

Reinforcing Bar Couplers for Cryogenic Applications

Tested at $-168^{\circ}\text{C}/-270^{\circ}\text{F}$ to EN 14620-3
with cryogenic-grade rebar

Ideal for
LNG/LPG
storage
tanks



Ancon[®]

Tapered Thread Reinforcing Bar Couplers for Cryogenic Applications

The Ancon CTT range of tapered-thread couplers has been designed for use where cryogenic-grade reinforcing bar is being used. Typical construction projects include liquefied natural gas (LNG) and liquefied petroleum gas (LPG) storage tanks to EN 14620-3.

System Benefits

- ✓ Suitable for use in structures built in accordance with EN 14620-3
- ✓ Independently tested with cryogenic-grade rebar at ambient and cryogenic (-168°C/-270°F) temperatures
- ✓ Compact coupler design, suitable for confined locations
- ✓ Tapered-thread design simplifies bar alignment and engagement without cross-threading
- ✓ Installed quickly and easily, accelerating build speed

Structures to EN 14620-3

Ancon CTT couplers are suitable for use in structures built in accordance with EN 14620-3:2006. This Standard specifies the general requirements for materials, design and construction of all concrete components of site-built, vertical, cylindrical, flat-bottomed steel tanks for the storage of refrigerated, liquefied gases with operating temperatures between 0°C and -165°C. BS EN 14620-3: 2006 supersedes BS 7777-3: 1993.

Cryogenic-grade Rebar

Krybar® is a specially-designed concrete reinforcing steel for cryogenic applications. 'KRYBAR -165' is suitable for use in storage tanks with temperatures down to -170°C/-274°F and was the cryogenic-grade rebar used in the test programme undertaken by Ancon.

CTT Product Range

The Ancon range comprises standard, positional and transitional couplers to suit bar diameters from 12mm to 32mm. In all cases, the ends of the rebar are cut square before a tapered thread is cut onto the bar to suit the tapered thread of the coupler. The sleeve is simply tightened onto the threaded bar end using a calibrated torque wrench.

Project Reference

LNG Tanks, Yamal, Russia

The Yamal LNG project is based in the estuary of the Ob River in Northern Russia which is ice-locked for nine months of the year.

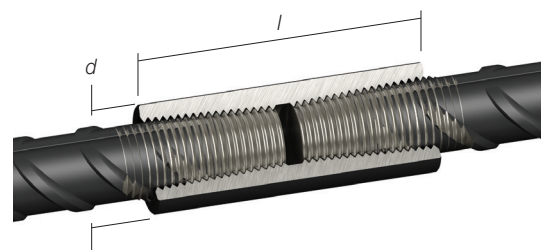
The tanks have a capacity of 160,000 cubic metres and comprise a stainless steel interior container and a pre-stressed concrete external container; the latter component features over 16,000 Ancon tapered thread cryogenic rebar couplers to suit 25mm and 32mm diameter Krybar®.



Standard Cryogenic Couplers (CTTS)

The standard Ancon tapered-thread cryogenic coupler is suitable for connecting two bars of the same diameter, where one bar can be rotated.

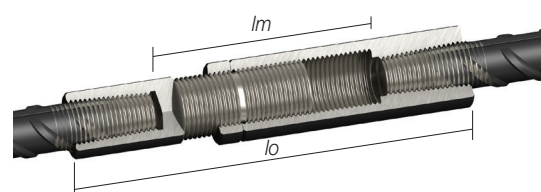
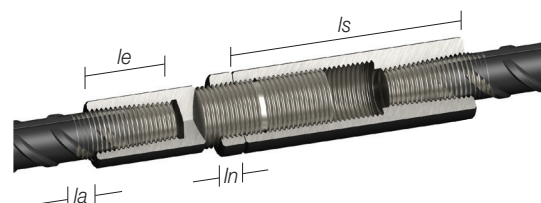
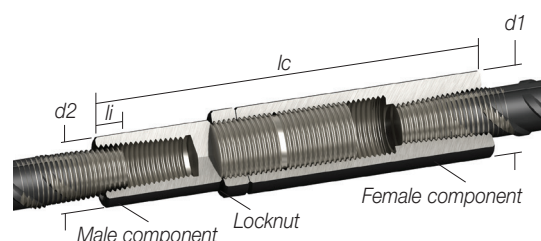
Bar Diameter (mm)		12	14	16	20	25	28	32
External Dia. (mm)	d	22	22	25	30	36	42	48
Coupler Length (mm)	l	58	64	70	74	90	100	112
Weight (kg)		0.13	0.12	0.17	0.25	0.43	0.66	0.99
Torque (Nm)		60	85	110	165	265	275	285
Part No.		CTTS12	CTTS14	CTTS16	CTTS20	CTTS25	CTTS28	CTTS32



Positional Cryogenic Couplers (CTTP)

The positional Ancon tapered-thread cryogenic coupler is designed for use where neither bar can be rotated. It comprises a male section, a female section and a locking nut. Having a degree of adjustability, this coupler can be used as a closer between two fixed bars.

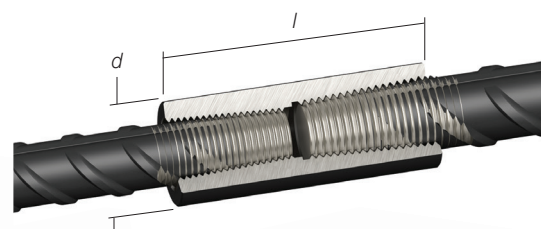
Bar Diameter (mm)		12	14	16	20	25	28	32
External Dia. (mm)	$d1$	25	25	30	36	48	50	55
External Dia. (mm)	$d2$	22	22	25	30	36	42	48
Female Sleeve Length (mm)	ls	84	89	95	112	132	137	153
Locknut Length (mm)	ln	13	13	13	13	13	13	15
Closed Length (mm)	lc	138	150	155	180	207	218	243
Max. Open Length (mm)	lo	178	190	196	231	266	274	305
Bar Insertion Prior to Engagement (mm)	li	9	12	15	8	16	22	28
Bar Insertion Full Engagement (mm)	le	26	29	32	33	42	47	53
Adjustable Length (mm)	la	23	23	24	26	34	34	37
Max Distance between Bar Ends (mm)	lm	126	124	132	165	182	174	199
Weight (kg)		0.44	0.67	0.67	1.12	2.21	2.30	3.51
Coupler Torque (Nm)		60	85	110	165	265	275	285
Locknut Torque (Nm)		20	25	30	50	70	80	90
Part No.		CTTP12	CTTP14	CTTP16	CTTP20	CTTP25	CTTP28	CTTP32



Transitional Cryogenic Couplers (CTTT)

The transitional Ancon tapered-thread cryogenic coupler is designed to join reinforcing bars of different diameters, where one bar can be rotated.

Bar Diameter (mm)		12/14	12/16	14/16	16/20	20/25	25/28	25/32	28/32
External Dia. (mm)	d	22	25	25	30	36	42	48	48
Coupler Length (mm)	l	65	72	71	78	90	99	112	110
Weight (kg)		0.14	0.21	0.19	0.30	0.48	0.72	1.11	1.02
Torque (Nm)		60/85	60/110	85/110	110/165	165/265	265/275	265/285	275/285
Part No.		CTTT12/14	CTTT12/16	CTTT14/16	CTTT16/20	CTTT20/25	CTTT25/28	CTTT25/32	CTTT28/32



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