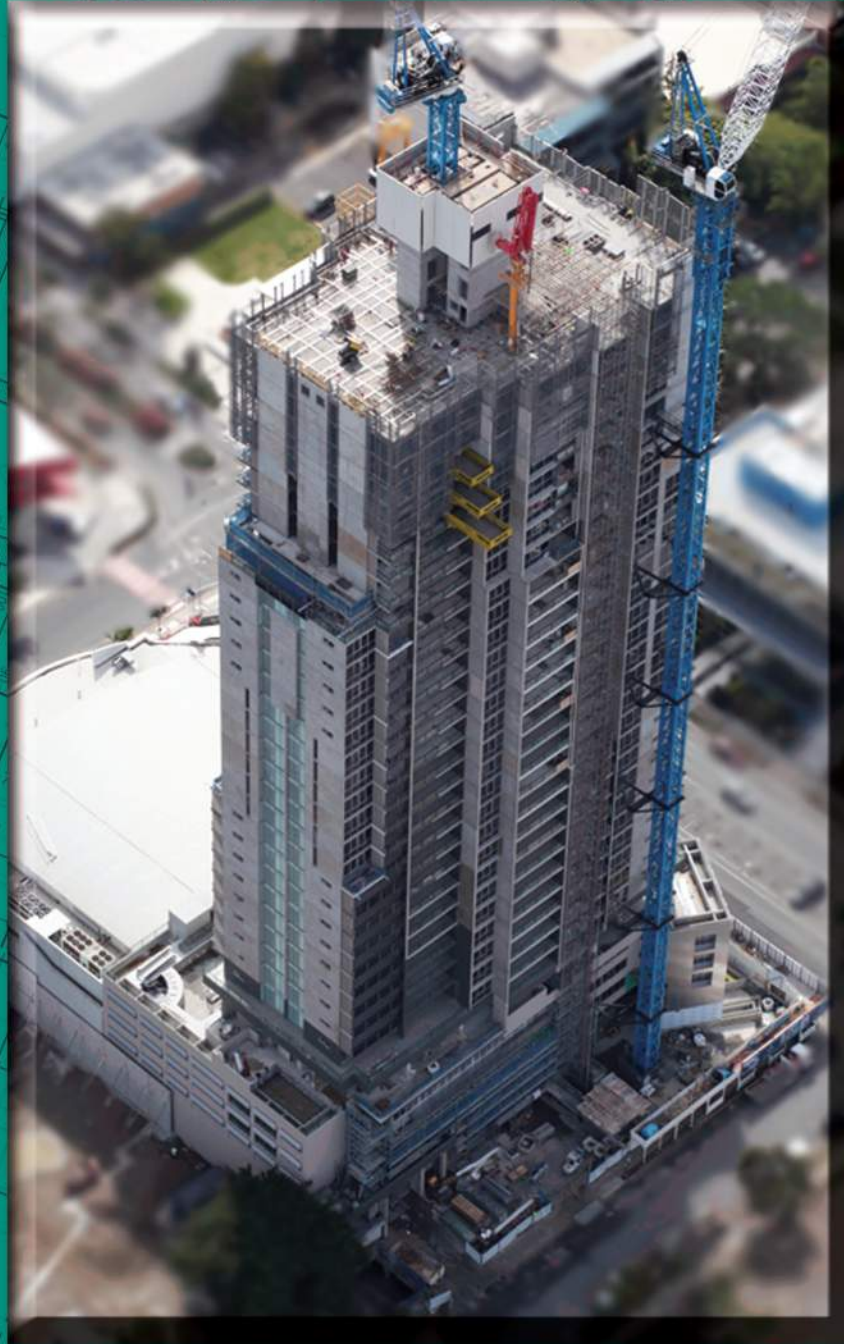




***"Building Safety, Quality & Honesty"***



**TENSIONED CONCRETE**  
QUALITY POST TENSIONING

**COMPANY PROFILE**



## Company Overview

2

Tensioned Concrete is a fully Australian owned Post Tensioning company which has serviced the building industry for nearly 15 years.

In this time Tensioned Concrete has built a reputation for providing smart and efficient design and construction solutions, coupled with high quality site services.

Tensioned Concrete has delivered some of Australia's largest Post Tensioning contracts with great results creating an ever growing repeat business market.

## Why Choose Tensioned Concrete

- Work with industry leaders;
- Efficient design solutions providing cost savings.
- Quality workmanship ensuring zero defects;
- Meet ALL construction deadlines
- Only quality materials used. (Australian made where possible);
- High commitment to safe work practices & ongoing training;
- Excellent financial control;
- Profits stay within Australia.
- Experience in working on large Tier 1 CBD sites
- Experience in delivering projects in isolated locations
- Experience in completing large government projects.

## Mission Statement

Tensioned Concrete is dedicated to providing quality construction, design and management services to our customers. We strive to implement long term relationships with our clients based on safety, quality, honesty & performance.

## Locations

Our Head Office is located in Brisbane Australia, with the capacity, resources and personnel to service Australia wide.

Having completed projects in most states and cities within Australia.



# TENSIONED CONCRETE

## Advantages of Post Tensioning

- Larger Spans
- Less Back-Propping
- Narrower Columns and Beams
- Simplified Formwork
- Reduced Crane Time
- Up to 40% Weight Saving with High-Rise Structures
- Carbon Reducing Advantages
- Less Concrete and Raw Materials Used
- Greenstar Efficiencies

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# Services

## Supply & Install Post-Tensioning

Tensioned Concrete estimators will provide a competitive proposal to supply and install post tensioning as per the project engineers drawings and specification.

Tensioned Concrete has large quantities of materials in stock ready to be supplied to your next small or large project.

## Alternative Post-Tensioned Slab Design

Tensioned Concrete specialises in providing efficient design alternatives to fully reinforced slabs, equating to cost savings by simplifying formwork, decreasing reinforcement, reducing concrete thicknesses, and cutting overall project time.

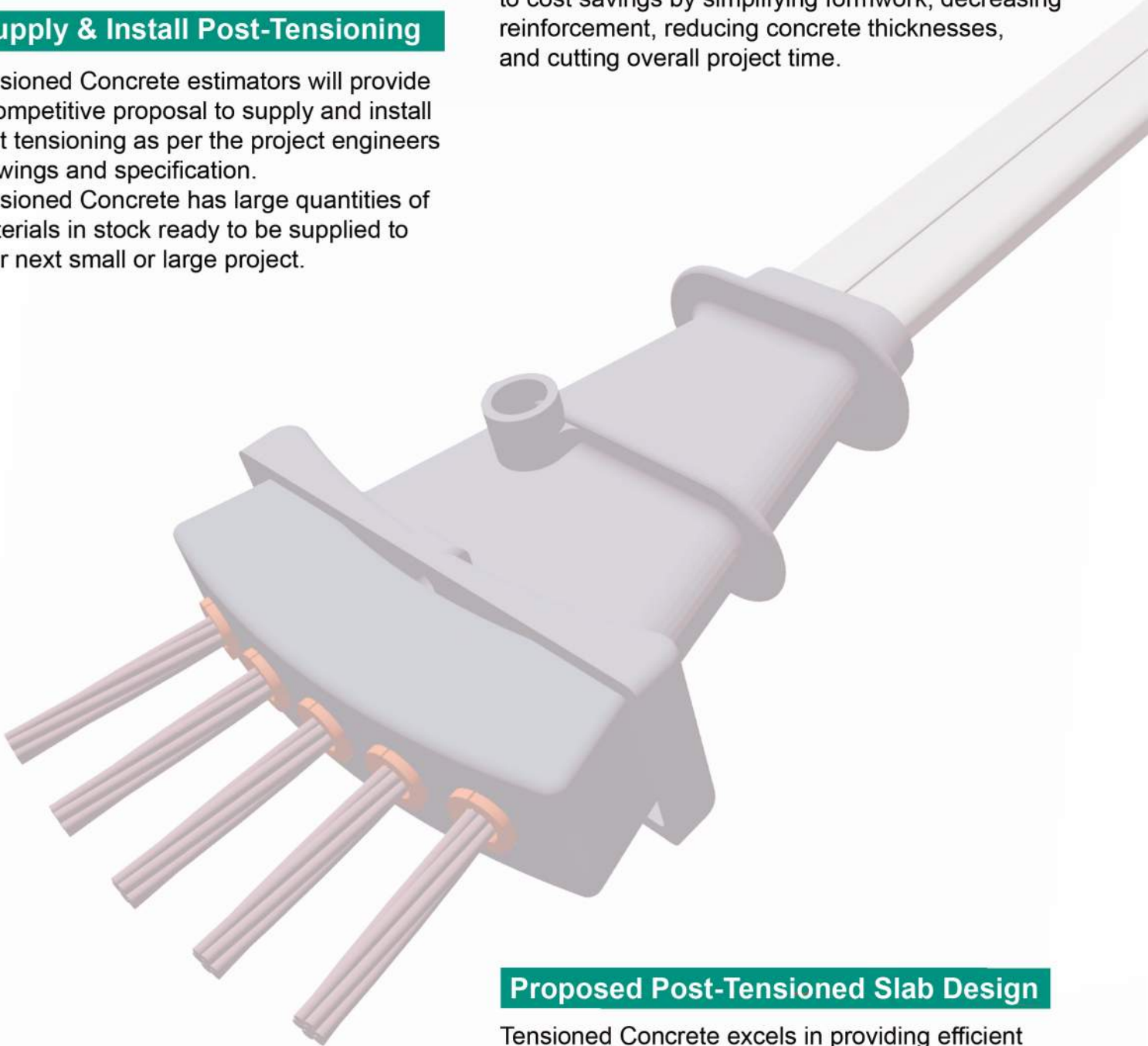
## Proposed Post-Tensioned Slab Design

Tensioned Concrete excels in providing efficient design alternatives or advice to projects that already have post-tensioning design carried out.

We can provide a full redesign or advice and co-ordination in fine tuning the existing design to ensure it is workable on site, by eliminating delays and congestion, which equates to cost savings for the client.

## Supply Only Projects

Tensioned Concrete can supply or export post-tensioning components, plant & equipment, design and supervision to suit your requirements direct to your site.





## Waterfront Apartments: Park Building, Brisbane, QLD

**Location:** West End, QLD  
**Head Contractor:** Mirvac Constructions  
**Engineer:** Alliance Design Group  
**Scale:** 120t of PT over 17 levels.

**TC Involvement:** The project consisted of 17 residential levels that were fully post-tensioned, we are able to install each level of post-tensioning in 1 day, this has enabled the construction duration to be cut down by approx 3 - 4 weeks.



## Verde Office Tower, Townsville, QLD

**Location:** Townsville, QLD  
**Head Contractor:** Hutchinson Builders  
**Engineer:** Robert Bird Group  
**PT Tonnage:** 130t  
**Duration:** October 2012 to June 2013  
**Site Supervisors:** 2  
**Site Labourers:** 6-8  
**Description:** 12 storey office tower with 4 levels of car park.

**TC Involvement:** Tensioned Concrete were engaged to design and construct the Post-Tensioned Slab system, this involved us changing the existing beam design to a flat plate slab, which enabled the formworker to accelerate their durations and also gained considerable savings in reinforcement, concrete and head height.





### Victoria Towers, Southport, QLD

**Location:** 34 Scarborough Street, Southport QLD  
**Head Contractor:** Hutchinson Builders  
**Scale:** 48,000m<sup>2</sup>

**TC Involvement:** TC was awarded the supply and installation of the post-tensioning system for the 39 levels of residential PT slabs. One major construction obstacle was the highly complicated Level 6 Transfer plate, a successful result was achieved by TC working together and co-ordinating with the client, consultants and other sub trades.





## Enoggera Barracks Stage 2B, QLD

**Builder:** John Holland  
**Engineer:** MPN Engineers  
**PT Tonnage:** 150t  
**Site Supervisors:** 2  
**Site Labourers:** 8  
**Description:** 2 carparks consisting of 30,000m<sup>2</sup> of Post-Tensioned slabs over 3 levels.  
**Head Contract value:** \$700M+.

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**TC Involvement:** Supply & install the post-tensioning system to 2 carpark sites within a fully working and operating Army Barracks.

Our OH&S and environmental controls exceeded expectations and continue to be developed and improved for each site specific challenge we face.

## Mater Hospital Car park, Brisbane, QLD

**Location:** Hancock Street, South Brisbane QLD  
**Head Contractor:** Laing O'Rourke  
**Scale:** Circa 210t of PT.

**TC Involvement:** The project consisted of a 6 storey car park with 11 pours per level. This provided many challenges, none more than the tight construction program that required TC working on up to 4 fronts which the TC site team handled with ease.







## GOVERNOR STIRLING HIGH SCHOOL, WA

**Location:** 25 Third Avenue, Woodbridge, WA  
**Head Contractor:** Pindan  
**Engineer:** Aurecon  
**Scale:** 28t of post-tensioning

**TC Involvement:** The project consisted of 1 post-tensioned level within 7 different buildings. We encountered working on a number of fronts. Our skilled and organized site team handled the challenges with ease.



## Sanbano Apartments, Coolangatta, QLD

**Location:** Coolangatta, QLD  
**Head Contractor:** Eastview  
**Engineer:** SDS consultants  
**Scale:** 70t of post-tensioning

**TC Involvement:** 24 Levels of fully post-tensioned slabs.





### Old Treasury Office Building, WA

**Location:** Perth, WA  
**Head Contractor:** Mirvac Constructions  
**Engineer:** Alliance Design Group  
**Scale:** 280t of PT

**TC Involvement:** The project consisted of 33 levels of fully post-tensioned slabs. Our site team easily greeted the challenge of each level requiring the post-tensioning to be installed in 1 day to meet program.

### James Cook University, QLD Clinical Research Building

**Location:** Townsville, QLD  
**Head Contractor:** Hansen Yucken







### Zest Apartments, NT

<b>Location:</b>	Darwin, NT
<b>Builder:</b>	Rapidform Systems
<b>Engineer:</b>	ADG NT
<b>PT Tonnage:</b>	45t
<b>Site Supervisors:</b>	1
<b>Site Labourers:</b>	4
<b>Description:</b>	<ul style="list-style-type: none"><li>- 12 storey Residential tower</li><li>- 3 x carpark levels</li><li>- complex transfer slab level.</li></ul>







### Waterfront Apartments Stage 2, Darwin , NT

**Location:** Darwin, NT  
**Builder:** Toga Constructions  
**Engineer:** ADG NT/Enstruct  
**PT Tonnage:** 100t

**Site Supervisors:** 2  
**Site Labourers:** 6  
**Description:** 3 x Residential Buildings built concurrently

### C2 Novotel, Darwin, NT

**Location:** Darwin, NT  
**Builder:** Halikos Group  
**Engineer:** ADG NT  
**PT Tonnage:** 90t  
**Site Supervisors:** 1  
**Site Labourers:** 4  
**Description:** 14 level mixed use / residential building





# Tensioned Concrete Multistrand System



The Tensioned Concrete Multistrand System (TCMS) is designed for use in concrete structures such as silos, segmental bridges, continuously stressed structures and ground anchors. Distinguished by its proven dependability the TCMS features a compact and robust jack design with internal tubing to facilitate handling and speed of operation. In addition, all design parameters are well in excess of the normally accepted minima.

The following tables and diagrams detail the various strand and tendon and show the standard TCMS anchorage and coupler designs.





## STRAND PROPERTIES - TO AS/NZ 4672 2007

Nominal Diameter	Nominal Steel Area	Nominal Mass	Minimum Breaking Load UTS	Minimum Proof Load		Minimum Elongation to Fracture in 500mm	Relaxation After 1,000hrs at 0.7 Breaking Load		Modulus of Elasticity
mm	mm <sup>2</sup>	kg/m	kN	0.1%	0.2%	%	Relax 1	Relax 2	GPa
12.7	98.6	0.774	184	151	- 156	3.5	8	- 2.5	195 ± 10
15.2	143	1.122	250	205	- 212	3.5	8	- 2.5	195 ± 10

### TENDON PROPERTIES - 12.7

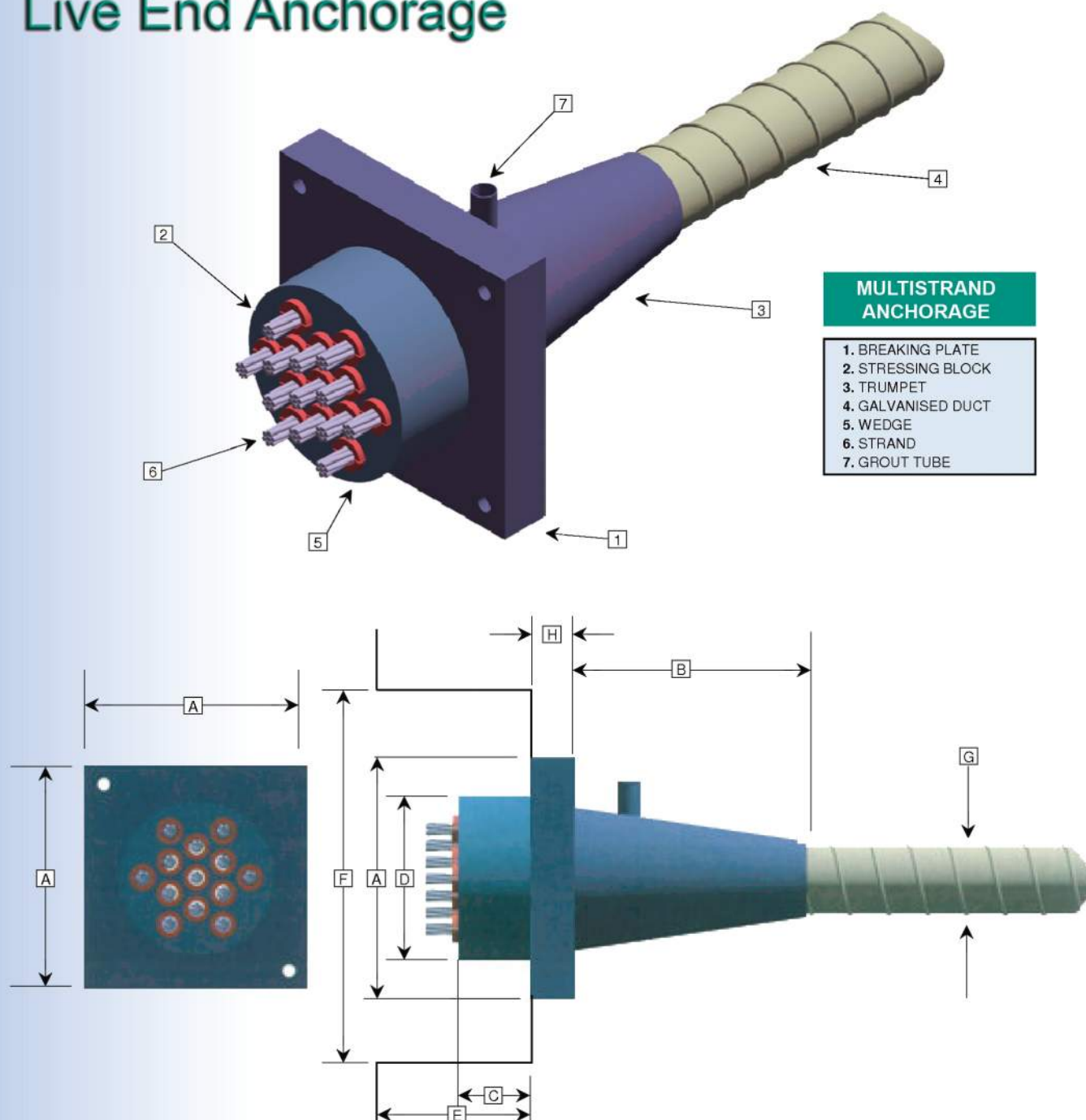
SMS No.	No. of Strands	Cement kg/m	Int. Duct Dia. mm	Prestressing Force (kN) as a % of UTS	
				12.7 85%	12.7 100%
SMS 7	2	2.9	55	313	368
	3	2.7		469	368
	4	2.6		626	552
	5	2.5		782	736
	6	2.3		938	1104
	7	2.2		1095	1288
SMS 13	8	3.3	65	1251	1472
	9	3.2		1408	1656
	10	3.1		1564	1840
	11	2.9		1720	2024
	12	2.8		1877	2208
	13	2.7		2033	2392
SMS 19	14	5.6	84	2190	2576
	15	5.3		2346	2760
	16	5.2		2502	2944
	17	5.1		2659	3128
	18	4.9		2815	3312
	19	4.8		2972	3496
SMS 27	20	6.7	95	3128	3680
	21	6.6		3284	3864
	22	6.4		3441	4048
	23	6.3		3597	4232
	24	6.2		3754	4416
	25	6.1		3910	4600
	26	5.9		4066	4784
	27	5.8		4223	4968
SMS 31	28	8.8	110	4379	5152
	29	8.7		4536	5336
	30	8.6		4692	5520
	31	8.5		4848	5704
SMS 37	32	8.3	110	5005	5888
	33	8.2		5161	6072
	34	8.1		5318	6256
	35	7.9		5474	6440
	36	7.8		5630	6624
	37	7.7		5787	6808
SMS 43	38	13.9	135	5943	6992
	39	13.7		6100	7176
	40	13.6		6256	7360
	41	13.5		6412	7544
	42	13.3		6569	7728
	43	13.2		6725	7912
SMS 55	44	13.1	135	6882	8096
	45	12.9		7038	8280
	46	12.8		7194	8464
	47	12.7		7351	8648
	48	12.6		7507	8832
	49	12.4		7664	9016
	50	12.3		7820	9200
	51	12.2		7976	9384
	52	12.0		8133	9568
	53	11.9		8289	9752
	54	11.8		8446	9936
	55	11.6		8602	10120

### TENDON PROPERTIES - 15.2

SMS No.	No. of Strands	Cement kg/m	Int. Duct Dia. mm	Prestressing Force (kN) as a % of UTS	
				15.2 85%	15.2 100%
SMS 7	2	2.8	65	475	500
	3	2.6		638	750
	4	2.4		850	1000
	5	2.2		1065	1250
	6	2.0		1275	1500
	7	1.8		1488	1750
SMS 13	8	2.9	84	1700	2000
	9	2.7		1913	2250
	10	2.5		2125	2500
	11	2.3		2338	2750
	12	2.1		2550	3000
	13	1.9		2763	3250
SMS 19	14	4.7	110	2975	3500
	15	4.5		3188	3750
	16	4.3		2400	4000
	17	4.1		3613	4250
	18	3.9		3825	4500
	19	3.7		4088	4750
SMS 27	20	5.6	110	4250	5000
	21	5.4		4463	5250
	22	5.2		4675	5500
	23	5.0		4888	5750
	24	4.8		5100	6000
	25	4.6		5313	6250
	26	4.4		5525	6500
	27	4.2		5738	6750
SMS 31	28	7.2	110	5950	7000
	29	7.1		6163	7250
	30	6.9		6375	7500
	31	6.7		6588	7750
SMS 37	32	6.5	135	6800	8000
	33	6.3		7013	8250
	34	6.1		7225	8500
	35	5.9		7438	8750
	36	5.7		7650	9000
	37	7.7		7863	9250
SMS 43	38	11.7	135	8075	9500
	39	11.5		8288	9750
	40	11.3		8500	10000
	41	11.1		8713	10250
	42	10.9		8925	10500
	43	10.8		9138	10750
SMS 55	44	10.6	154	9350	11000
	45	10.4		9563	11250
	46	10.2		9775	11500
	47	10.0		9988	11750
	48	9.8		10200	12000
	49	9.6		10413	12250
	50	9.4		10625	12500
	51	9.2		10838	12750
	52	9.1		11050	13000
	53	8.9		11263	13250
	54	8.7		11475	13500
	55	8.5		11688	13750



## Live End Anchorage



### LIVE END ANCHORAGE 12.7

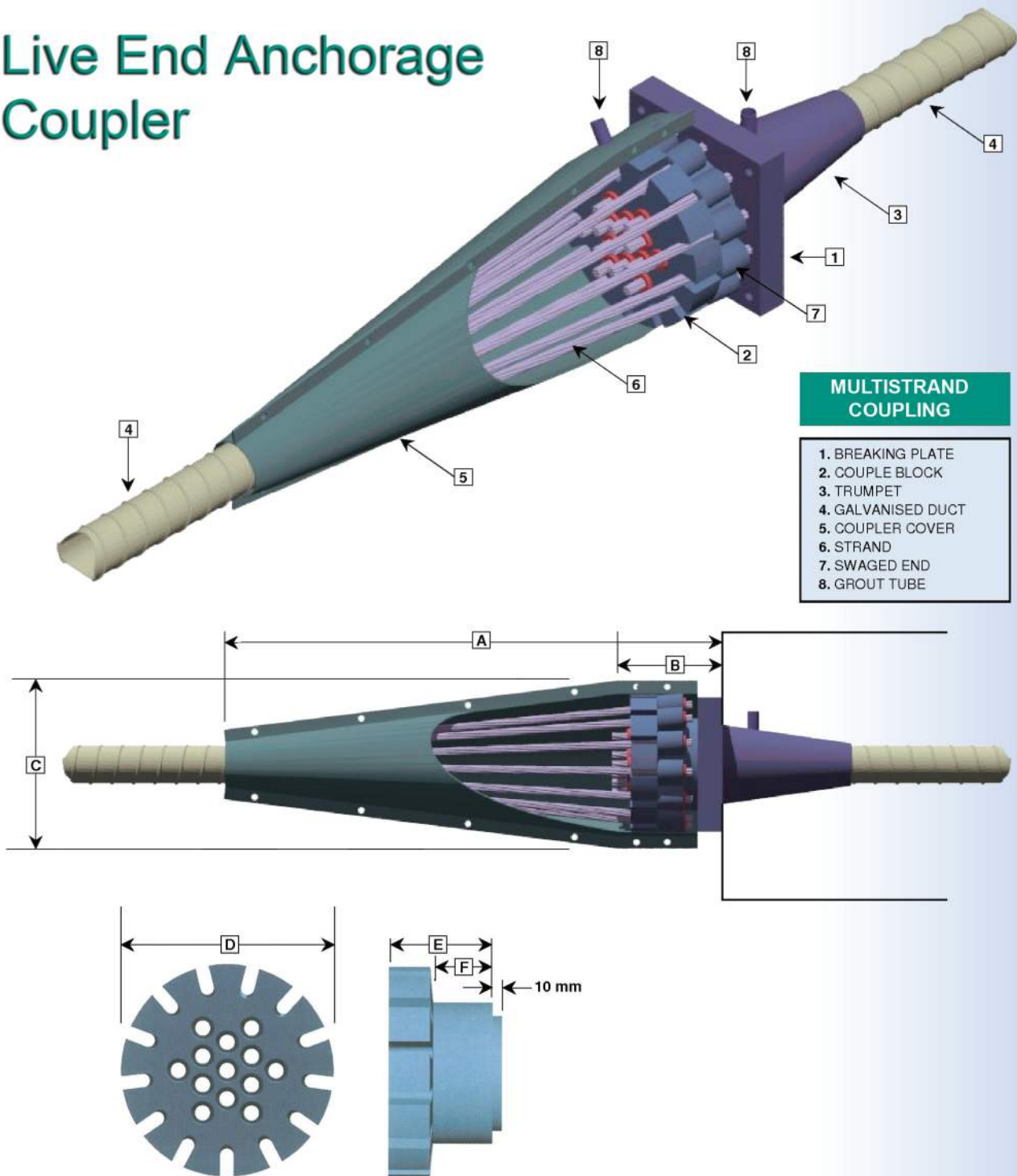
SMS Tendon Type	A	B	C	D	E	F	G (I.D.)	H
7-5	160	165	50	110	100	250	55	32
13-5	220	250	65	150	115	300	65	36
19-5	270	290	80	180	130	350	84	50
27-5	320	350	100	225	150	400	95	50
31-5	340	350	100	225	150	425	110	60
37-5	380	400	120	260	175	450	110	60
43-5	400	500	145	300	200	475	135	75
55-5	475	600	148	320	200	550	135	80

### LIVE END ANCHORAGE 15.2

SMS Tendon Type	A	B	C	D	E	F	G (I.D.)	H
7-6	220	250	65	150	115	300	65	36
13-6	270	290	80	180	130	350	84	50
19-6	340	350	100	225	150	425	110	60
27-6	380	400	125	260	175	450	110	60
31-6	400	400	125	260	200	475	110	75
37-6	475	500	148	300	200	550	135	80
43-6	580	550	145	300	205	475	135	100
55-6	610	650	150	320	210	550	135	120



# Live End Anchorage Coupler



**COUPLER COVER & BLOCK ANCHORAGE 12.7**

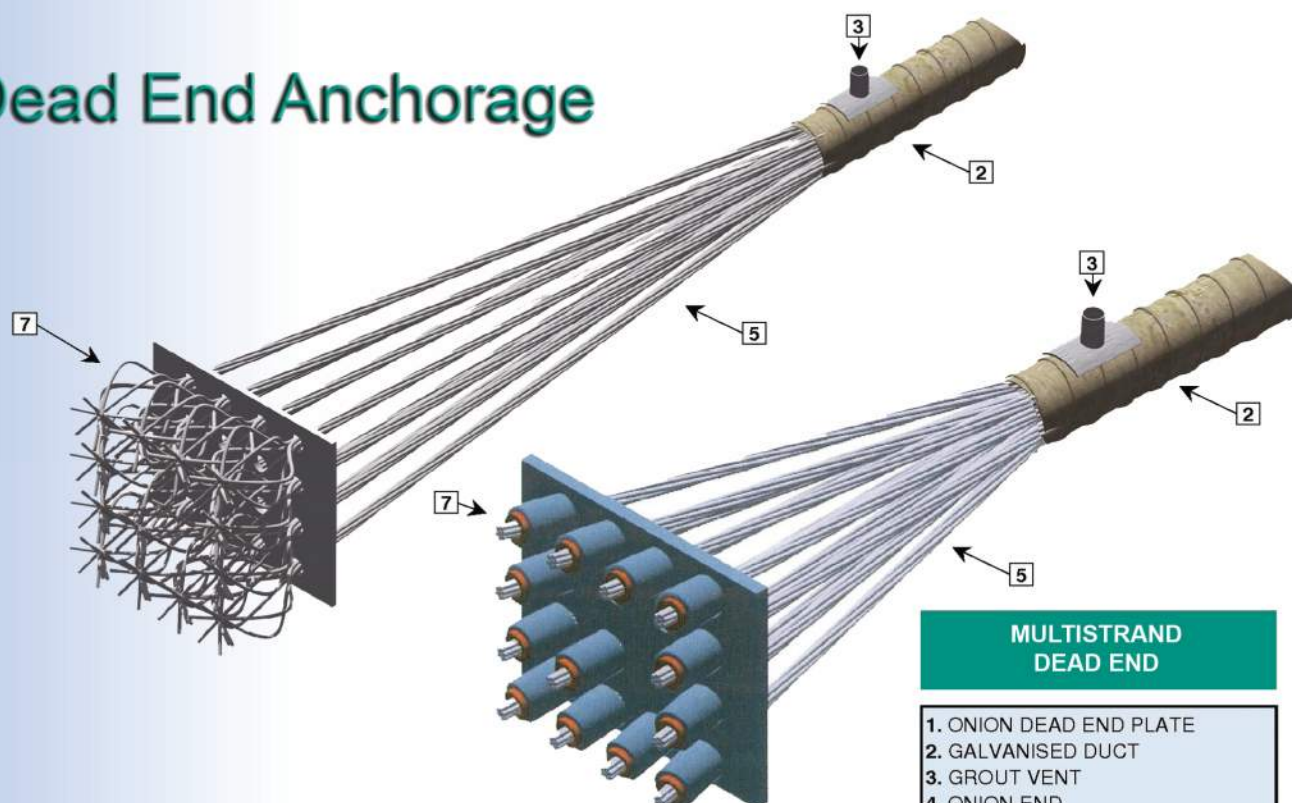
SMS Tendon Type	A	B	C	D	E	F
7-5	500	110	196	186	110	63
13-5	600	110	236	226	110	63
19-5	650	110	286	276	110	63
27-5	900	115	382	372	115	63
31-5	950	115	382	372	115	63
37-5	1200	130	430	420	130	63
43-5	1250	145	470	460	130	63
55-5	1300	165	490	480	140	63

**COUPLER COVER & BLOCK ANCHORAGE 15.2**

SMS Tendon Type	A	B	C	D	E	F
7-6	630	110	210	226	110	70
13-6	740	110	250	276	110	70
19-6	860	110	310	372	115	70
27-6	1000	150	390	420	130	70
31-6	1100	150	395	420	130	70
37-6	1400	150	420	460	140	70
43-6	TBA	TBA	TBA	TBA	TBA	TBA
55-6	TBA	TBA	TBA	TBA	TBA	TBA

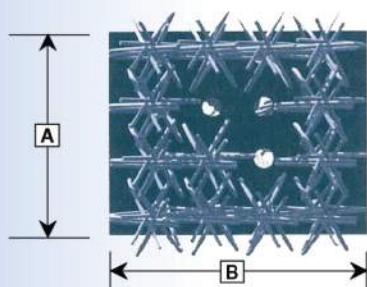
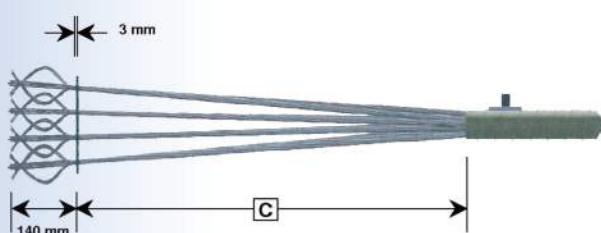


## Dead End Anchorage



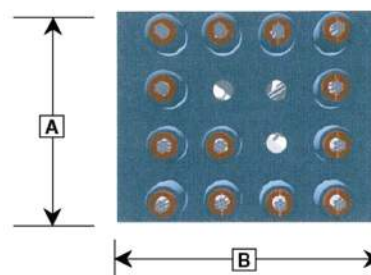
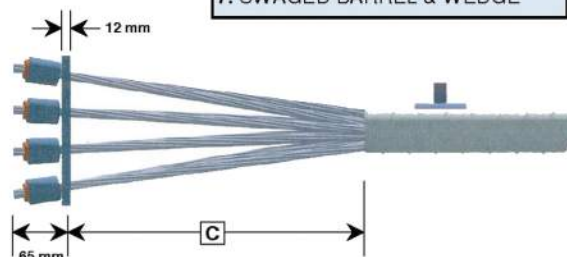
### MULTISTRAND DEAD END

1. ONION DEAD END PLATE
2. GALVANISED DUCT
3. GROUT VENT
4. ONION END
5. STRAND
6. SWAGED END PLATE
7. SWAGED BARREL & WEDGE



### ONIONED DEAD END 12.7

No. of Strands	7	13	19	31	37	43	55
A	200	200	250	350	400	450	550
B	200	250	300	400	450	500	600
C	800	1000	1000	1000	1000	110	1200



### ONIONED DEAD END 15.2

No. of Strands	7	13	19	31	37	43	55
A	200	350	450	550	600	700	800
B	200	300	350	475	550	550	600
C	800	1000	1000	1100	110	1200	1200

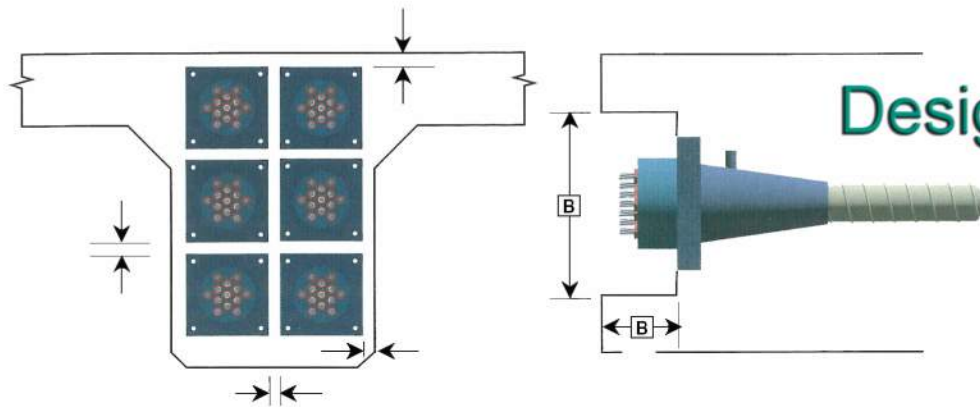
### SWAGED DEAD END 12.7

No. of Strands	7	13	19	31	37	43	55
A	150	200	250	300	350	380	450
B	150	200	250	300	350	380	450
C	300	400	500	700	900	1000	1000

### SWAGED DEAD END 15.2

No. of Strands	7	13	19	31	37	43	55
A	200	250	300	350	400	425	550
B	200	250	300	350	400	400	500
C	350	500	500	650	900	950	1000





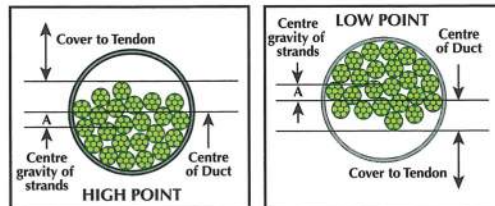
## Design Properties

### MULTISTRAND EDGE GAPS

Tendon 12.7mm	A (mm)	Tendon 15.2mm	A (mm)
7 - 5	30	7 - 5	50
13 - 5	50	13 - 5	50
19 - 5	50	19 - 5	80
27 - 5	80	27 - 5	80
31 - 5	80	31 - 5	80
37 - 5	80	37 - 5	80
43 - 5	80	43 - 5	100
55 - 5	80	55 - 5	100

### STRAND OFFSET IN DUCT

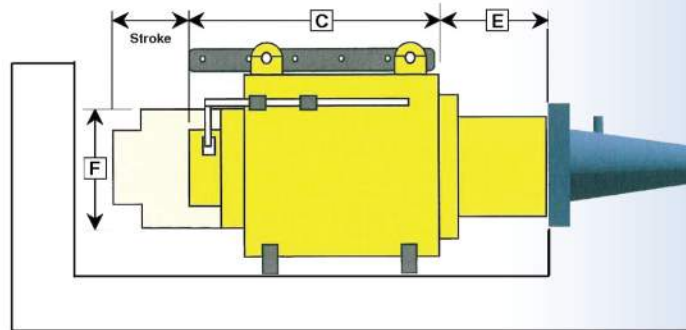
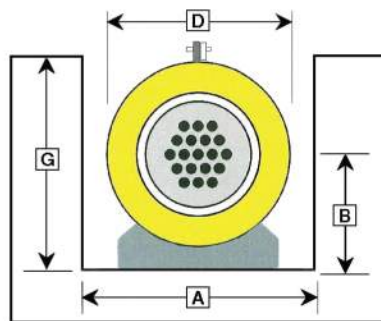
Tendon 12.7mm	A (mm)	Tendon 15.2mm	A (mm)
7 - 5	8	7 - 5	10
13 - 5	10	13 - 5	13
19 - 5	13	19 - 5	17
27 - 5	13	27 - 5	13
31 - 5	14	31 - 5	22
37 - 5	23	37 - 5	25
43 - 5	25	43 - 5	23
55 - 5	23	55 - 5	27



### NOTE:

The nominal **draw-in** is approximately 6mm at lock off.

- Anchorage Friction Losses = 2% to 4 %
- Duct Friction Losses  $\mu = 0.20$
- Wobble Factor = 0.02



### MULTISTRAND JACK CLEARANCE

Jack Type (t)	No. of Strands (Max.)	Strand Length mm	Nominal Mass kg	Stroke (Max.)	A (Min.) mm	B (Min.) mm	C mm	D mm	E mm	F mm	G mm
110	7-5 & 4-6	850	130	150	535	200	310	235	80	140	460
150	7-5 & 7-6	850	210	200	596	200	390	296	80	190	460
200	7-5 & 7-6	850	360	200	622	200	400	322	80	220	460
250	13-5 & 7-6	1000	470	300	665	300	525	365	190	229	530
300	19-5 & 13-6	1230	570	300	704	350	570	404	300	280	710
500	31-5 & 19-6	1400	980	300	808	40	650	508	365	343	815
1000	55-5 & 37-6	1550	2180	300	1050	475	690	750	450	520	1000



# Tensioned Concrete Slab System



The Tensioned Concrete Slab System (TCSS), developed in Australia over the past years, is a fully integrated post tensioning system for thin concrete sections such as floor slabs. During this time, the TCSS has been steadily refined and now features horizontally elongated anchorage and ducting accepting up to five 15.2mm diameter strands. Such designs are gaining an ever-increasing share of the slab construction market.

**STRAND PROPERTIES - TO AS/NZ 4672 2007**

Nominal Diameter	Nominal Steel Area	Nominal Mass	Minimum Breaking Load UTS	Minimum Proof Load		Minimum Elongation to Fracture in 500mm	Relaxation After 1,000hrs at 0.7 Breaking Load		Modulus of Elasticity
mm	mm <sup>2</sup>	kg/m	kN	0.1%	0.2%	%	% Relax 1	% Relax 2	GPa
12.7	100.1	0.774	184	151	156	3.5	8	2.5	195 ± 10
15.2	143	1.122	250	205	212	3.5	8	2.5	195 ± 10

**TENDON PROPERTIES - 12.7**

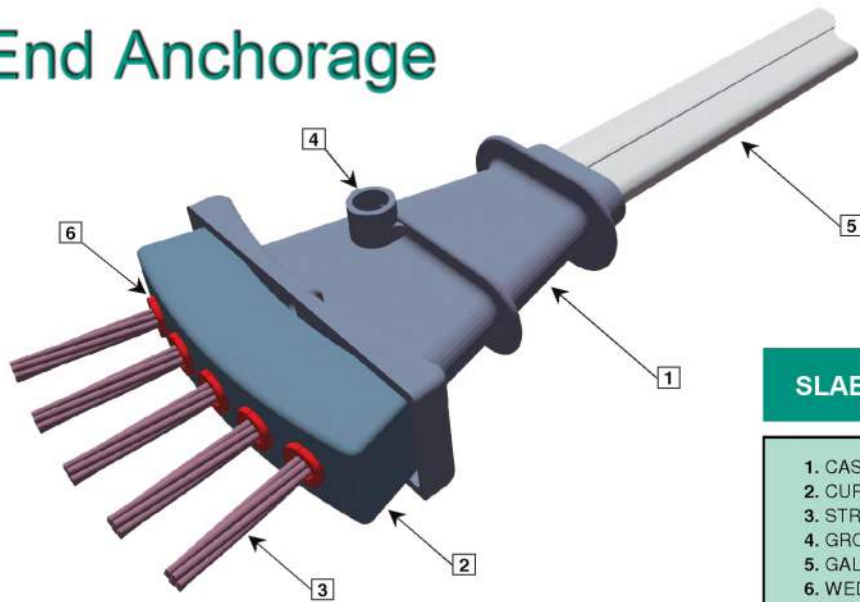
Tendon type	No. Of Strands	Cemnet kg/m	Nominal Area mm <sup>2</sup>	Int Duct Dim. Mm	Prestressing Force (kN) as a % of UTS		
					75%	85%	100%
1 - 5	1	0.3	98.6	19 x 19	156	156	184
2 - 5	2	0.7	197.2	43 x 19	313	313	368
3 - 5	3	1.4	295.8	70 x 19	469	469	552
4 - 5	4	1.2	394.4	70 x 19	626	626	736
5 - 5	5	1.1	493	70 x 19	782	782	920
6 - 5	6	1.5	591.6	90 x 19	938	938	1104

**TENDON PROPERTIES - 15.2**

Tendon type	No. Of Strands	Cemnet kg/m	Nominal Area mm <sup>2</sup>	Int Duct Dim. Mm	Prestressing Force (kN) as a % of UTS		
					75%	85%	100%
1 - 6	1	0.2	143	19 x 19	213	213	250
2 - 6	2	0.6	286	43 x 19	425	425	500
3 - 6	3	1.2	429	70 x 19	638	638	750
4 - 6	4	1.0	572	70 x 19	850	850	1000
5 - 6	5	1.3	715	90 x 19	1063	1063	1250

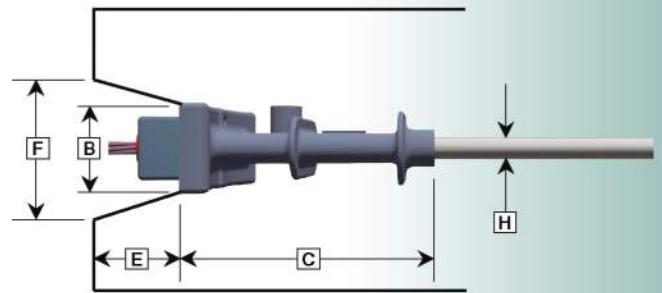
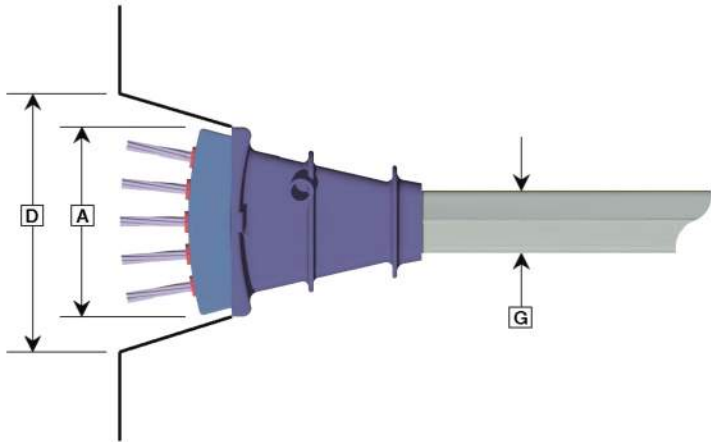


## Live End Anchorage



### SLAB ANCHORAGE

1. CAST ANCHOR
2. CURVED ANCHOR HEAD
3. STRAND
4. GROUT TUBE
5. GALVANISED DUCT
6. WEDGES



### SLAB ANCHORAGE 12.7 - 12.9

No. Of Strands	1	2	3	4	5	6
A	145	136	136	220	220	262
B	65	75	75	78	78	78
C	95	140	140	220	220	270

### SLAB ANCHORAGE 15.2 - 15.7

No. Of Strands	1	2	3	4	5
A	145	136	220	220	262
B	65	75	78	78	78
C	95	140	220	220	270

### RECESS FORMER 12.7 - 12.9

No. Of Strands	1	2	3	4	5	6
D	150	200	200	315	315	320
E	100	100	100	100	100	100
F	100	100	100	100	100	100

### RECESS FORMER 15.2 - 15.7

No. Of Strands	1	2	3	4	5
D	150	200	315	315	320
E	100	100	100	100	100
F	100	100	100	100	100

### DUCT 12.7 - 12.9

No. Of Strands	1	2	3	4	5	6
G	19	43	43	70	70	90
H	19	19	19	19	19	19

### DUCT 15.2 - 15.9

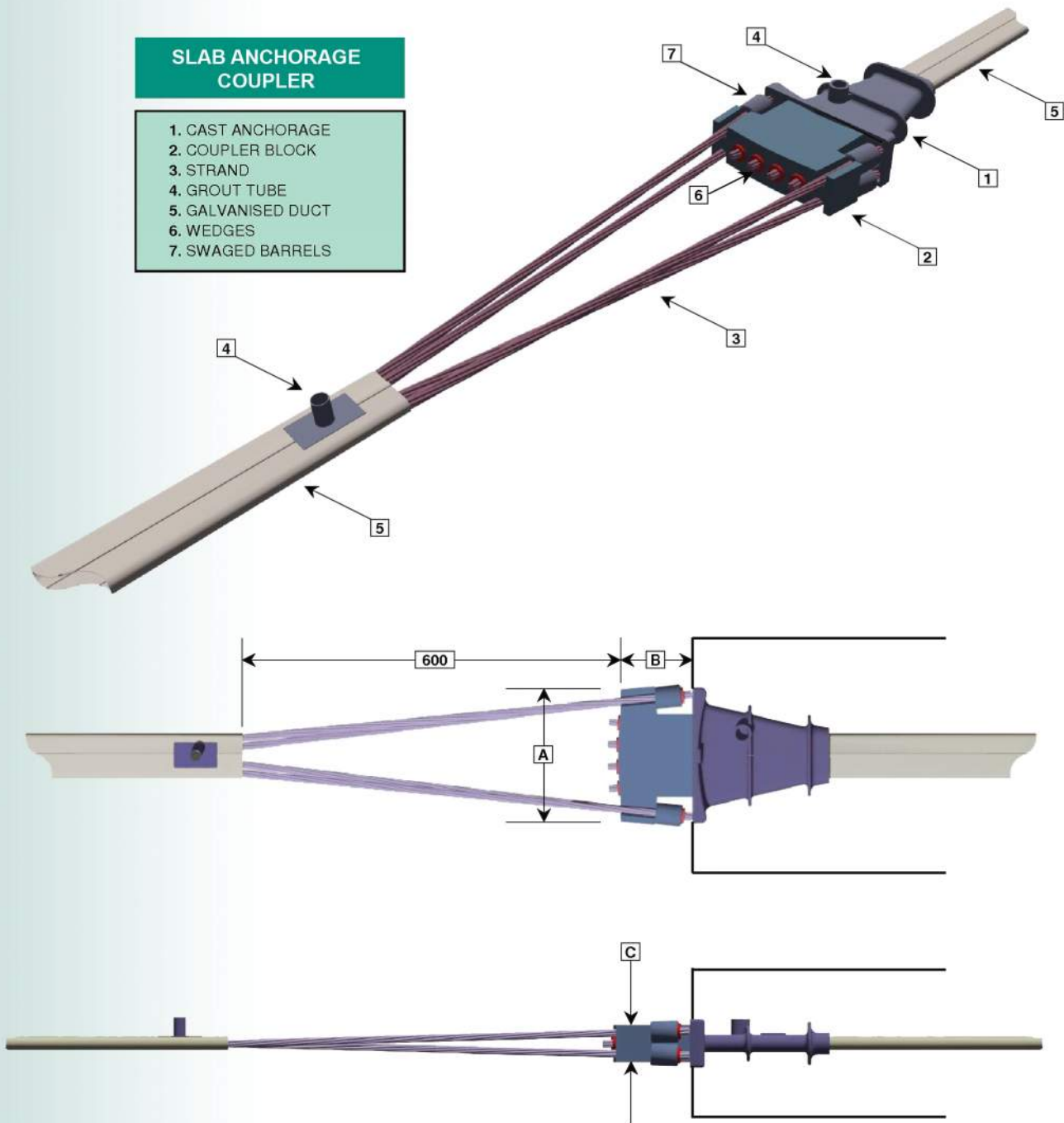
No. Of Strands	1	2	3	4	5
G	19	43	70	70	90
H	19	19	19	19	19



# Live End Anchorage Coupler

## SLAB ANCHORAGE COUPLER

1. CAST ANCHORAGE
2. COUPLER BLOCK
3. STRAND
4. GROUT TUBE
5. GALVANISED DUCT
6. WEDGES
7. SWAGED BARRELS



### COUPLER BLOCKS 12.7 - 12.9

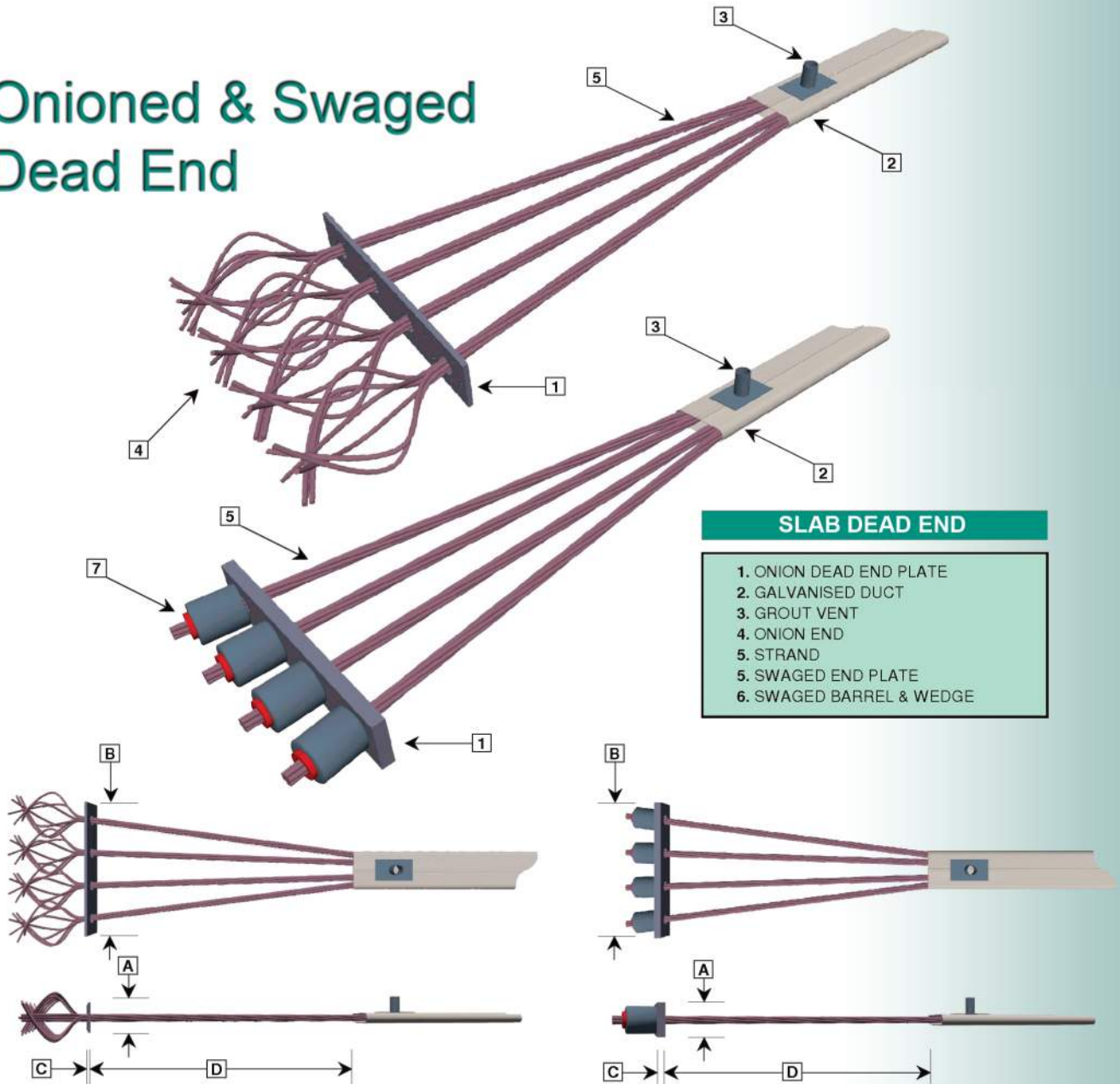
No. Of Strands	1	2	3	4	5
A	190	190	190	224	298
B	120	120	120	120	125
C	60	60	60	60	60

### COUPLER BLOCKS 15.2 - 15.7

No. Of Strands	1	2	3	4	5
A	190	190	190	190	190
B	135	135	135	135	135
C	60	60	90	150	150



## Onioned & Swaged Dead End



### SLAB DEAD END

1. ONION DEAD END PLATE
2. GALVANISED DUCT
3. GROUT VENT
4. ONION END
5. STRAND
6. SWAGED END PLATE
7. SWAGED BARREL & WEDGE

### DEAD END PLATE 12.7 - 12.9

No. Of Strands	1	2	3	4	5	6
A	50	50	50	50	50	50
B	50	100	250	250	300	350
C	3	3	3	3	3	3
D	800	800	800	800	800	800

### DEAD END PLATE 15.2 - 15.7

No. Of Strands	1	2	3	4	5
A	50	50	50	50	50
B	50	100	250	270	350
C	3	3	3	3	3
D	900	900	900	900	900

### SWAGED DEAD END 12.7 - 12.9

No. Of Strands	1	2	3	4	5	6
A	50	50	50	50	50	50
B	50	100	250	250	300	350
C	10	10	10	10	12	12
D	150	150	350	350	500	500

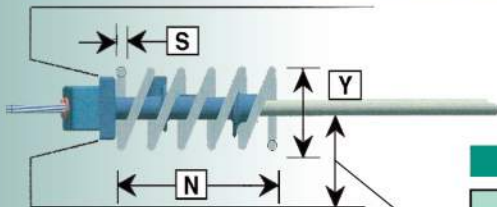
### SWAGED DEAD END 15.2 - 15.7

No. Of Strands	1	2	3	4	5
A	50	50	50	50	50
B	50	100	250	270	350
C	10	10	10	10	12
D	150	150	350	500	500



## Design Properties

### HELIX TYPE ANTIBURST REINFORCEMENT

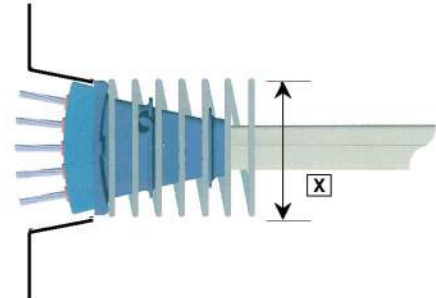


Min. Concrete strength at Jacking load of **782 kN = 22MPa**.  
Min. Concrete Strength at Jacking Load **> 1060kN = 25 MPa**.

The above concrete strengths must be obtained from site cured test samples.

#### CL TO EDGE

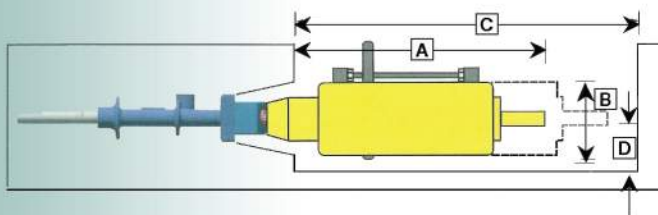
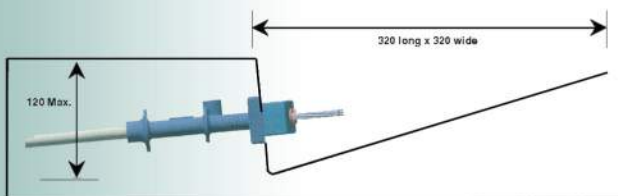
2 - 5	= 60mm
3 - 5	= 70mm
4 - 5	= 80mm
5 - 5	= 90mm
6 - 5	= 100mm
5 - 6	= 100mm



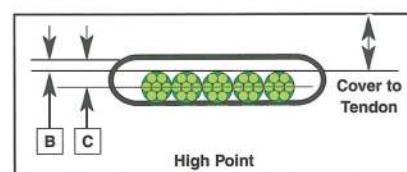
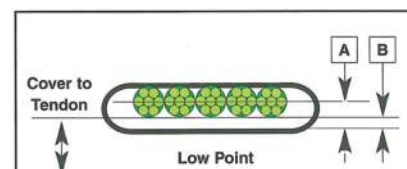
Note: The nominal draw-in is approximately 6mm at lock off.

- Anchorage Friction Lossess = 3%
- Internal Pockets = 5%
- Duct Friction Losses  $\mu = 0.20$
- Wobble Factor = 0.02

### RECESS FOR STRESSING PAN



### STRAND OFFSET IN DUCT



### HELIX TYPE ANTIBURST DIMENSIONS

System	Bar Size (S)	Pitch mm	No. of Turns (N)	Width mm (X)	Height mm (Y)
Up to 5 x 12.7Ø	R10	60	5	260	100
6 x 12.7Ø & Up to 5 x 15.2Ø	N12	60	7	300	110

### STRAND OFFSET IN DUCT

Strand Diameter	A (Nom.)	B (Nom.)	C (Nom.)
12.7	13	6	6
15.2	11	4	8





***"Building Safety, Quality & Honesty"***

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