	TA.75.Q.58.27
	38.69-47.62	154.78	159.41	149.23	63.5	73.0 mm EUE	

Other sizes and weight ranges available upon request. Contact your TCI sales representative for details and delivery.





TCI W10K Wireline Set Double Grip Retrievable Packer

The TCI W10K is a multi-purpose double grip retrievable packer. This wireline set packer can be used in any production application. It is also well suited for treating, testing and injecting in shallow to deep pumping or flowing wells. The packer is designed to withstand pressure differentials up to **69000 kpa (10000 psi)** .

Features:

- Can be landed in tension, compression and neutral
- 1/4 turn right hand release
- Bypass below upper slips to assist in washing debris when the valve is opened
- Bypass is opened before slips are released for safe release of packer
- May be run with wire line blanking plug in the ON-OFF profile
- Packer can converted to a mechanically set TCI 10K
- Carbide button slips available for P-110 casing applications
- Secondary shear release option available

CASING		PRODUCT INFO: TCI W10K					
O.D. in/mm	WEIGHT lb/ft / kg/m	CASING I.D. RANGE		MAXIMUM O.D. in/mm	MINIMUM I.D. in/mm	THREAD CONNECTION	TCI PART REFERENCE
		Min in/mm	Max in/mm				
4.5 114.3	9.5-13.5	3.920	4.090	3.75	1.94	2.375" EUE	TA.10.Q.37.23.W
	14.14-20.1	99.57	103.89	95.25	49.28	60.3 mm EUE	
5.5 139.7	13.0-14.0	5.012	5.044	4.813	2.38	2.875" EUE	TA.10.Q.47.27.W
	19.35-20.83	127.30	128.12	122.25	60.45	73.0 mm EUE	
	15.5-17.0 23.07-25.30	4.892 124.26	4.950 125.73	4.625 117.48	2.38 60.45	2.875" EUE 73.0 mm EUE	TA.10.Q.46.27.W
7.0 177.8	17.0-26.0	6.276	6.538	6.062	2.50	2.875" EUE	TA.10.Q.60.27.W
	25.3-38.69	159.41	166.07	153.98	63.5	73.0 mm EUE	
	26.0-32.0 38.69-47.62	6.094 154.78	6.276 159.41	5.875 149.23	2.50 63.5	2.875" EUE 73.0 mm EUE	TA.10.Q.58.27.W



**Other sizes and weight ranges available upon request. Contact your TCI sales representative for details and delivery.*



**TCI W7.5K Wireline Set
Double Grip Retrievable Packer**

The TCI W7.5K is a multipurpose double grip retrievable packer. This wireline set packer can be used in any production application. It is also well suited for treating, testing and injecting in shallow to deep pumping or flowing wells. The packer is designed to withstand pressure differentials up to **52500 kpa (7500 psi)** and is manufactured with NACE compatible materials.

Features:

- Can be landed in tension, compression and neutral
- 1/4 turn right hand release
- Bypass below upper slips to assist in washing debris when the valve is opened
- Bypass is opened before slips are released for safe release of packer
- May be run with wire line blanking plug in the ON-OFF profile
- Packer can converted to a mechanically set ASI-X
- Carbide button slips available for P-110 casing applications
- Secondary shear release option available

CASING		PRODUCT INFO: TCI W7.5K					
O.D. in/mm	WEIGHT lb/ft / kg/m	CASING I.D. RANGE		MAXIMUM O.D. in/mm	MINIMUM I.D. in/mm	THREAD CONNECTION	TCI PART REFERENCE
		Min in/mm	Max in/mm				
4.5 114.3	9.5-13.5	3.920	4.090	3.75	1.94	2.375" EUE	TA.75.Q.37.23.W
	14.14-20.1	99.57	103.89	95.25	49.28	60.3 mm EUE	
5.5 139.7	13.0-14.0	5.012	5.044	4.813	2.38	2.875" EUE	TA.75.Q.47.27.W
	19.35-20.83	127.30	128.12	122.25	60.45	73.0 mm EUE	
7.0 177.8	15.5-17.0	4.892	4.950	4.625	2.38	2.875" EUE	TA.75.Q.46.27.W
	23.07-25.30	124.26	125.73	117.48	60.45	73.0 mm EUE	
	17.0-26.0	6.276	6.538	6.062	2.50	2.875" EUE	TA.75.Q.60.27.W
	25.3-38.69	159.41	166.07	153.98	63.5	73.0 mm EUE	
7.0 177.8	26-32	6.094	6.276	5.875	2.50	2.875" EUE	TA.75.Q.58.27.W
	38.69-47.62	154.78	159.41	149.23	63.5	73.0 mm EUE	



**Other sizes and weight ranges available upon request. Contact your TCI sales representative for details and delivery.*



TCI HI Hydraulic Set Retrievable Packer

Product Overview

The TCI HI is a high performance hydraulic set single string retrievable packer designed for applications where mechanical manipulation of the packer is not possible or practical such as in high angle well bores, where multiple packers must be stacked in a single well bore, or where the well head is to be flanged up prior to setting the packer. The TCI HI is set by applying pressure to the tubing string and is released by applying tension to the tubing string. An integral equalization valve ensures tubing to annulus pressure is balanced during release and retrieval. Releasing shear force is field adjustable prior to running to accommodate particular well conditions. The TCI HI is the most compact packer of its kind for ease of handling and deployment and is extremely simple and economical to service and re-dress. Reconfiguration to accommodate a change in casing weight is accomplished simply by changing only the gauge and spacer rings and does not require that the packer be disassembled. The TCI HI uses the fewest a-rings of any competing product in the industry which means the fewest possible leak paths, and apart from the by-pass seal, all critical a-rings are below the packing elements resulting in the most secure and reliable packer available. Standard configuration includes materials which conform to NACE MR-01-75 for H₂S service applications with differential pressure ratings of up to 7,500 psi *. The TCI HI is also available in alternate materials and configurations for severe environments and higher differential pressure ratings *. A full line of accessory equipment is available such as on/off seal connectors, pump out plugs, expansion joints, tension release subs and profile nipples.

Features

- o Largest possible bore through the packer.
- o Simple hydraulic set by pressuring up on tubing string.
- o Ideal for high angle wells or stacked completions.
- o No mandrel movement during setting.
- o Large piston area allows low setting pressures.
- o Simple straight pull shear release.
- o Fewest a-rings and leak paths of any competing product.
- o Optional test clamp allows full surface pressure test prior to running.
- o Reliable three piece multi durometer packing element.
- o Extremely compact for ease of handling and deployment.
- o Extremely simple for ease of service and re-dress.
- o Rig floor convertible to alternate casing weights without disassembly.
- o May be landed in neutral, tension or compression.
- o May be set after well head is flanged up.
- o Double acting slip system securely holds loads from above and below.
- o Packing element holds pressures from above and below.
- o Packer seals and grips tighter as pressure increases from either direction.
- o Wide variety of elastomer options available.
- o Available in corrosion resistant alloys for hostile environments.
- o All standard and premium thread connections are available.
- o Up to 7,500 psi differential pressure rating.*



Your Completions is our Business



TCI H-SEAL1 HYDRAULIC RETRIEVABLE PACKER

The **TCI H-SEAL1** is a compact, tough and reliable single string hydraulic set retrievable packer ideal for use in deviated wells, multiple packer completions and applications where the packer(s) is to be set after the well is flanged up.

Since no mandrel movement occurs during setting, the **TCI H-SEAL1** may be used in either single packer installations, or as the lower packer in multiple zone dual completions. It is also ideal for multiple packer single string completion. Multiple packers can be set simultaneously or staged with optional wireline controlled selective setting.

PRODUCT FEATURES:

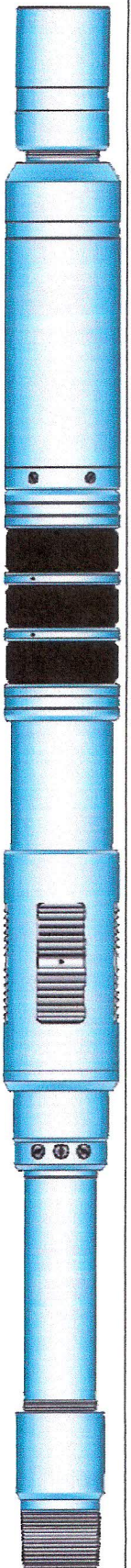
- Minimum number of internal elastomeric seals for increased reliability.
- Straight pick-up shear release system, which is fully adjustable.
- Easily adjustable setting trigger.
- Short compact design is ideal for highly deviated wells.
- Multi-Durometer three piece element system.
- All components locked to prevent preset.

SETTING PROCEDURE:

The packer(s) is run into setting depth. Pressuring up against a plugging device such as a pump out plug or wireline blanking plug sets the packer(s). Setting pressure required depends on packer size and element system (minimum setting pressure 2,000 psi)

RELEASING PROCEDURE:

A force in excess of the releasing shear value is pulled on the tubing. This will open the equalizing system and release the packer.





GAS VENT PUMPING PACKER

The TCI Gas Vent Pumping Packer offers an inexpensive option for isolating Casing Leaks and Depleted perforations in pumping wells. This tool prevents Gas Lock by allowing gas to vent to the surface past damaged zones. The interval between top and bottom cups can be any length. The product is available with double or multiple cups.

SPECIAL FEATURES:

- ✓ Inexpensive Alternative to Squeeze Job
- ✓ Variable intervals easily adjusted
- ✓ Optional Double to Multiple Cups

PRODUCT SPECIFICATIONS:

Casing		Tubing Size (inches)	Liner Size (inches)	Tool OD (inches)	Tool ID (inches)	Part Number
Size (inches)	Weight (lb/ft)					
4 ½	9.5 – 13.5	2-3/8	3" Line Pipe	3.813	2.69	42145
5 ½	13 – 20	2-3/8	3" Line Pipe	4.000	2.75	42155
		2-7/8	3 ½" Line Pipe	4.625	3.13	42156
7	20 – 29	2-7/8	4 ½' LTC	5.000	3.13	42170

- *Other Sizes and Connections available on request*



Standard



4 Cup Version



SPECIFICATIONS								
Casing			Techseal					
Size	Weight		Gauge		ID		Connection	
in / mm	lbs/ft	kg/m	in	mm	in	mm	in	mm
4 101.6	11.6	17.3	3.328	84.5	1.610	40.9	1.900	48.3
	9.5	14.1	3.420	86.9	1.938	49.2	2.375	60.3
4 1/2 114.3	9.5-13.5	14.1-20.1	3.700	94.0	1.938	49.2	2.375	60.3
			3.771	95.8				
5 127.0	15.0-18.0	22.3-26.8	4.125	104.8	1.938	49.2	2.375	60.3
	11.5-13.0	17.1-19.3	4.250	108.0				
5 1/2 139.7	15.5-20.0	23.1-29.8	4.641	117.9	1.938	49.2	2.375	60.3
	13.0-14.0	19.3-20.8	4.781	121.4				
	15.5-20.0	23.1-29.8	4.641	117.9	2.375	60.3	2.875	73.0
	13.0-14.0	19.3-20.8	4.781	121.4				
5 3/4 146.1	17.0-20.0	25.3-29.8	4.950	125.7	2.375	60.3	2.875	73.0
6 5/8 168.3	28.0-32.0	41.7-47.6	5.484	139.3	2.375	60.3	3.500	88.9
	24.0-28.0	35.7-41.7	5.625	142.9				
7 177.8	32.0-35.0	47.6-52.1	5.812	147.6	2.500	63.5	2.875	73.0
	26.0-29.0	38.7-43.2	5.968	151.6				
	20.0-26.0	29.8-38.7	6.078	154.4				
	17.0-20.0	25.3-29.8	6.266	159.2				
	32.0-35.0	47.6-52.1	5.812	147.6	3.000	76.2	3.500	88.9
	26.0-29.0	38.7-43.2	5.968	151.6				
	20.0-26.0	29.8-38.7	6.078	154.4				
	17.0-20.0	25.3-29.8	6.266	159.2				
7 5/8 193.7	33.7-39.0	50.1-58.0	6.453	163.9	2.500	63.5	2.875	73.0
					3.000	76.2	3.500	88.9
	24.0-29.7	35.7-44.2	6.672	169.5	2.500	63.5	2.875	73.0
					3.000	76.2	3.500	88.9
8 5/8 219.1	44.0-49.0	65.5-72.9	7.312	185.7	3.000	76.2	3.500	88.9
	32.0-40.0	47.6-59.5	7.531	191.3				
	20.0-28.0	29.8-41.7	7.781	197.6				
9 5/8 244.5	47.0-53.5	69.9-79.6	8.218	208.7	3.000	76.2	3.500	88.9
	40.0-47.0	59.5-69.9	8.437	214.3				
	47.0-53.5	69.9-79.6	8.218	208.7				
	40.0-47.0	59.5-69.9	8.437	214.3	4.000	101.6	4.500	114.3
	29.3-36.0	43.6-53.6	8.593	218.3				
13 3/8 339.7	77.0-98.0	114.6-145.8	11.625	295.3	3.958	100.5	4.500	114.3
	48.0-72.0	71.4-107.1	12.125	308.0				

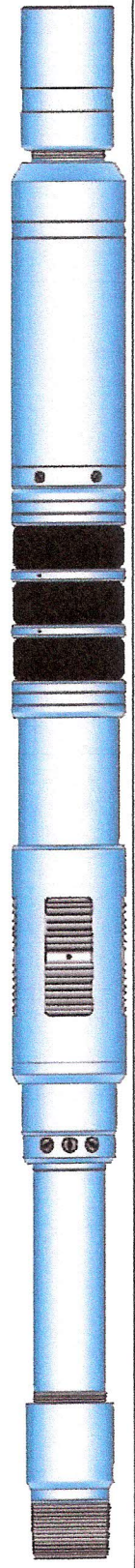




TABLE 1
TUBING PRESSURE DIFFERENTIAL
TO START SETTING PACKER

Size	4-1/5	5-1/2	7	9-5/8
Shear Screw Value	5/16 x 24 = 2000#		7/16 x 20 = 4200#	
Number of Screws	Trigger Pressure			
1	570	350	450	210
2	1140	700	900	420
3	1710	1050	1350	630
4	2280	1400	1800	840
5	2850	1750	2250	1050
6	3420	2100	2700	1260
7	N/A	2450	N/A	1470
8	N/A	2800	N/A	1680
9	N/A	3150	N/A	N/A
10	N/A	3500	N/A	N/A

TABLE 2
RELEASE FORCE
SELECTION GUIDE *

Number of Screws	Releasing Force (lbs)
1	4200
2	8400
3	12600
4	16800
5	21000
6	25200
7	29400
8	33600
9	37800
10	42000
11	46200
12	50400
13	54600
14	58800

TABLE 3
PISTON AREA

Packer Size	Square Inch
4 1/2	3.51
5 1/2	5.77
7	9.30
9 5/8	20.09

*** RELEASE FORCE CALCULATION**

The total number of shear screws to be used depends on conditions the packer is subjected to. The minimum number of shear screws considering only piston load caused by the pressure from below.

4-1/2 x 2-3/8 Techseal

$$N = \frac{\Delta P [PA - (0.785 \times ID^2)]}{S}$$

5-1/2 x 2-7/8 Techseal

$$N = \frac{\Delta P [PA - (0.785 \times ID^2)]}{S}$$

7 x 2 7/8 and 7 x 3-1/2 Techseal

$$N = \frac{\Delta P [PA - (0.785 \times ID^2)]}{S}$$

9-5/8 x 4-1/2 Techseal

$$N = \frac{\Delta P [PA - (0.785 \times ID^2)]}{S}$$

Where:

- N** - number of shear screws required to counteract ΔP
- ΔP - Maximum differential pressure expected from below in psi
- PA** - Piston Area (See Table 3)
- ID** - Tubing ID in inches
- S** - 4200 shear value for on 7/16-20 UNF Brass Shear Screw.

If the packer is set in an injection well an additional force is transferred to the shear screws because of the temperature changes.

The force caused by contraction of the tubing may be determined by:

$$F_T = 207 AS \times \Delta t$$

- AS** - cross-section area of the tubing ($A_0 - A_1$) in square inches.
- Δt - change in average tubing temperature in degrees Fahrenheit

If force is significant use additional shear screws as required, or set down additional weight to counteract force.



TCI HI Hydraulic Set Retrievable Packer

Size Specification – TCI

Casing				Packer						
Size		Weight		OO		10		Connection		Product Number
in	mm	lbs/ft	kg/mt	in	mm	in	mm	in	mm	
4.5	114.3	9.5- 13.5	14.1-20.1	3.771	95.8	1.938	49.2	2.375	60.3	CG.07.T.37.23
5.5	139.7	14-20	20.8-29.8	4.58	116.3	1.938	49.2	2.375	60.3	CG.07.T.46.23
						2.375	60.3	2.875	73.0	CG.07.T.46.27
7	177.8	17-20	25.3-29.8	6.26	159.0	2.441	62.0	2.875	73.0	CG.07.T.62.2777
		20-26	29.8-38.7	6.078	154.4					CG.07.T.61.2777
		26-29	38.7- 43.2	5.968	151.6					CG.07.T.60.2777
		32-35	47.6-52.1	5.812	147.6					CG.07.T.58.2777
		17-20	25.3-29.8	6.26	159.0	2.992	76.0	3.50	88.9	CG.07.T.62.35
		23-26	34.2-38.7	6.078	154.4					CG.07.T.61.35
		26-29	38.7-43.2	5.968	151.6					CG.07.T.60.35
		32-35	47.6-52.1	5.812	147.6					CG.07.T.58.35
9.625	244.5	29.3-36	43.6 -53.6	8.593	218.3	2.992	76.0	3.50	88.9	CG.07.T.86.35
		40 -47	59.5-69.9	8.437	214.3					CG.07.T.84.35
		47-53.5	69.9-79.6	8.218	208.7					CG.07.T.82.35
		40-47	59.5-69.9	8.437	214.3					CG.07.T.84.45
		47-53.5	69.9-79.6	8.218	208.7					4.00