

Freyssinet Prestressing



FREYSSINET

High durability prestressing

A pioneer in prestressing, Freyssinet has continually innovated over the years, and now offers the ultimate prestressing system combining high performance with durability.

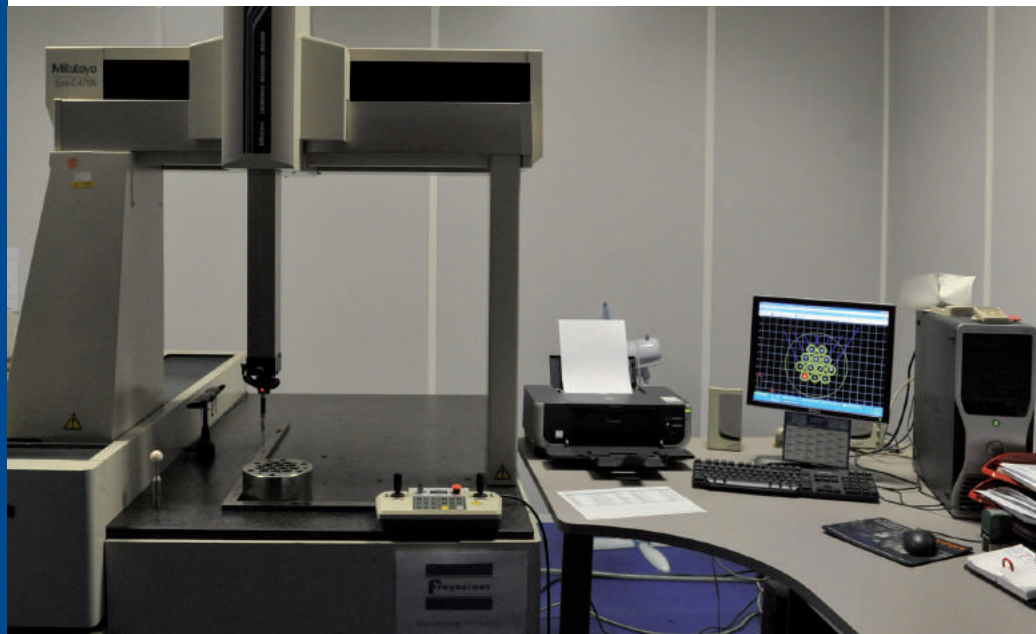
Freyssinet's technical services design anchors, jacks and installation equipment, and also operate a test centre (including a 2,000 tonne tensile testing rig) and a laboratory for the formulation of prestressing grouts.

In order to guarantee high quality service to all of its clients around the world, Freyssinet manufactures its anchors at its industrial subsidiary FPC (Freyssinet Product Company) and operates a central bank of site equipment.

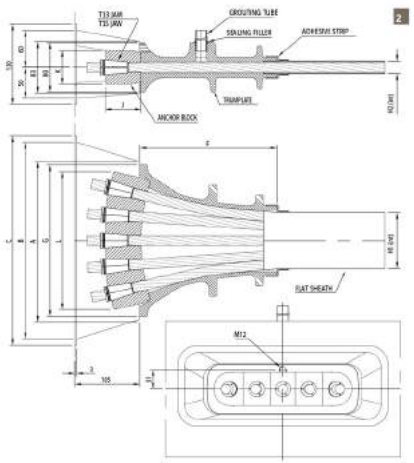


Freyssinet also trains its teams in installing prestressing at all of its subsidiaries. The PT Academy is Freyssinet's prestressing training school. Each year graduates of the school obtain qualifications certifying their skills as Works Directors, Prestressing Installation Specialists and Operators.

Freyssinet prestressing anchors, ranges C and F, have been proven in structures the world over to comply with the most stringent requirements: bridge decks and piers, nuclear reactor containment vessels, liquefied natural gas storage tanks, offshore platforms, wind towers, etc. Freyssinet has developed an optimised solution for every application.



MULTI-STRAND prestressing



Type B Active/Passive Anchors

The Freyssinet type B prestressing tendons with 3 to 5 T13 or T15 strands.

Type B anchors consist of active or passive anchors, they are made up the following elements:

- A cast trumplate embedded in concrete that distributes the prestressing load into the structure;
- A block and its jaws, bearing on the trumplate, which anchors the strands.

The construction provisions stipulated in the project must comply with current local regulations, as well the technical specifications, Freyssinet procedures and technical approval, as appropriate, relating to the use and installation of a type B prestressing system.

Bonded prestressing

In this configuration, type B anchors are used with uncoated strands in a metal or plastic corrugated flat sheath, for ease of insertion into thin elements. The strands are threaded into their ducts prior to concreting in order to overcome duct crushing problems, which might subsequently impede strand threading. Once the strands have been tensioned and excess lengths cut off, the duct is injected with cement grout.

Unbonded prestressing

For specific projects, system B anchors can be used with strands protected with grease, coated with an individual HDPE sheath, in order to effect unbonded prestressing. The strands are then incorporated directly into the reinforcement, before concreting. Once the strands have been tensioned and excess lengths cut off, the anchor is injected with cement grout.

Anchor Dimension	Recess			Trumplate		Smooth sheath		Corrugated sheath		Anchor block		
	A	B	C	F	G	H1	H2	H1	H2	J	K	L
3B13	124	187	208	117	124	40	20	58	21	60	45	111
3B15	164	227	248	147	164	70	20	58	21	57	54	138
4B13	164	227	248	147	164	70	20	58	21	53	55	155
4B15	202	265	286	180	192	70	20	75	21	59	54	181
5B13	202	265	286	180	192	70	20	75	21	50	55	187
5B15	255	318	339	221	245	90	20	90	21	58	54	223



Anhcor

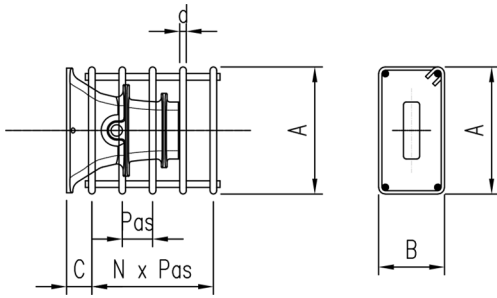
Prestressing strands

The table below shows the main features of the most common strands that can be used with the Freyssinet prestressing system.

	Nominal Diameter	Diameter Tolerance of Strand	Min Difference Between diameter of Core wire & Side wire Min.		Pitch	Nominal Cross-sectional Area		Unit Mass		Min. Breaking Strength			Min. Yield Strength			Min. Total Elongation		Low Relaxation			
			inch	mm		inch ²	mm ²	Lbs/1,000ft	g/m	lbf	kgf	kN	lbf	kgf	kN	Gauge length	Elongation	Initial Stress	Testing Time	% Max.	
ASTM A416/A416M-10	Grade 250	0.250	6.4	0.001	0.025	0.036	23.2	122	182	9000	-	40.0	8100	-	36.0	245	6105	3.5	0.70 pu1 or 0.080 pu1	1,000hr	2.5 or 3.5
		0.313	7.9	0.0015	0.038	0.058	37.4	197	294	14500	-	64.5	13050	-	58.1						
		0.375	9.5	0.002	0.051	0.08	51.6	272	405	20000	-	89.0	18000	-	80.1						
		0.438	11.1	0.0025	0.064	0.108	69.7	367	548	27000	-	120.1	24300	-	108.1						
		0.500	12.7	0.003	0.0769	0.144	92.9	490	730	36000	-	160.1	32400	-	144.1						
		0.600	15.2	0.004	0.102	0.216	139.4	737	1094	54000	-	240.2	48600	-	216.2						
	Grade 270	0.375	9.53	0.002	0.0508	0.085	54.8	290	432	23000	-	102.3	20700	-	92.1	245	6105	3.5	0.70 pu1 or 0.080 pu1	1,000hr	2.5 or 3.5
		0.438	11.11	0.0025	0.0635	0.115	74.2	390	582	31000	-	137.9	27900	-	124.1						
		0.500	12.70	0.003	0.0762	0.153	98.7	520	775	41300	-	183.7	37170	-	165.3						
		0.520	13.20	0.003	0.0762	0.167	107.7	568	844	45000	-	200.2	40500	-	180.1						
		0.563	14.29	0.0035	0.0889	0.192	123.9	651	970	51700	-	230.0	46530	-	207.0						
		0.600	15.24	0.004	0.1016	0.217	140.0	740	1102	58600	-	260.7	52740	-	234.6						
SNI 1154 : 2011	KBJP - P7 R A	0.620	15.75	0.004	0.1016	0.231	149.2	788	1173	62370	-	277.4	56133	-	249.7	245	6005	3.5	0.70 pu1 or 0.80 pu1	1,000hr	2.5 or 3.5
		0.700	17.78	0.0045	0.1143	0.294	189.7	1000	1487	79400	-	353.2	71500	-	318.0						
		0.760	19.30	0.005	0.1270	0.366	245.2	1280	1920	100000	-	450.0	90000	-	405.0						
		0.800	20.32	0.0055	0.1400	0.408	272.4	1410	2110	110000	-	495.0	99000	-	445.5						
		0.850	21.59	0.006	0.1538	0.464	306.4	1570	2350	120000	-	540.0	108000	-	486.0						
		0.900	22.86	0.0065	0.1676	0.528	348.0	1760	2640	130000	-	594.0	118800	-	534.6						
	KBJP - P7 R B	0.716	11.11	±0.026	±0.41	0.080	51.61	(272.1)	405	20000	(6.057)	89.0	17.000	(7.709)	80.1	245	6005	3.5	0.70 pu1 or 0.80 pu1	1,000hr	2.5 or 3.5
		0.716	11.11	±0.026	±0.41	0.108	69.68	(368.21)	548	27000	(12.247)	120.1	23.000	(10.432)	108.1						
		0.716	11.11	±0.026	±0.41	0.144	92.9	(490.5)	730	36000	(16.326)	160.1	30.600	(13.889)	144.1						
		0.66	15.24	±0.026	±0.41	0.216	139.35	(735.1)	1094	54000	(24.494)	240.2	45.900	(20.823)	216.2						
		0.716	11.11	±0.026	±0.41	0.085	54.84	(290.3)	432	23000	(10.433)	102.3	19.950	(8.872)	92.1						
		0.716	11.11	±0.026	±0.41	0.115	74.19	(391.1)	582	31000	(14.100)	137.9	26.350	(11.951)	124.1						

Anchor layouts

Anchors must be positioned at an adequate distance from the edge and with a minimum centre-to-centrespacing from each other. These distances are obtained using the dimensions from the test assemblies created under the European Technical Approval procedure (ETA).



Anti bursting reinforcement

The concentrated forces applied by the prestressed units require the installation of anti bursting reinforcement in the vicinity of the anchors in the case of concrete structures.

This local reinforcement comprises anti-burst reinforcement and additional reinforcements as set out in the European Technical Approval document. The diagram opposite illustrates an example of a local reinforcement arrangement. The reinforcement given in the tables must be supplemented in most cases by general reinforcements (not shown on the drawings), which are the minimum requirement against cracking and general balance reinforcements. The project designer must check the general balance of the anchor zones.

Unit	1 B500 steel						2 B500 steel			
	Pitch	d	N	A	B	Co	e	C	D	
3B13	60	8	4	120	200	45	8	120	120	
4B13	60	10	6	140	240	45	8	140	160	
5B13	60	10	6	140	260	45	8	140	190	
3B15	60	10	6	140	240	45	8	140	160	
4B15	60	10	6	140	280	45	8	140	190	
5B15	60	12	6	140	320	45	10	140	240	

C range High strength prestressing

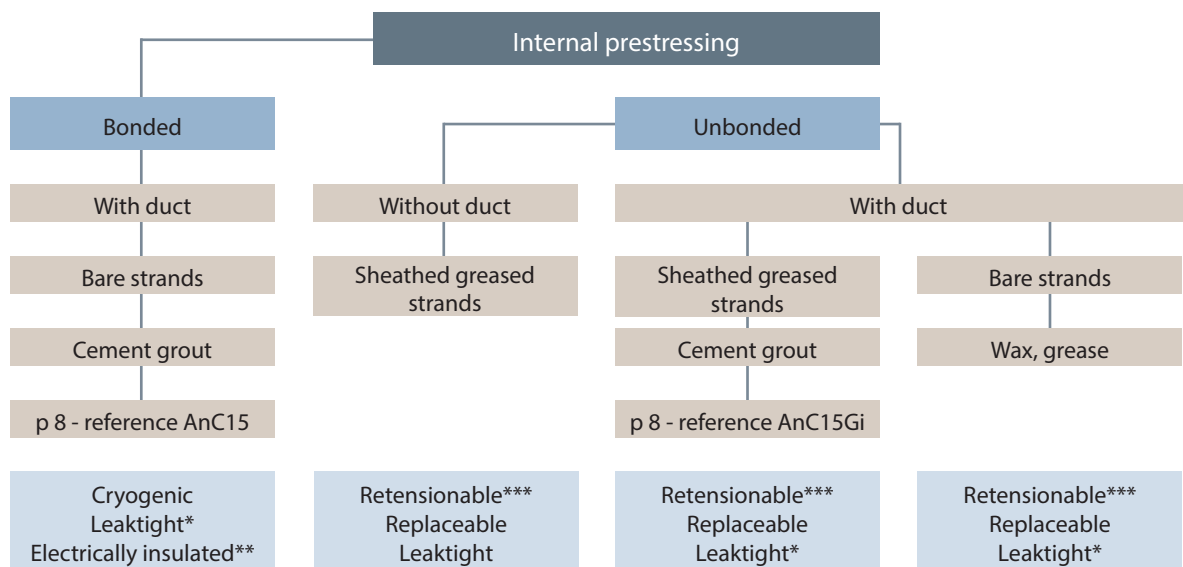
Application categories

The C range prestressing system is designed and certified for a wide variety of applications:

- use of 13^{mm} and 15^{mm} strands of all grades (1,770 or 1,860 MPa) including galvanised strands or greased sheathed strands
- prestressing units holding up to 55 strands

The system can be used in internal or external prestressing for concrete, steel, timber or brick structures:

- bonded or unbonded,
- with or without ducts,
- retensioning possible,
- replaceable,
- replaceable, adjustable,
- detensioning possible,
- with electrical insulation,
- for cryogenic applications.



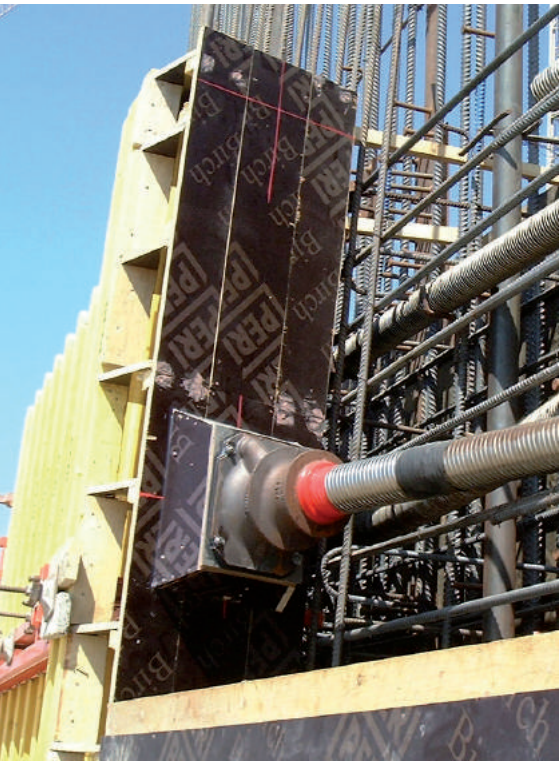
*if there is continuous leaktight sheathing **given special provisions

***if strand overlenghts are retained

Bonded internal prestressing configurations

The most common use of C range anchors in bonded internal prestressing is based on the use of lubricated, uncoated strands in a corrugated metal sheath, galvanised or ungalvanised, bendable by hand and injected with cement grout after tensioning of the strands. In curved sections and to reduce the coefficient of friction between the strands and the sheath.

To increase the durability of the prestressing or for applications in very aggressive environments in terms of corrosion of prestressing steel, it can be advantageous to replace the corrugated metal sheath with a leaktight plastic sheath (as well as its interconnections).



For each configuration there is an appropriate anchor head protection method: this can be done by sealing (concreting the anchor head into a recess), via a permanent cover made of cast iron (galvanised or painted), or plastic, injected with the same protection product as used in the main run of the tendon.

To protect tendons from stray currents or for electrical checks on watertightness of plastic sheaths, Freyssinet offers an electrically insulated prestressing system based on the use of an insulating plate under the anchor head with a plastic sheath and cover to create a permanent, watertight casing completely enclosing the strands.

Unbonded internal prestressing configurations

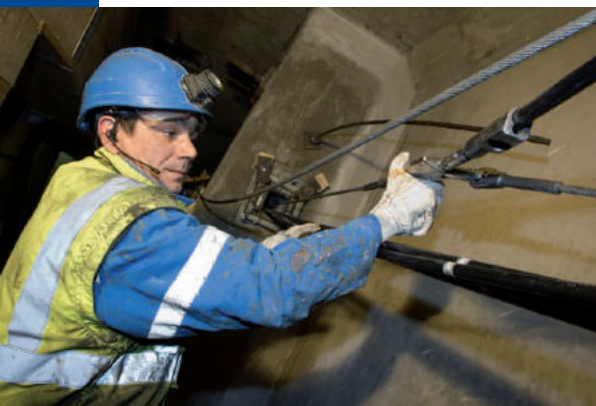
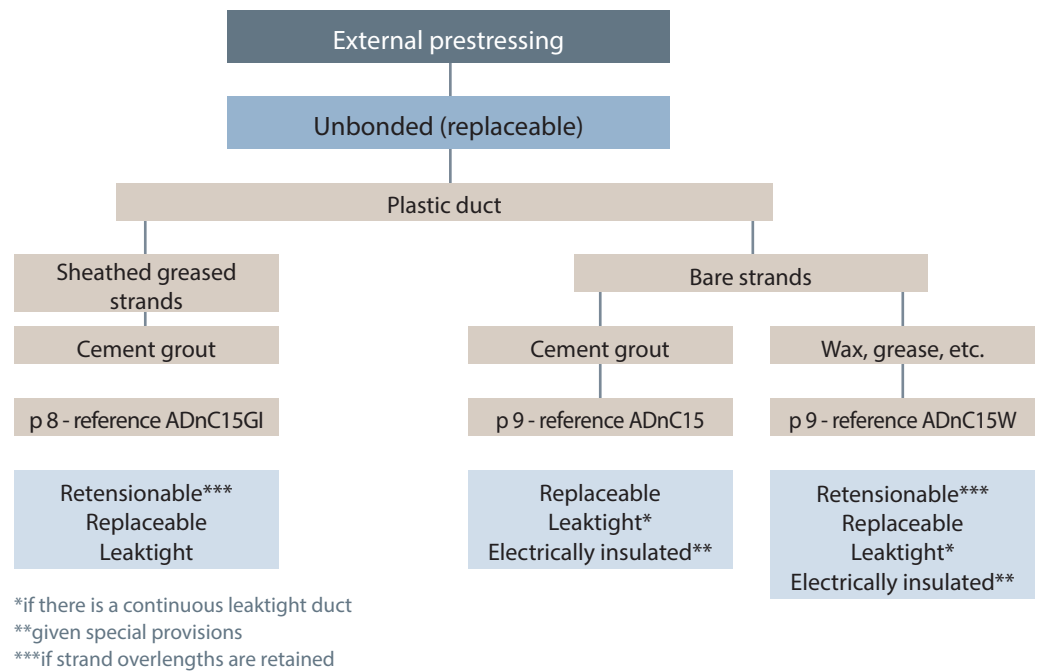
Unbonded prestressing tendons are mainly used in applications where the tension of the tendon needs to be measured, or where it may need to be retensioned, detensioned or replaced.

To achieve unbonded prestressing it is possible simply to use a flexible, corrosion-resistant protective product instead of the cement grout, normally grease or wax specially designed for this purpose. Special attention is then paid to the leaktightness of the ducts.

To increase the durability of the prestressing by using a number of corrosion protection barriers or to allow, for example, for individual strands to be replaced, Freyssinet recommends the use of grease-protected strands, covered with an individual HDPE sheath. These bars can be placed inside a duct injected with cement grout before tensioning the tendon or incorporated directly into the reinforcement before concreting.



Becakayu Toll Road



External prestressing configurations

External prestressing is well suited to structures made from thin concrete and also allows for easy inspection of the main run of the tendons.

The most common use of C range anchors in external prestressing is based on the use of strands placed inside sections of thick HDPE tube, assembled by mirror welding, which are injected with cement grout after tendon tensioning.

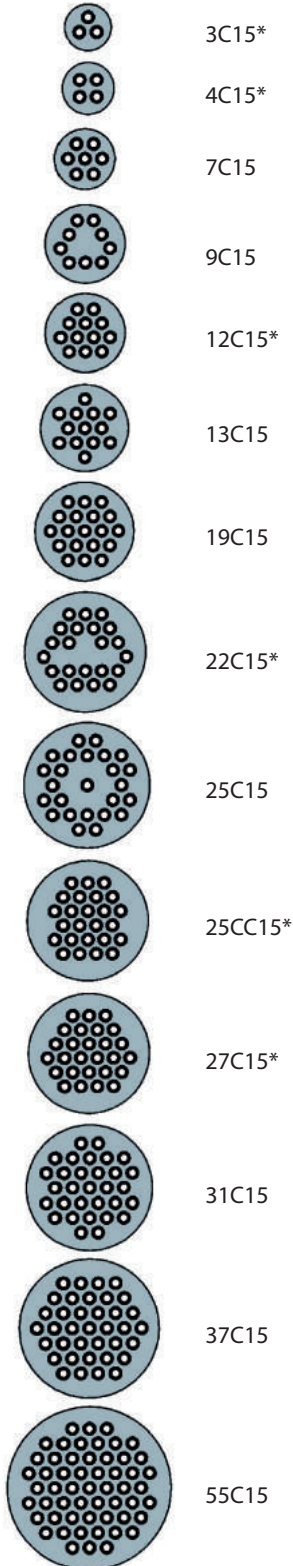
So that a tendon can be removed without damaging the structure, the ducts are of the double casing type at deviators and anchor diaphragms. The HDPE tube runs inside a rigid metal lining tube that separates the tendon from the structure and distributes the transverse loads caused by local deviation.

To produce tendons in which the strands are independent of each other, Freyssinet recommends using grease-protected strands with individual HDPE sheaths placed in a duct injected with cement grout before tendon tensioning. This configuration has the advantage of increasing the durability of the prestressing by incorporating a number of corrosion protection barriers and, for example, allowing for individual strands to be replaced..

Another solution consists in injecting the tendon with a flexible corrosion-resistant protective product, a grease or wax specially designed for this purpose. Special care must be taken when hot-injecting these products.

Range anchor

Anchor units



* Configuration of strands in anchor without central strand

Composition

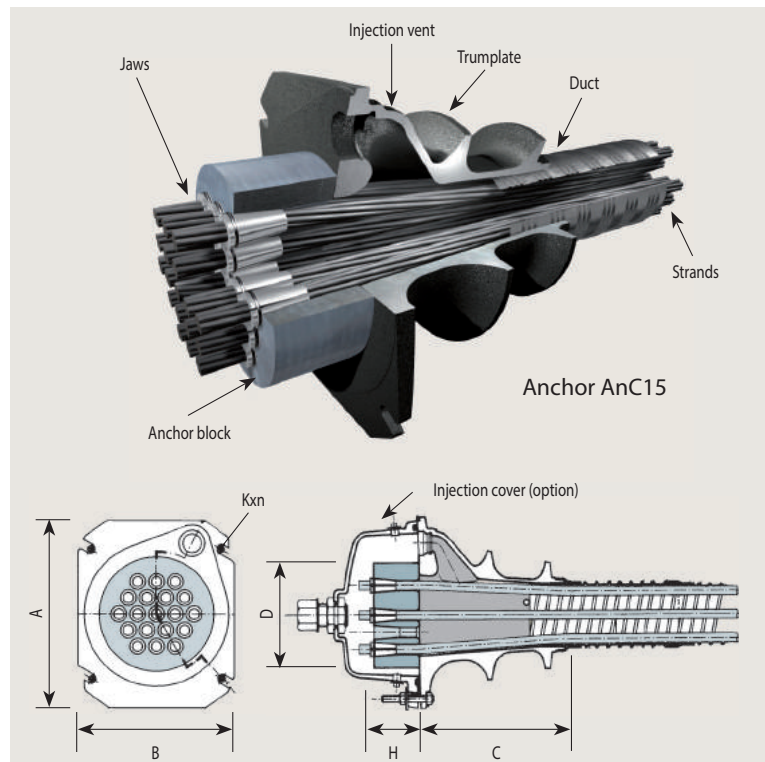
The anchors comprise:

- jaws guaranteeing high performance anchoring under static or dynamic stresses;
- circular steel anchor blocks drilled with tapered holes;
- multi-ribbed cast iron trumplates for improved distribution of the prestressing force in the concrete;
- optional permanent cover.

Compact anchors

The small size of range C anchors allows for:

- reduced thickness of beams and webs of box girders;
- improved concentration of anchors at ends;
- minimal strand deviation.



Units	A (mm)	B (mm)	C (mm)	D (mm)	H (mm)	Kxn (mm)
3C15	150	110	120	85	50	M10x2
4C15	150	120	125	95	50	M10x2
7C15	180	150	186	110	55	M12x2
9C15	225	185	260	150	55	M12x4
12C15	240	200	165	150	65	M12x4
13C15	250	210	246	160	70	M12x4
19C15	300	250	256	185	80	M12x4
22C15	330	275	430	220	90	M12x4
25C15	360	300	400	230	95	M16x4
25CC15	350	290	360	220	95	M16x4
27C15	350	290	360	220	100	M16x4
31C15	385	320	346	230	105	M16x4
37C15	420	350	466	255	110	M16x4
55C15	510	420	516	300	145	M20x4

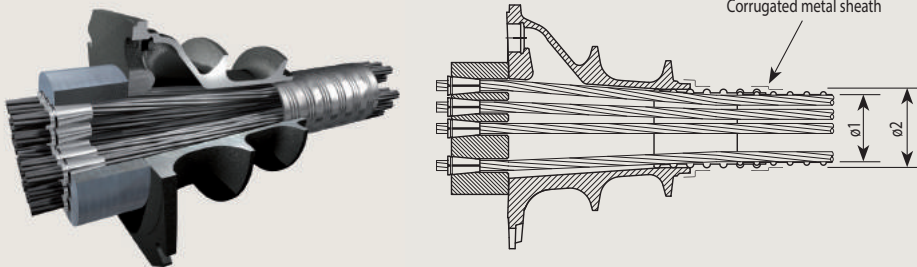
C range anchor (continued)

Application categories

- For bonded internal prestressing with bare strands with cement grouting

Units	Ø1* (mm)	Ø2** (mm)
3C15	40	45
4C15	45	50
7C15	60	65
9C15	65	70
12C15	80	85
13C15	80	85
19C15	95	100
22C15	105	110
25C15	110	115
25CC15	110	115
27C15	115	120
31C15	120	125
37C15	130	135
55C15	160	165

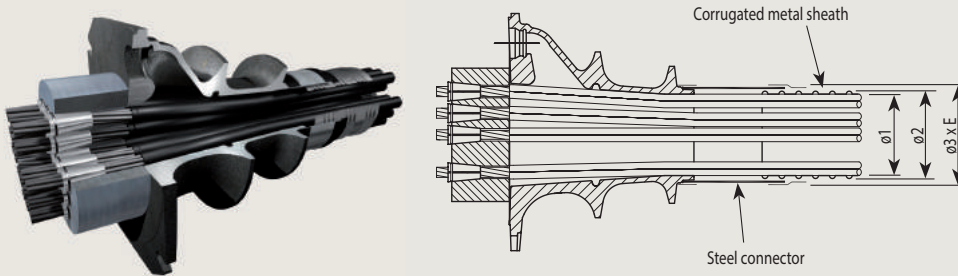
AnC15



- For unbonded internal prestressing with greased sheathed strands with cement grouting

Units	Ø1* (mm)	Ø2** (mm)	Ø3 (mm)	E (mm)
3C15	40	45	70	2.9
4C15	65	70	82.5	3.2
7C15	65	70	82.5	3.2
9C15	80	85	101.6	5
12C15	95	100	114.3	3.6
13C15	95	100	114.3	3.6
19C15	115	120	133	4
22C15	120	125	139.7	4
25C15	130	135	152.4	4.5
25CC15	130	135	152.4	4.5
27C15	130	135	152.4	4.5
31C15	145	150	177.8	5
37C15	145	150	177.8	5

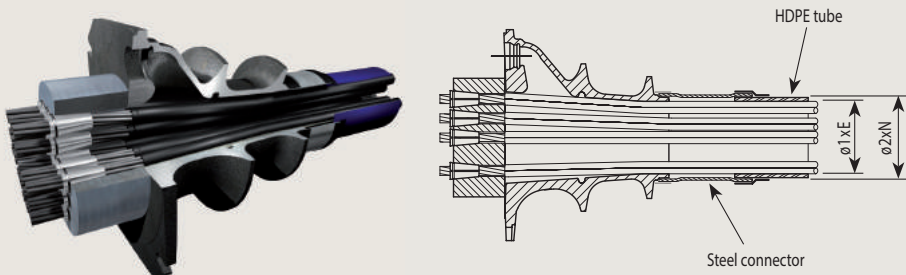
AnC15GI



- For unbonded external prestressing with greased sheathed strands with cement grouting

Units	Ø1* (mm)	E (mm)	Ø2** (mm)	N (mm)
3C15	70	2.9	63	4.7
4C15	82.5	3.2	75	5.5
7C15	82.5	3.2	90	6.6
9C15	101.6	5	90	6.6
12C15	114.3	3.6	110	5.3
13C15	114.3	3.6	110	5.3
19C15	133	4	125	6
22C15	139.7	4	125	6
25C15	152.4	4.5	140	6.7
25CC15	152.4	4.5	140	6.7
27C15	152.4	4.5	140	6.7
31C15	177.8	5	160	7.7
37C15	177.8	5	160	7.7
55C15	219.1	6.3	200	9.6

ADnC15GI

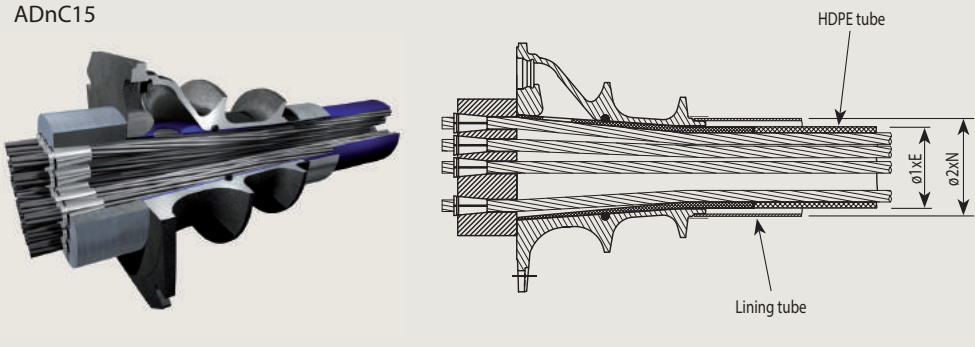


* Check sheath thickness complies with applicable regulations.

** Ø: inner diameter for corrugated sheath / outer diameter for PE or steel pipe. * and ** minimum recommended dimensions.

► For unbonded external prestressing with bare strands with cement grouting

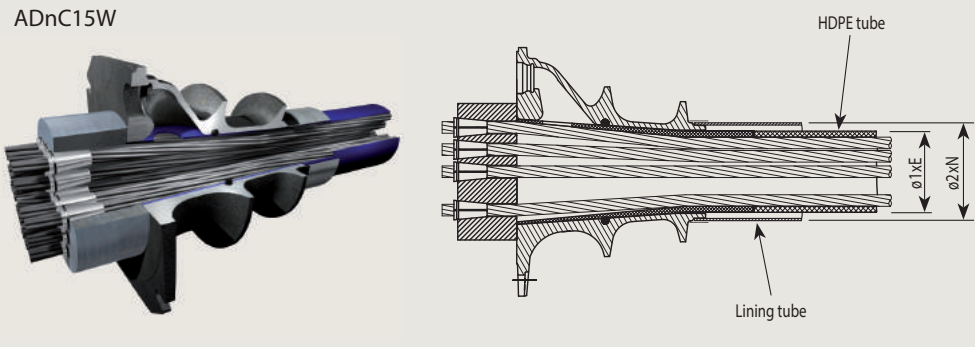
ADnC15



Units	Ø1* (mm)	E (mm)	Ø2** (mm)	N (mm)
3C15	50	3.7	70	2.9
4C15	63	4.7	82.5	3.2
7C15	63	4.7	82.5	3.2
9C15	75	5.5	101.6	5
12C15	90	6.6	114.3	3.6
13C15	90	6.6	114.3	3.6
19C15	110	5.3	133	4
22C15	110	5.3	139.7	4
25C15	125	6	152.4	4.5
25CC15	125	6	152.4	4.5
27C15	125	6	152.4	4.5
31C15	140	6.7	177.8	5
37C15	140	6.7	177.8	5

► For unbonded external prestressing with bare strands with injection of flexible product

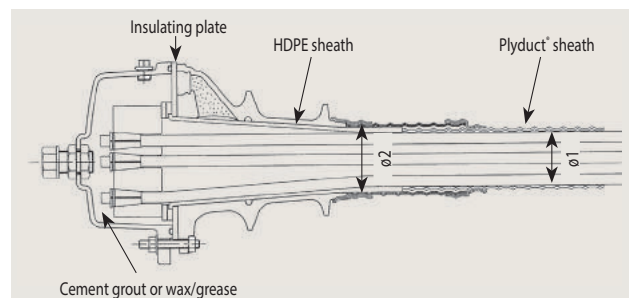
ADnC15W



Units	Ø1* (mm)	E (mm)	Ø2** (mm)	N (mm)
3C15	50	3.7	70	2.9
4C15	63	4.7	82.5	3.2
7C15	63	4.7	82.5	3.2
9C15	75	5.5	101.6	5
12C15	90	6.6	114.3	3.6
13C15	90	6.6	114.3	3.6
19C15	110	8.1	133	4
22C15	110	8.1	139.7	4
25C15	125	9.2	152.4	4.5
25CC15	125	9.2	152.4	4.5
27C15	125	9.2	152.4	4.5
31C15	140	10.3	177.8	5
37C15	140	10.3	177.8	5

► For prestressing with electrical insulation

Tendons with C range anchors can be enclosed in continuous non-conductive sheathing to obtain an electrically insulated prestressing system. Typical applications are railway structures where stray currents can compromise tendon durability.



Units	Ø1* (mm)	Ø2** (mm)
3C15	40	45
4C15	45	50
7C15	60	65
9C15	65	70
12C15	80	85
13C15	80	85
19C15	95	100
22C15	105	110
25C15	110	115
25CC15	110	115
27C15	115	120
31C15	120	125
37C15	130	135
55C15	160	165

* Check sheath thickness complies with applicable regulations.
 ** ϕ : inner diameter for corrugated sheath / outer diameter for PE or steel pipe.. * and ** minimum recommended dimensions.

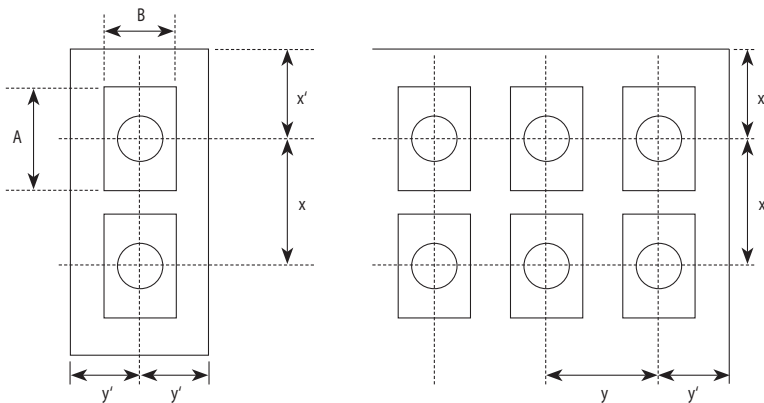
Layouts of C range anchors

The anchors must be positioned at an adequate distance from the wall and spaced at a minimum centre-to-centre distance. These distances are obtained using dimensions a and b of the test assemblies created under the European Technical Approval procedure.

In the following, it is taken that the anchors are positioned along two normal direction axes: x and y, with the short side of the trumplate aligned on the y axis.

Notation

- A, B: plane dimensions of the trumplate ($A \geq B$).
- a, b: side lengths of test specimen ($a \geq b$).
- x, y: minimum centre distance between two anchorages in the structure in x- and y directions.
- x', y': minimum edge distance between anchorages and the closest external surface in x- and y-directions.
- $f_{cm,o}$: mean compressive strength measured on cylinder required before tensioning.



Dimensions x and y must meet the following conditions:

- $x \geq A + 30$ (mm)
- $y \geq B + 30$ (mm)
- $x \cdot y \geq a \cdot b$
- $x \geq 0.85 a$
- $y \geq 0.85 b$
- $x' \geq 0.5 x + \text{concrete cover} - 10$ (mm)
- $y' \geq 0.5 y + \text{concrete cover} - 10$ (mm)

Distances a and b

Units	a = b (mm)		
	$f_{cm,o}$ (MPa)		
	24	44	60
3C15	220	200	180
4C15	250	220	200
7C15	330	260	240
9C15	380	300	280
12C15	430	320	300
13C15	450	340	310
19C15	530	400	380
22C15	590	430	410
25C15	630	460	440
27C15	650	480	470
31C15	690	520	500
37C15	750	580	540
55C15	1070	750	690

Values a and b are given in the table opposite, for three different classes of concrete strength $f_{cm,o}$.

If, for $f_{cm,o'}$ the design provides for a value other than the values given in the table, straight-line interpolation can be used to determine the x and y values. However, tensioning cannot be carried out at full force if $f_{cm,o}$ is lower than the lowest of the values given in the table opposite.

If the design provides for partial tensioning or a tensioning rate of less than $\min [0.8 F_{pk}; 0.9 F_{p0.1\%}]$, interpolation can be used to determine the required value of $f_{cm,o'}$ given that at 50% of full force, the required strength for the concrete can be brought to 2/3 of the values given in the table opposite and that at 30% of this force, the required strength for the concrete can be brought down to half of the values shown.

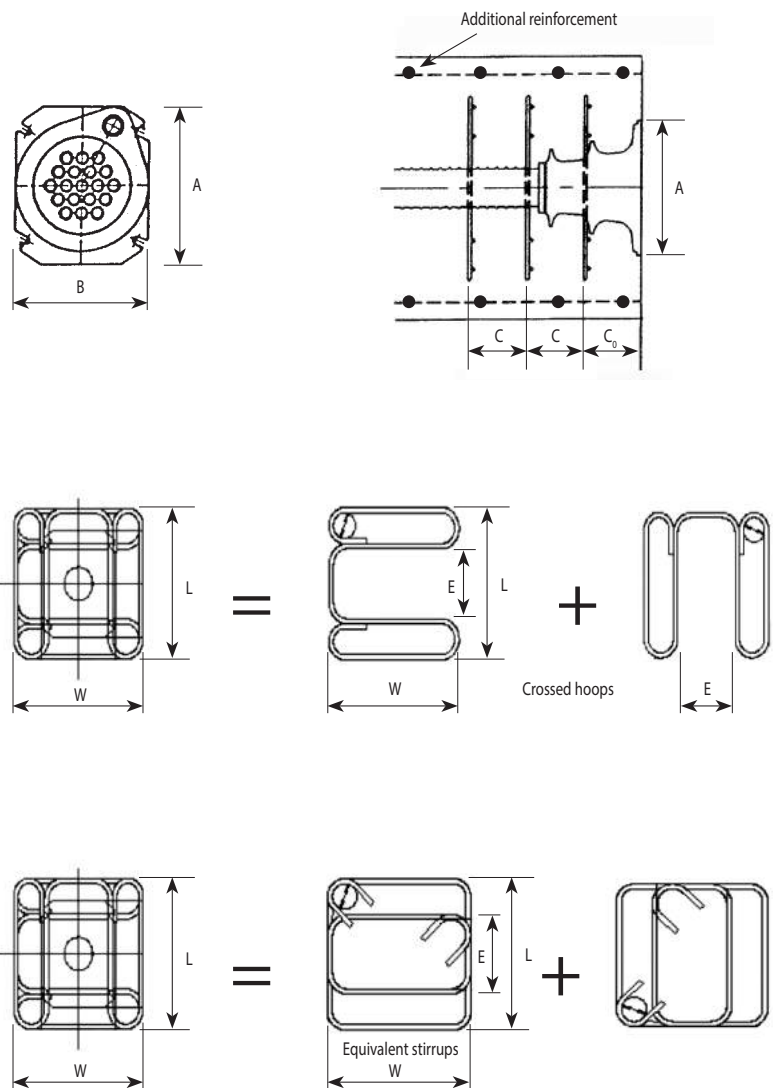
Anti bursting reinforcement for C range anchors

The concentrated forces applied by the prestressed units require the installation of anti bursting reinforcement in the vicinity of the anchors in the case of concrete structures. This local reinforcement includes anti-burst reinforcement and additional reinforcement.

The hoops shown in the tables below are deduced from the reinforcement used in test prisms and for a concrete cylinder strength equivalent to 24 or 44 MPa. For concrete strength equal to 60 MPa, refer to the Freyssinet System European Technical Approval. For other strengths the values from the tables can be interpolated.

1/ Crossed hoops (or stirrups)

The following diagrams show the general layout of the anti-burst reinforcement if using crossed hoops. Two crossed hoops are positioned on each layer. For practical reasons each hoop may be replaced by two stirrups with equivalent load resisting section as shown in the diagram below.



Anti bursting reinforcement for C range anchors (continued)

For anchors in several rows, in general the W and L dimensions are equal to a single value L_0 shown in the tables below. For anchors in one row, W is smaller and L increases but still respecting the minimum value E given in the tables below.

The specifications for anti-burst reinforcement vary depending on the average compressive strength of the concrete on tensioning: $f_{cm,0}$ (measured on cylinder). They are described in the tables below for two strength values.

Units	Crossed hoops or equivalent stirrups (Fy 235)							(Fy500) Additional reinforcements (stirrups)		
	Number of layers	Co (mm)	C (mm)	Diameter d (mm)	Mandrel diameter D (mm)	min Centre distance E (mm)	Overall dimension L_0 (mm)	Pitch (mm)	Diameter d (mm)	Number
3C15	3	100	75	8	31	90	200	110	8	3
4C15	3	100	75	8	46	90	230	115	12	3
7C15	3	120	90	12	74	130	310	120	12	4
9C15	3	120	110	12	74	140	360	125	14	4
12C15	3	120	120	14	83	160	410	140	16	4
13C15	3	140	125	14	88	170	430	130	16	4
19C15	3	160	125	16	117	200	520	180	20	4
22C15	3	170	140	20	118	215	570	130	16	6
25C15	3	200	160	20	135	220	610	175	20	5
27C15	3	175	170	20	130	250	630	130	20	6
31C15	3	210	150	20	130	255	670	140	20	6
37C15	4	250	225	20	130	270	740	130	25	5
55C15	5	290	200	25	160	340	1050	200	20	6

$f_{cm,0} = 24 \text{ MPa}$

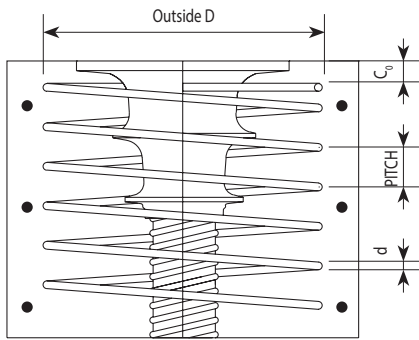
Units	Crossed hoops or equivalent stirrups (Fy 235)							(Fy500) Additional reinforcements (stirrups)			
	Number of layers	Co (mm)	C (mm)	Range	Diameter d (mm)	Mandrel diameter D (mm)	min Centre distance E (mm)	Total length L_0 (mm)	Pitch (mm)	Diameter d (mm)	Number
3C15	3	100	75	FC	8	26	90	190	150	8	2
4C15	3	100	75	FC	8	31	90	200	250	8	3
7C15	3	120	90	FC	12	39	130	240	140	10	4
9C15	3	120	110	FC	12	39	140	290	150	14	3
12C15	3	120	120	C	14	84	160	300	240	14	3
13C15	3	140	125	C	14	84	170	330	120	14	4
19C15	3	160	125	C	16	96	200	380	200	16	3
22C15	3	170	140	C	20	120	215	410	160	14	4
25C15	3	200	160	C	20	120	220	440	165	16	3
27C15	3	175	170	C	20	120	250	460	165	16	3
31C15	3	210	190	C	20	120	255	500	210	20	3
37C15	4	250	225	C	20	120	270	600	210	20	4
55C15	4	290	255	C	25	150	340	730	200	20	4

FC: crossed hoops or equivalent stirrups
C: stirrups only

$f_{cm,0} = 44 \text{ MPa}$

2/ Helical reinforcements

The diagram opposite defines the general layout of anti-burst reinforcement if using a spiral. This layout is especially suitable for isolated anchors.



Hooping and additional reinforcements

Units	Spiral reinforcement (Fy 235)					(Fy500) Additional reinforcements (stirrups)		
	Pitch (mm)	Diameter d (mm)	Number	Co (mm)	Outside diameter D (mm)	Pitch (mm)	Diameter d (mm)	Number
3C15	50	8	5	40	160	110	8	3
4C15	60	10	5	40	190	115	10	3
7C15	60	14	6	40	270	120	10	4
9C15	70	14	6	40	320	125	12	4
12C15	70	14	7	40	370	140	16	4
13C15	70	14	7	40	390	130	16	4
19C15	60	16	8	40	470	180	20	4
22C15	70	16	8	40	510	130	20	5
25C15	80	20	7	40	550	150	20	5
27C15	80	20	7	40	570	160	20	5
31C15	80	20	7	40	600	140	20	6
37C15	90	20	7	40	660	130	25	5
55C15	100	25	9	40	930	200	20	6

$f_{cm,O} = 24 \text{ MPa}$



LRT, Jabodebek

Units	Spiral reinforcement (Fy 235)					(Fy500) Additional reinforcements (stirrups)		
	Pitch (mm)	Diameter d (mm)	Number	Co (mm)	Outside diameter D (mm)	Pitch (mm)	Diameter d (mm)	Number
3C15	50	8	5	40	150	150	8	2
4C15	60	10	5	40	160	250	8	3
7C15	60	12	6	40	200	140	10	4
9C15	70	14	6	40	250	150	12	3
12C15	50	14	7	40	260	240	14	3
13C15	70	14	7	40	290	120	14	4
19C15	60	16	8	40	320	200	16	3
22C15	70	16	8	40	350	160	14	4
25C15	80	20	7	40	380	165	16	3
27C15	80	20	7	40	400	165	16	3
31C15	80	20	8	40	420	210	16	3
37C15	90	20	9	40	520	210	20	4
55C15	100	25	10	40	650	250	20	3

$f_{cm,O} = 44 \text{ MPa}$

3/Additional reinforcement

The anti-burst reinforcement in the anchor zone must be supplemented by the additional reinforcement used in the transfer test prisms, in the form of frames in accordance with the above tables or using correctly anchored bars of the same section.

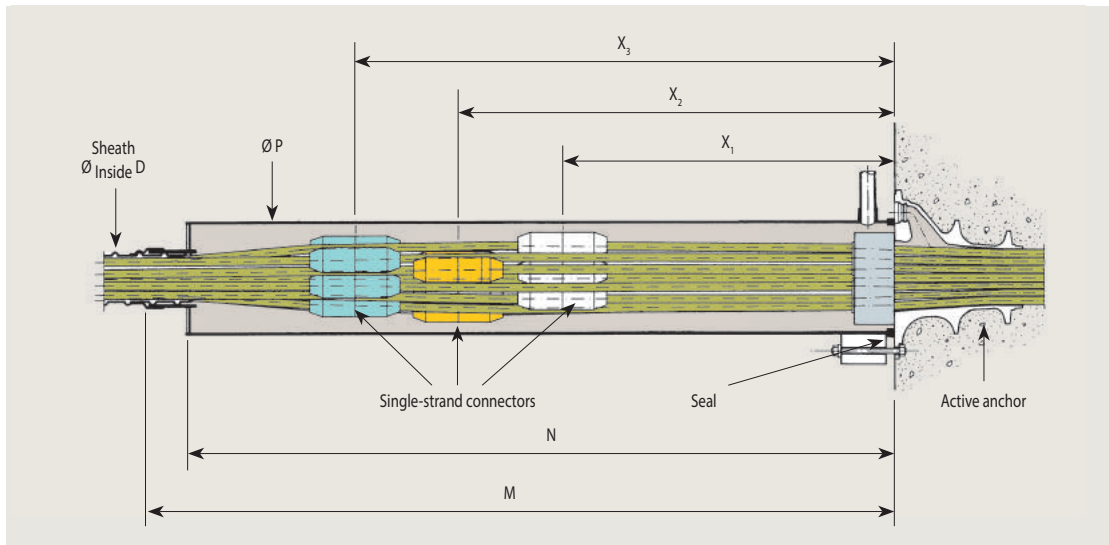
The reinforcement given in the tables above must in most cases be supplemented by general reinforcements not shown on the drawings, corresponding to the minimum required to guard against cracking and general equilibrium reinforcements. The project designer must check the general balance of the anchor zones.

CI single-strand fixed couplers

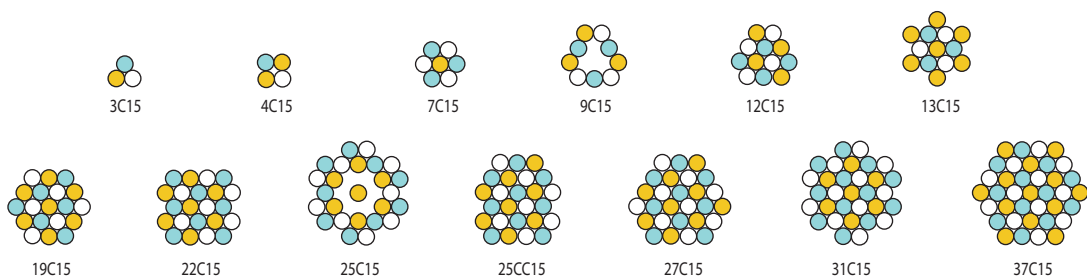
Couplers are needed when a continuous structure is built in successive phases with extension of the tendons already in place, tensioned and grouted in the previous segment. They are generally used in internal prestressing.

CI single-strand fixed couplers

CI fixed couplers allow for a secondary tendon to be connected to a primary tendon using machined or cast single-strand extenders with automatic locking by a spring inserted between the two opposing jaws. The primary anchor is a C range anchor. The single-strand extenders positioned on three levels offer a very compact configuration.



Units	D (mm)	M (mm)	N (mm)	P (mm)	X ₁ (mm)	X ₂ (mm)	X ₃ (mm)
CI 3C15	40	1,050	1,000	102	250	500	750
CI 4C15	45	1,050	1,000	127	250	500	750
CI 7C15	60	1,050	1,000	127	250	500	750
CI 9C15	65	1,100	1,050	178	300	500	800
CI 12C15	80	1,150	1,100	194	300	550	800
CI 13C15	80	1,200	1,150	219	300	550	800
CI 19C15	95	1,200	1,150	219	300	550	800
CI 22C15	105	1,250	1,200	273	350	600	800
CI 25C15	110	1,250	1,200	273	350	600	850
CI 25CC15	110	1,300	1,250	273	350	600	850
CI 27C15	115	1,300	1,250	273	350	600	850
CI 31C15	120	1,350	1,300	273	400	650	900
CI 37C15	130	1,530	1,480	324	400	650	900



CU and CC fixed multi-strand couplers

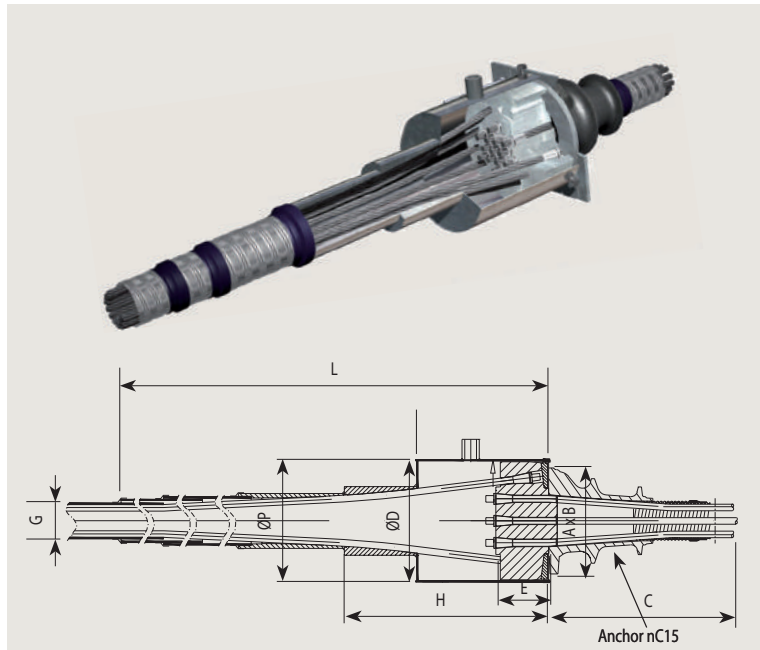
2 types of multi-strand coupler are possible:

Type CU couplers

For these couplers the anchor block of the primary tendon is altered to take the anchoring jaws of the secondary tendon.

This assembly is protected by a cover with a trumpet at one end to provide the connection with the duct of the secondary tendon.

Units	A (mm)	B (mm)	C (mm)	G (mm)	ØD (mm)	E (mm)	L (mm)	H (mm)	ØP (mm)
CU 3C15	150	110	120	40	140	120	150	150	150
CU 4C15	150	120	125	45	150	127	150	150	150
CU 7C15	180	150	186	60	200	120	180	180	180
CU 9C15	225	185	260	65	255	122	225	225	225
CU 12C15	240	200	165	80	265	130	240	240	240
CU 13C15	250	210	246	80	276	130	250	250	250
CU 19C15	300	250	256	95	306	140	300	300	300
CU 22C15	330	275	430	105	335	145	330	330	330
CU 25C15	360	300	400	110	346	145	360	360	360
CU 25CC15	350	290	360	110	354	150	350	350	350
CU 27C15	350	290	360	115	354	150	350	350	350
CU 31C15	385	320	346	120	356	150	385	385	385
CU 37C15	420	350	466	130	386	156	420	420	420



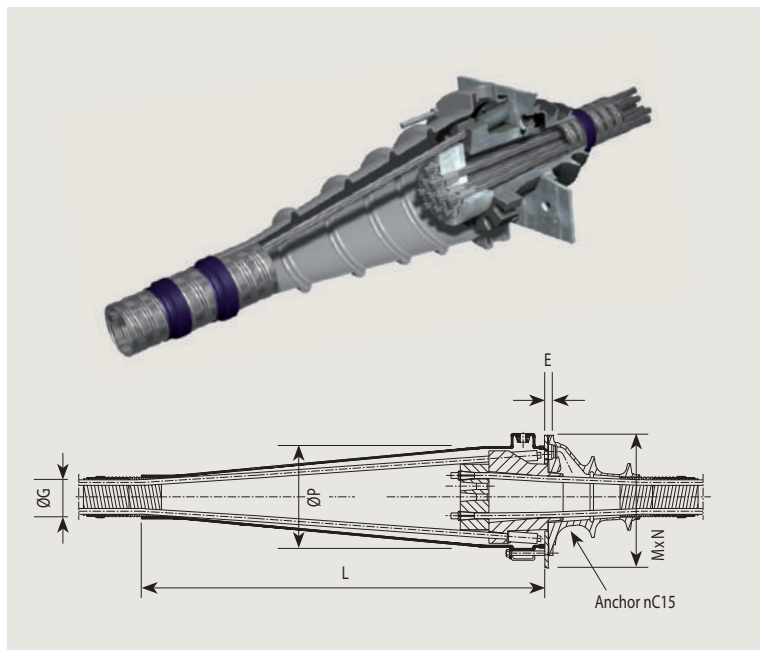
Type CC couplers

For these couplers, a notched collar is inserted between the trumplate and the anchor block of the primary tendon. The secondary tendon is anchored by means of swages resting onto the collar.

Units	E (mm)	L (mm)	M x N* (mm)	ØP (mm)	ØG (mm)
CC 3C15**	10	570	220 x 220	210	40
CC 4C15**	10	600	240 x 240	220	45
CC 7C15**	10	670	260 x 260	230	60
CC 9C15**	10	750	290 x 290	270	65
CC 12C15**	10	725	300 x 300	280	80
CC 13C15	10	770	290 x 290	275	80
CC 19C15	12	825	320 x 320	305	95
CC 22C15**	10	885	390 x 390	365	110
CC 25C15	5	900	360 x 360	340	110
CC 27C15**	10	955	390 x 390	365	110
CC 31C15	5	1,110	420 x 420	400	120

*Dimensions of the retaining plate.

** Available on request.

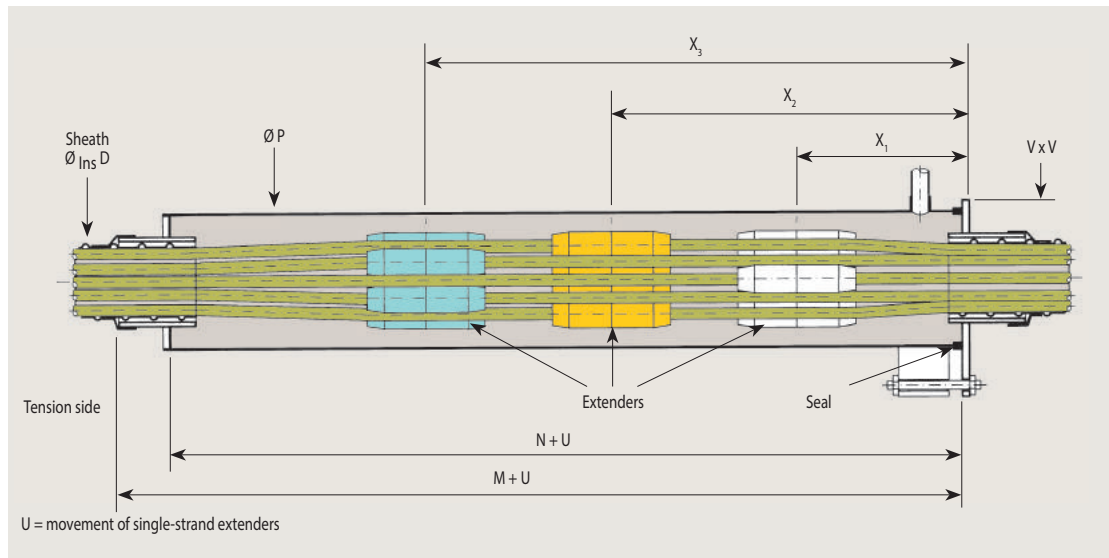


CM mobile multi-strand couplers

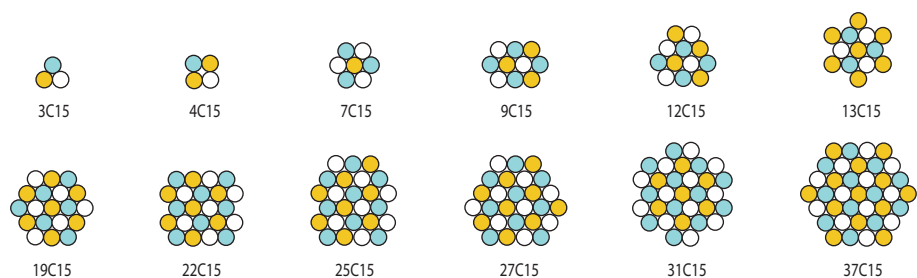
Coupling for untensioned tendons

These connection devices enable end-to-end coupling of two untensioned tendons.

The configuration is similar to that of fixed couplings using the same individual extenders, but without a primary anchor. The cover is longer to allow the extenders to move when the whole tendon is being tensioned.



Units	D (mm)	M (mm)	N (mm)	P (mm)	X ₁ (mm)	X ₂ (mm)	X ₃ (mm)	V (mm)
CM 3C15	40	1,050	1,000	102	250	500	750	130
CM 4C15	45	1,050	1,000	108	250	500	750	140
CM 7C15	60	1,050	1,000	114	250	500	750	150
CM 9C15	65	1,100	1,050	159	300	550	800	200
CM 12C15	80	1,150	1,100	159	300	550	800	200
CM 13C15	80	1,200	1,150	168	300	550	800	200
CM 19C15	95	1,200	1,150	194	300	550	800	230
CM 22C15	105	1,250	1,200	219	350	600	800	230
CM 25C15	110	1,250	1,200	219	350	600	850	250
CMI 27C15	115	1,300	1,250	219	350	600	850	250
CM 31C15	120	1,350	1,300	244	400	650	900	280
CM 37C15	130	1,530	1,480	273	400	650	900	310

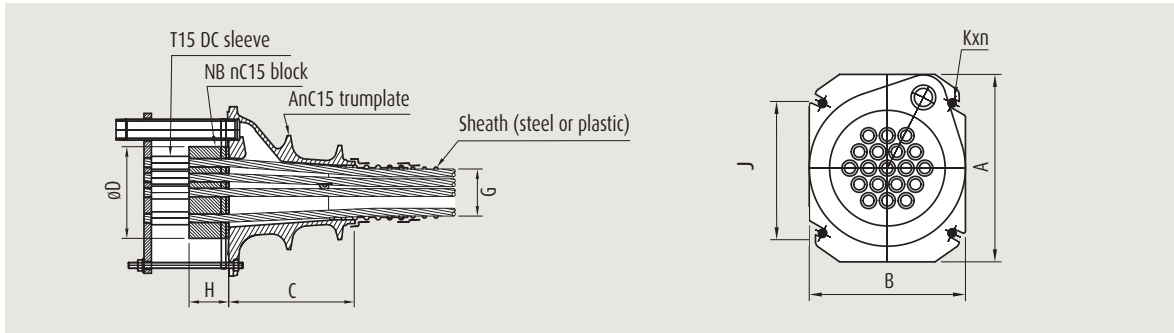


Embedded anchors

There are three types of passive anchor embedded in concrete and used in combination with C range active anchors: NB, N and G. The tendons are positioned before concreting.

Type NB embedded anchor

NB anchors comprise an anchor block drilled with cylindrical holes and on which extruded sleeves are held by a rear retaining plate.



Units	A (mm)	B (mm)	C (mm)	D (mm)	H (mm)	G (mm)	J (mm)	Kxn
3C15	150	110	120*	85	50	40**	91	M10x2
4C15	150	120	125*	95	50	45***	101	M10x2
7C15	180	150	186	110	55	60	128	M12x2
9C15	225	185	260	150	55	65	153	M12x4
12C15	240	200	165	150	65	80	168	M12x4
13C15	250	210	246	160	70	80	168	M12x4
19C15	300	250	256	185	80	95	208	M12x4
22C15	330	275	430	220	90	105	248	M12x4
25C15	360	300	400	230	95	110	268	M16x4
25CC15	350	290	360	220	95	110	258	M16x4
27C15	350	290	360	220	100	115	258	M16x4
31C15	385	320	346	230	105	120	268	M16x4
37C15	420	350	466	255	110	130	300	M16x4
55C15	510	420	516	300	145	160	370	M20x4

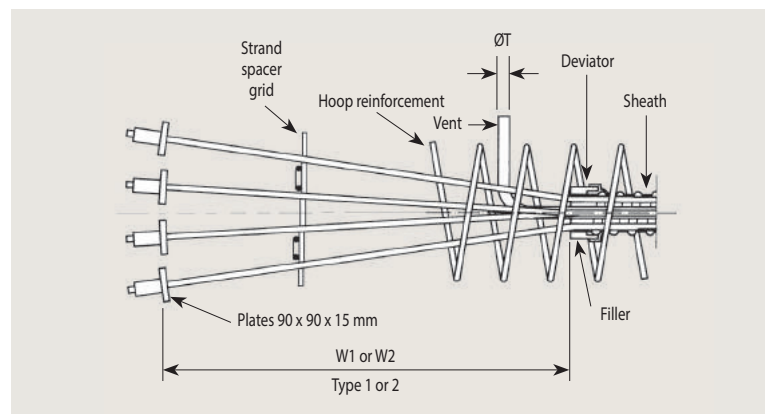
* 2-stage trumplate ** Oval duct version 58x21

*** Oval duct version 75x21

Units	W1 (mm)	W2 (mm)	ØT (mm)
3C15	300	300	G 1/2"
4C15	350	350	G 1/2"
7C15	500	400	G 1/2"
9C15	600	400	G 1/2"
12C15	900	500	G 1/2"
13C15	1,200	500	G 1/2"
19C15	1,500	650	G 1"
22C15	1,800	750	G 1"
25C15	2,000	850	G 1"
27C15	2,000	1,000	G 1"
31C15	2,200	1,100	G 1"
37C15	2,500	1,280	G 1 1/2"
55C15	2,800	1,400	G 1 1/2"

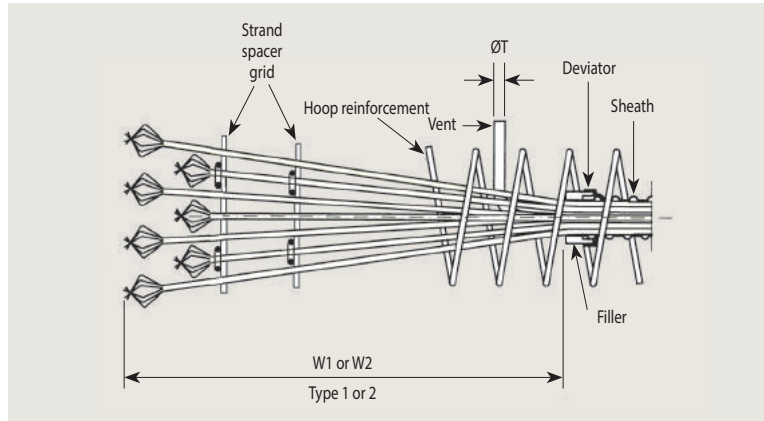
Type N embedded anchor

In the type N anchor, each strand has an extruded sleeve, each supported individually by a steel plate.

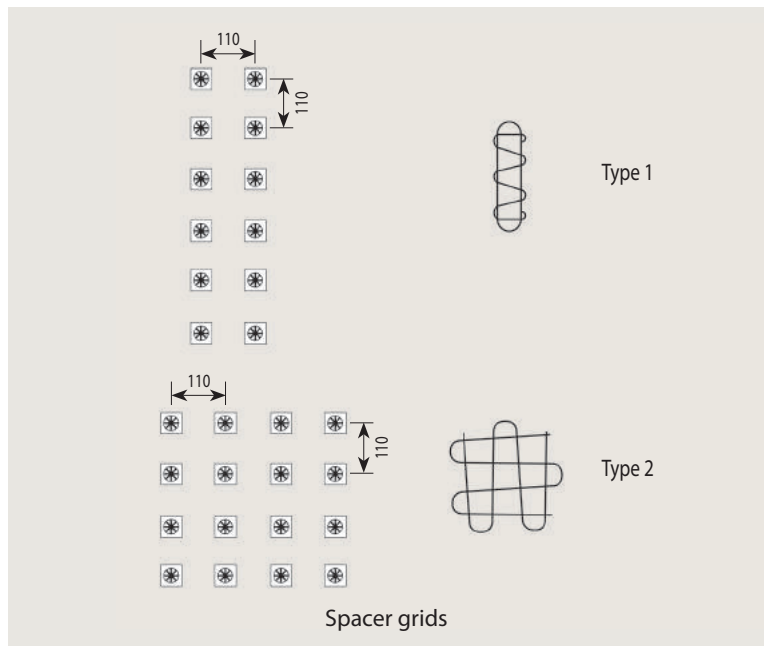


Type G embedded anchor

The type G anchor is a dead end anchor. The end of each strand is preformed to create a bulb shape.



Units	W1 (mm)	W2 (mm)	ØT (mm)
3C15	950	450	G 1/2"
4C15	950	500	G 1/2"
7C15	950	550	G 1/2"
9C15	950	550	G 1/2"
12C15	1,300	650	G 1/2"
13C15	1,300	650	G 1/2"
19C15	1,300	800	G 1"
22C15	1,500	1,000	G 1"
25C15	1,500	1,000	G 1"
27C15	1,700	1,250	G 1"
31C15	1,700	1,250	G 1"
37C15	2,000	1,250	G 1 1/2"
55C15	2,500	1,250	G 1 1/2"



Karaha Geothermal Energy

F range anchors for thin elements

Composition of F range anchor

F range anchors comprise:

- an anchor body embedded in the concrete and acting as both anchor head and distribution element;
- jaws, to anchor the strands;
- elements for permanent protection of the jaws, comprising HDPE (or metal) covers, filled with grease.

Application categories

F range anchors are intended for the prestressing of thin elements (slabs, concrete floors, etc.).

They are used for:

- unbonded prestressed concrete;
- bonded prestressed concrete.

Bonded internal prestressing configurations

The most common use of F range anchors in bonded internal prestressing is based on the use of uncoated strands in a corrugated metal sheath, galvanised or ungalvanised, generally flat for easier insertion into thin elements, and injected with cement grout after tensioning of the strands.

The anchors, sheath and prestressing reinforcements are installed before concreting the structure. In particular, this prevents the risk of flat ducts being crushed during concreting which would prevent the subsequent threading of the strands.

Unbonded internal prestressing configurations

F range anchors for unbonded internal prestressing are used with grease-protected strands, each with individual HDPE sheathing. These elements are directly incorporated into the reinforcement before concreting, with precautions being taken not to damage each individual sheath.

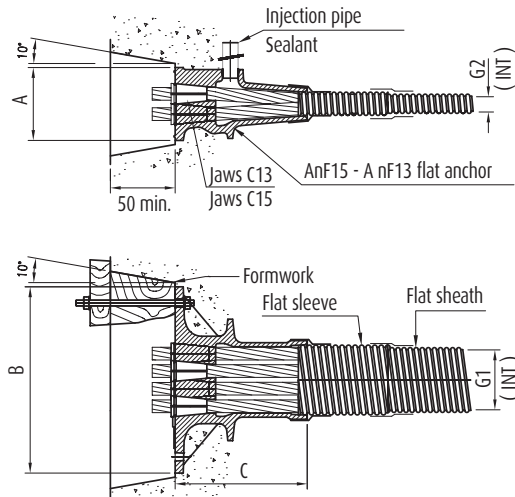
The individual AF13/15 anchor for 13^{mm} and 15^{mm} strands respectively allows for the beneficial effects of the prestressing to be distributed very evenly in thin elements.



Post-tensioning Silo, Aceh

Bonded internal prestressing

Multi-strand units 3 to 5 F13/F15



Notes: F range anchors are designed for minimum concrete strength $f_{cmin} = 22$ MPa (on cylinder). The usual installation method is threading the strands into the ducts (flat sheaths) before concreting. However, if necessary, it is also possible to thread the strands after concreting the structure, on condition that special provisions are made.

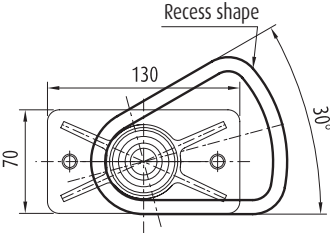
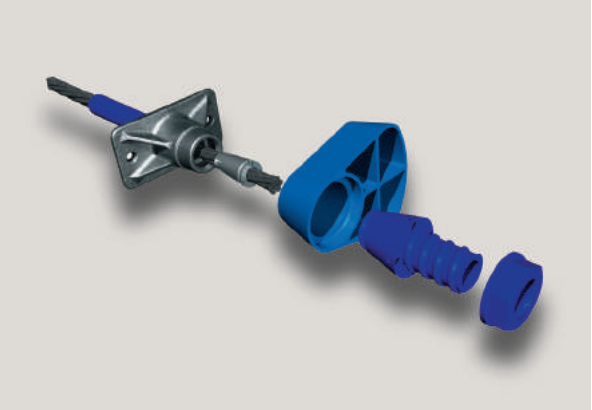
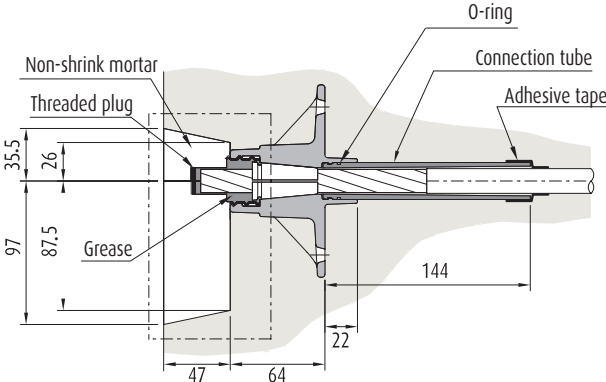
Units	A (mm)	B (mm)	C (mm)	G1 x G2 (mm ²)	G (mm)	H (mm)
A3 F13/15	85	190	163	58 x 21	95	200
A4 F13/15	90	230	163	75 x 21	100	240
A5 F13/15	90	270	163	90 x 21	100	280



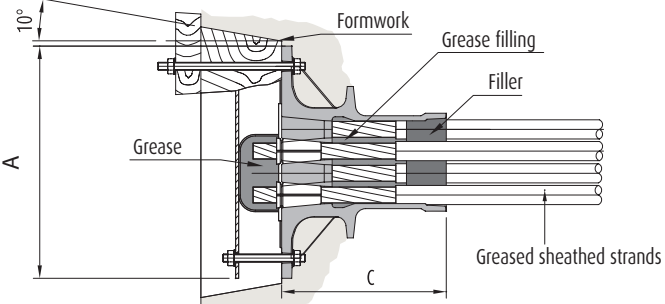
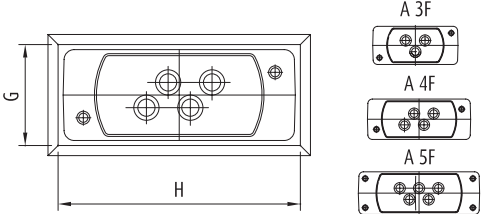
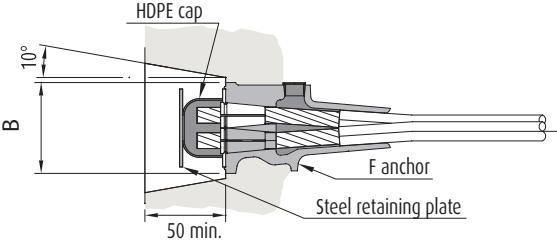
Tie wire, Dermaga VI Merak

Unbonded internal prestressing with greased sheathed strands

1/ Single-strand unit (1F13/1F15)



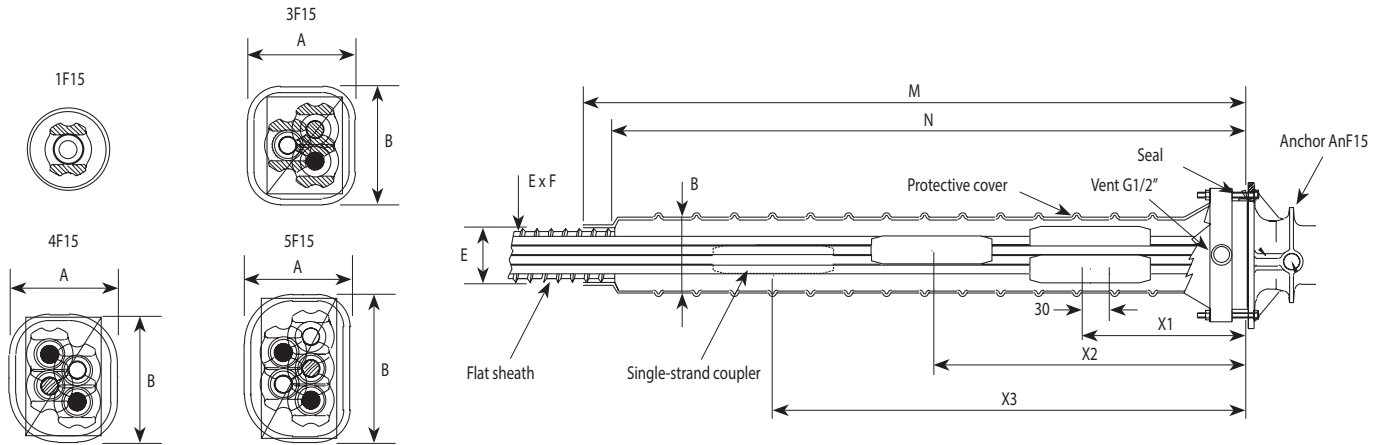
2/ Multi-strand units (3 to 5 F13/15)



Units	A (mm)	B (mm)	C (mm)	G (mm)	H (mm)
A 3F 13/15	190	85	163	95	200
A 4F 13/15	230	90	163	100	240
A 5F 13/15	270	90	163	100	280

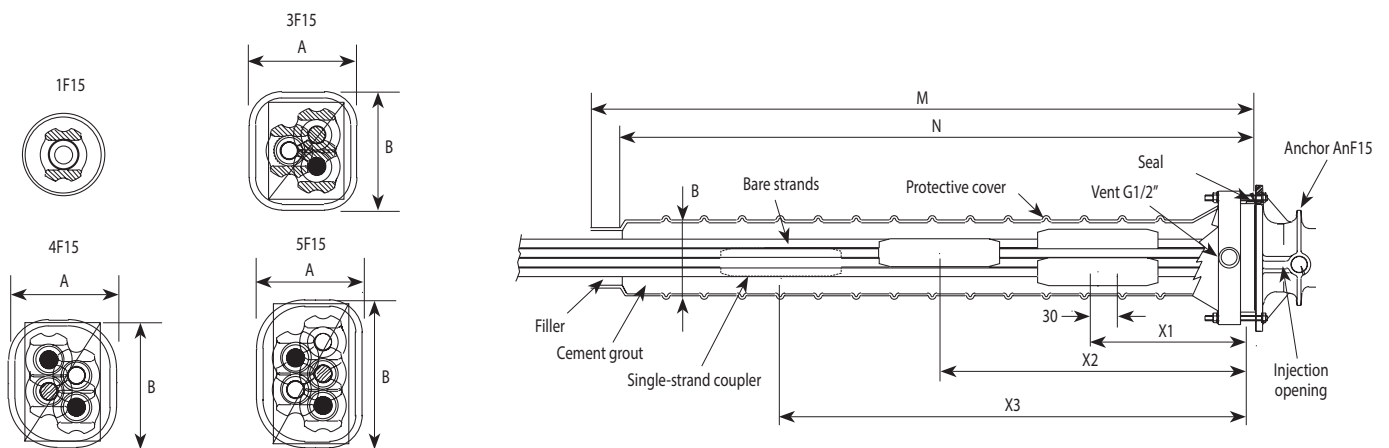
CI single-strand fixed couplers

Bonded prestressing



Units	A (mm)	B (mm)	E (mm)	F (mm)	M (mm)	N (mm)	X1 (mm)	X2 (mm)	X3 (mm)
CI 1F13/15	-	-	-	-	550	550	250	-	-
CI 3F13/15	100	100	58	20	800	750	250	500	750
CI 4F13/115	100	110	75	20	1,050	1,000	250	500	750
CI 5F13/15	100	140	90	20	1,050	1,000	250	500	750

Unbonded prestressing



Units	A (mm)	B (mm)	M (mm)	N (mm)	X1 (mm)	X2 (mm)	X3 (mm)
CI 1F13/15	-	-	550	500	250	-	-
CI 3F13/15	100	100	800	750	250	500	750
CI 4F13/15	100	110	1,050	1,000	250	500	750
CI 5F13/15	100	140	1,050	1,000	250	500	750

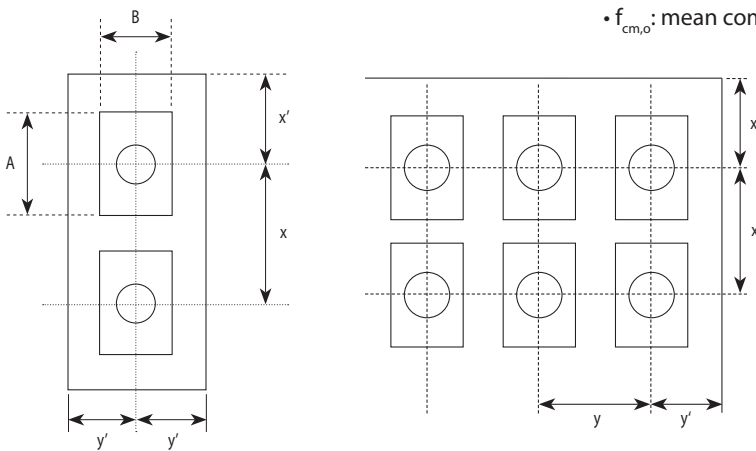
Layouts for F range anchors

The anchors must be positioned at an adequate distance from the wall and spaced at a minimum centre-to-centre distance. These distances are obtained using dimensions a and b of the test assemblies created under the European Technical Approval procedure.

In the following, it is taken that the anchors are positioned along two normal direction axes: x and y, with the short side of the trumplate aligned on the y axis.

Notation

- A, B: plane dimensions of the trumplate ($A \geq B$).
- a , b : side lengths of test specimen ($a \geq b$).
- x, y: minimum centre distance between two anchorages in the structure in x and y directions.
- x', y': minimum edge distance between anchorages and the closest external surface in x and y directions.
- $f_{cm,o}$: mean compressive strength measured on cylinder required before



Dimensions x and y must meet the following conditions:

- $x \geq A + 30$ (mm)
- $y > B + 30$ (mm)
- $x \cdot y \geq a \cdot b$
- $x \geq 0.85 a$
- $y \geq 0.85 b$
- $x' \geq 0.5 x + \text{concrete cover} - 10$ (mm)
- $y' \geq 0.5 y + \text{concrete cover} - 10$ (mm)

Distances a and b

Units	$f_{cm,o}$ (MPa)	a (mm)	b (mm)
1F 13/15	22	190	140
3/4 F 13	22	500	160
3/4 F 15	22	390	190
5 F 13	22	570	260
5 F 15	22	510	240

Values a and b are given in the table opposite, for three different concrete strength $f_{cm,o}$ in the case of F range.

If the design provides for partial tensioning or a tensioning rate of less than $\min [0.8 F_{pk} ; 0.9 F_{p0.1\%}]$, interpolation can be used to determine the required value of $f_{cm,o}$, bearing in mind that at 50% of full force, the required strength for the concrete can be brought to 2/3 of the values given in the table opposite and that at 30% of this force, the required strength for the concrete can be brought down to half of the values given.

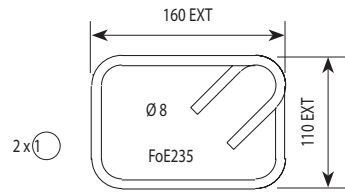
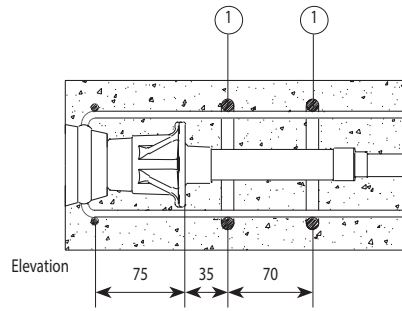


Amarta Unilever

Anti bursting reinforcement for F range anchors

1/ Single-strand unit

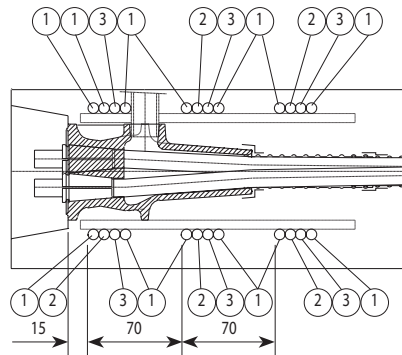
A 1F13
A 1F15



Dimensions in mm

2/ Multi-strand units (3 to 5 F13/15)

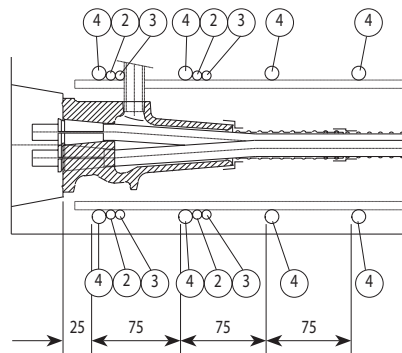
A 3F13
A 4F13



Type	No.	Ø (mm)	L1 (mm)	L2 (mm)	L3 (mm)	h (mm)
1	12	8	320			
2	3	8	320	20	160	140
3	3	8	320	20	160	140

See types of bars below.

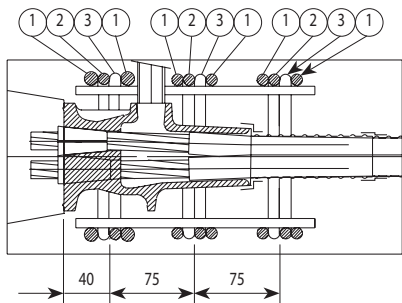
A 3F15
A 4F15



Type	No.	Ø (mm)	L1 (mm)	L2 (mm)	L3 (mm)	h (mm)
2	2	8	350	60	160	160
3	2	8	350	60	160	160
4	4	12	350		160	160

See types of bars below.

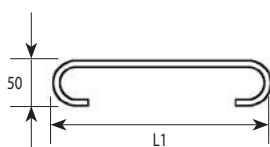
A 5F15
A 5F13



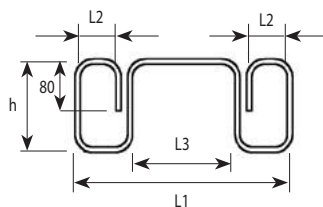
Type	No.	Ø (mm)	L1 (mm)	L2 (mm)	L3 (mm)	h (mm)
1	12	10	380	-	-	-
2	3	10	380	55	190	145
3	3	10	380	55	190	145

See types of bars below.

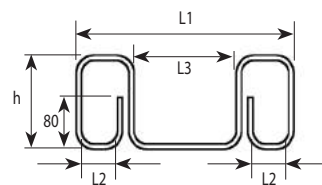
Type No. 1



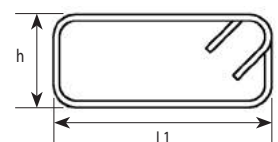
Type No. 2



Type No. 3



Type No. 4

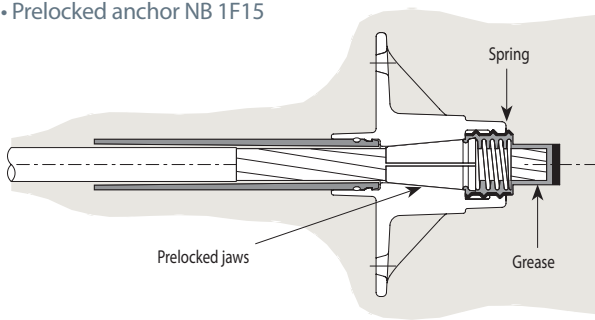


Embedded anchors for F range

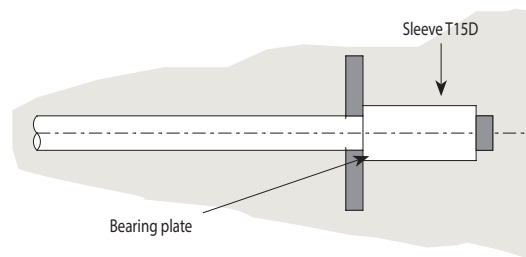
There are three types of passive anchors embedded in concrete used in combination with F range active anchors: prelocked anchor NB1F15, type N using an individual plate supporting an extruded sleeve and the type G dead end anchor. The tendons are positioned before concreting.

1/ Single-strand unit

• Prelocked anchor NB 1F15



• Anchor with extruded sleeve

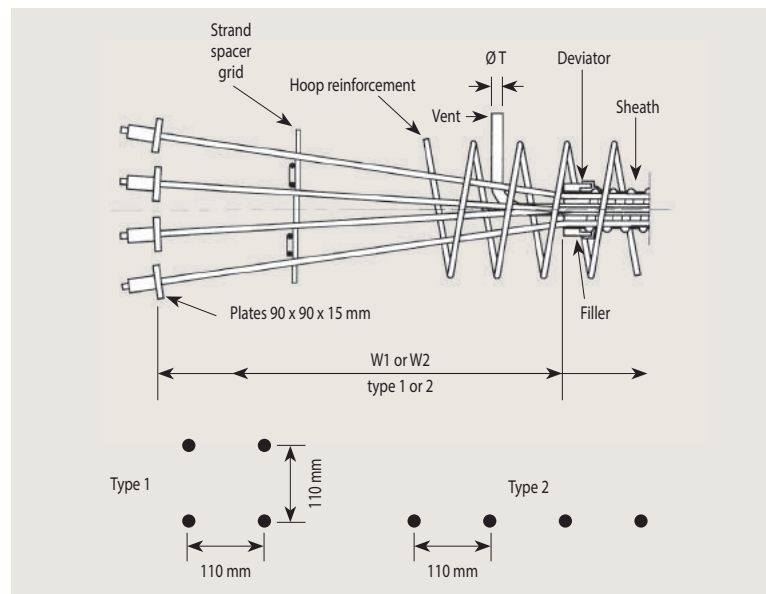


2/ Multi-strand units (3 to 5 F13/15)

Type N embedded anchor

In the type N anchor, each strand has an extruded sleeve, each supported individually by a steel plate.

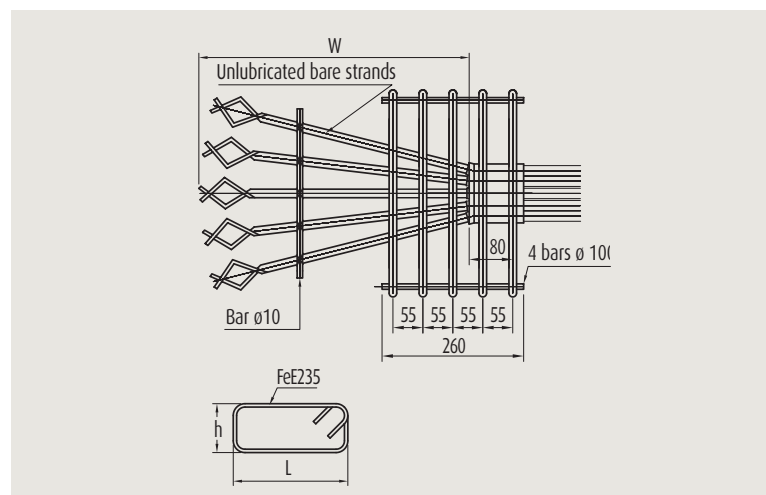
Units	N		ØT (mm)
	W1 (mm)	W2 (mm)	
N3 F13/15	300	300	G 1/2"
N4 F13/15	350	350	G 1/2"
N5 F13/15	500	400	G 1/2"



Type G embedded anchor

The type G anchor is a dead end anchor. The end of each strand is preformed into a bulb shape.

Units	W (mm)	Ø (mm)	H (mm)	L (mm)
3F13	950	10	120	300
4F13	950	10	120	320
5F13	950	12	120	340
3F15	950	10	120	300
4F15	950	12	145	340
5F15	950	14	145	380



COMPONENTS COMMON TO RANGES C AND F

1/ Prestressing strands

The table below gives the main characteristics of the most common strands, useable with the Freyssinet prestressing system:

Characteristics of strands

Unit Type		Grid				
		Nb	dia	D	e	l
7 K 13	4 K 15	6	10	200	50	300
12 K 13	7 K 15	6	12	280	50	300
19 K 13	12 K 15	6	14	360	60	360
27 K 13	19 K 15	6	16	440	65	390
37 K 13	27 K 15	7	18	540	70	490
55 K 13	37 K 15	8	20	640	70	560

Nominal diameter	Nominal area	Nominal mass	Min. U.T.S.	Modulus of elasticity	
mm	mm ²	kg/1000m	kN	kN/mm ²	
12.40	92.90	729	160	195	JIS 3536 - SWPR 7A
12.70	98.71	775	184	195	ASTM A416 - GRADE 270
15.20	138.70	1101	226	195	JIS 3536 - SWPR 7A
15.24	140.00	1102	261	195	ASTM A416 - GRADE 270



Corrugated steel sheath

2/ Internal prestressing ducts

The following duct types are used for range C and F tendons:

Corrugated steel sheath

The recommended dimensions for ducts are given in the tables associated with each anchor. However, it must be checked that the suggested dimensions are compatible with applicable regulations. When a lower coefficient of friction is required, a phosphate treated/soaped corrugated metal sheath (L.F.C.) can be used (see page 28).

Steel tubes

For totally leaktight or highly deviated ducts.

Radius of curvature

The radius of curvature of the duct must be at least equal to:

- 100 Ø for circular or flat rigid ducts bendable by hand (With Ø = inside diameter of duct),
- 3 m for steel tubes.

As an exception, the radius of curvature may be reduced to 20 Ø for steel tubes on the condition that:

- this radius is not less than 1.1 m for T13 strands and 1.3 m for T15 strands,
- the tension does not exceed 70% of the guaranteed breaking load of the reinforcement in the area where the radius is less than three metres,
- the sum of the angular deviations along the length of the reinforcement does not exceed $3\pi/2$ radians,
- the highly curved area is considered as a dead anchor when the angular deviation is greater than $\pi/2$ radians.

Friction in the main run

For calculation of the prestressing force, the values of the coefficients of friction (μ) and wooble (k), vary depending on the uses and type of ducts, their surface treatment and the relationship $P(x) = P_{\max} e^{-\mu(\theta+kx)}$.



HDPE ducts for external prestressing

Radius of curvature

Units	Minimum radius of curvature in anchors (m)	Minimum radius of curvature in deviators (m)
7C15	3.0	2.0
12C15	3.5*	2.5*
19C15	4.0*	3.0*
27C15	4.5	3.5
37C15	5.0*	4.0

* : as per standard ENV 1992-1-5:1994

3/ External prestressing ducts

Tendons injected with cement grout

- high density polyethylene (HDPE) tube in zones external to the concrete. The tubes are type PE80 or PE100. Use of tubes with nominal pressure PN 6.3 is recommended.
- steel tube in anchor zones, diaphragms and deviators bushings.

Grease or wax injected tendons

Use of tubes with nominal pressure PN 10 is recommended, unless preliminary study suggests otherwise.

Radius of curvature

In the absence of more stringent national requirements, the radius of curvature of the tendon in deviators, generally comprising bent steel tubing, complies with the minimum values opposite.

For greased, sheathed strands laid in ducts pre-injected with cement grout, the following should be respected:

- Isolated strands: $R_{\min} \geq 1\text{m}$
- Strands grouped in bundles: $R_{\min} \geq 2.5\text{m}$

4/ Injection products

Prestressing strands, if not individually sheathed and greased, are protected by injecting the duct containing them. The fill product is either cement grout, which produces a passivating layer on the surface of the steel to protect it against corrosion, or a flexible product that encloses strands in a watertight casing.

THE 'K' RANGE SYSTEM OF POST-TENSIONING

General

All tendons in the "K" System can either be pre-made and pulled into the sheath or the strands pushed one by one into the sheath, before or after concreting, to suit the construction sequence. It is not necessary to produce a tendon of precise length, as the anchorages are easily assembled once the tendon is in position.

Strands can be omitted from the tendon sizes listed in order to achieve the greatest economy in design. The flexibility of the 'K' System permits the use of different sizes of strands. All strands are stressed simultaneously and anchored in a compact and efficient anchorage.

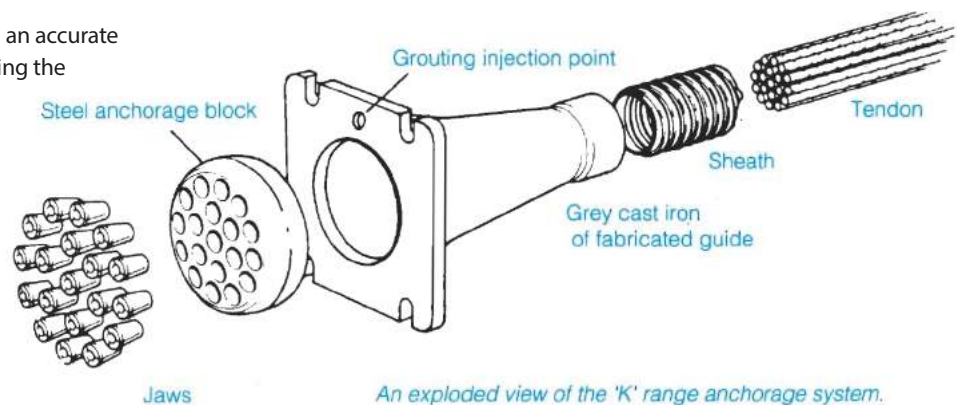
Anchorage

All anchorages are designed to the same principles, varying only in size and numbers of strands.

Each consists of a grey cast iron (or fabricated) Guide incorporated in the structure which distribute the tendon force into the concrete end-block. On the Guide sits the Anchorage Block, into which the strands are anchored by means of three-piece Jaws, each locked into a tapered hole.

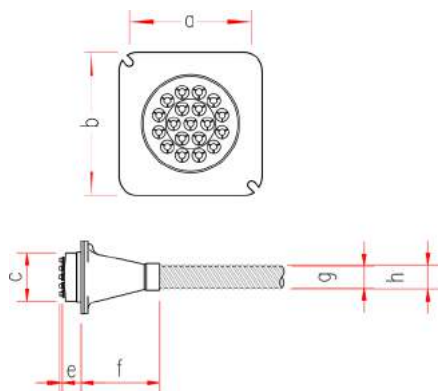
To achieve the maximum static and dynamic security in the tendon, each hole is drilled at its correct angle in relation to the tendon pattern and all kinks and unwanted deviations in tendon are avoided.

The Anchorage Guide is provided with an accurate and robust method of fixing and aligning the tendon, as it is provided with substantial shutter fixing holes and, at its opposite end, a firm screw-type fixing for the sheath. In addition it incorporates a large front-access grout injection point which, by its careful transition design, is blockage-free.



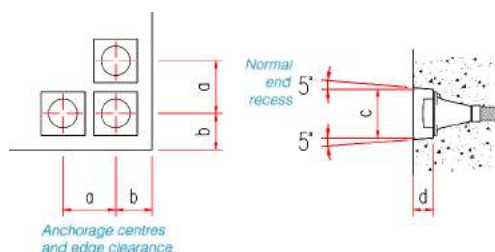
An exploded view of the 'K' range anchorage system.

Anchorage (castings)



	1M13	1M15	7K13 4K15	12K13 7K15	12K15	19K13	27K13 19K15	37K13 27K15	55K13 37K15
a	100	103	130	170	200	225	250	300	370
b	125 x 70	130 x 85	160	210	245	270	315	365	370
c	-	-	115	140	160	190	220	260	320
d	10	10	10	10	10	10	10	10	10
e	-	-	50	60	60	60	65	80	95
f	50	50	103	145	190	290	385	395	465
g	-	-	55	65	75	85	95	110	130
h	16	20	61	71	81	91	101	118	140

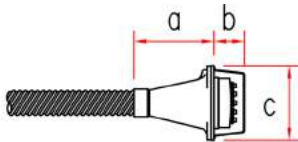
Anchorage (castings)



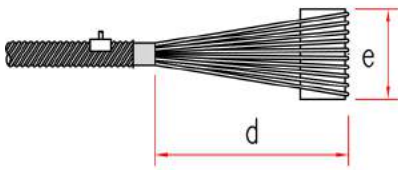
	1M13	1M15	7K13 4K15	12K13 7K15	12K15	19K13	27K13 19K15	37K13 27K15	55K13 37K15
a	200	200	200	270	300	325	375	450	525
b	90	90	135	175	200	225	250	300	375
c	90	90	195	250	300	350	500	550	650
d	90	90	100	120	125	125	140	150	160

Dimensions for deeper pockets and for recesses for inclined anchorages available on request.

Blind Ends



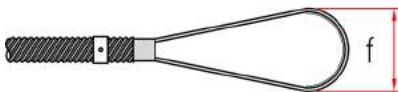
		7K13 4K15	12K13 7K15	12K15	19K13	27K13 19K15	37K13 27K15	55K13 37K15
a	Enclosed	160	210	245	270	315	365	450
b	swaged	103	145	190	290	385	435	465
c	type	115	115	127	120	145	165	180



			6K13	12K13	12K15
	Looped type				
d	-	-	500	600	700
e	-	-	200	250	250
f	-	-	250	250	300

The standard blind end anchorage is similar to the normal anchorage but the jaws are re-placed by swaged grips, a permanently attached anchorage pre-applied to the strand with a swaging jack.

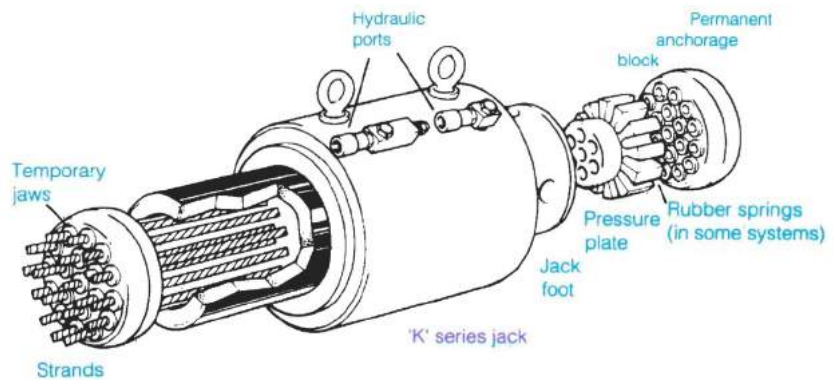
Looped anchorages are practical only for the smaller tendons and details are given for the 6K13 and 12K15 systems.



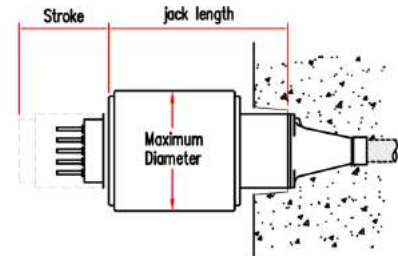
Tensioning Equipment

The 'K' Range Jacks

All tendons in the "K" System can either be pre-made and pulled into the sheath or the strands pushed one by one into the sheath, before or after concreting, to suit the construction sequence. It is not necessary to produce a tendon of precise length, as the anchorages are easily assembled once the tendon is in position.



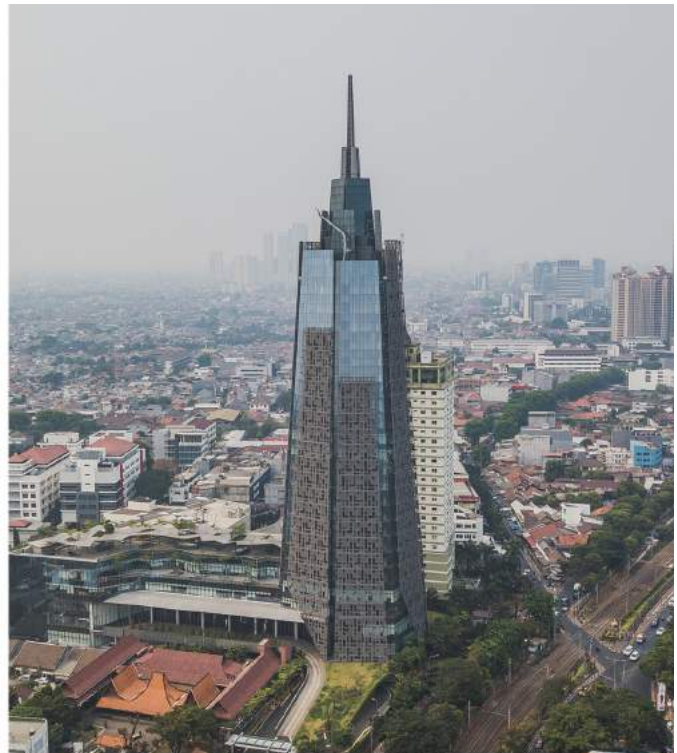
JACK TYPE		K 100	K 200	K 350	K 500	K 700	K 1000	KF 500
Maximum force	kN	1120	2065	3065	4595	6125	8945	5000
Tension cyl. area	cm ²	203.4	318	490	765.8	980	1431	769
Return cyl. area	cm ²	65.9	157	232	452.3	589	724	367
Maximum pressure	bar	550	650	625	600	625	625	650
Stroke	mm	200	200	250	250	250	250	250
Maximum diameter	mm	270	350	440	508	609	720	565
Length closed	mm	365	402	502	718	767	783	1016
Total weight	kg	112	208	328	740	1060	1450	970



Flyover Simpang Susun Surabaya, Aceh



Comoro bridge, Timor Leste



Kompas tower, Jakarta

PROJECT REFERENCE LIST

NO	PROJECT	TYPE OF WORK	CLIENT / MAIN CONTRACTOR	LOCATION	YEAR
1	SINGKIL BRIDGE	POST-TENSIONING	PT. WIKA BETON	ACEH	2000
2	BALI TURTLE ISLAND DEV. (SERANGAN BTID BRIDGE)	POST-TENSIONING	PT. ISTAKA KARYA	BALI	2000
3	CUCUKAN IV - TOHPATI II BRIDGE	POST-TENSIONING	PT. ISTAKA KARYA	BALI	2000
4	DAYEUH KOLOT (NORMALISASI S. CISANGKUY) BRIDGE	POST-TENSIONING	PT. WIKA BETON	BANDUNG	2000
5	PEDESTRIAN BRIDGE TIBAN LAMA	POST-TENSIONING	PT. ISTAKA KARYA	BATAM	2000
6	KUNCI BRIDGE	POST-TENSIONING	PT. WIKA BETON	BOJONEGORO	2000
7	EAST CIKARANG INTERCHANGE (DELTA MAS)	POST-TENSIONING	KUMAGAI GUMI - KADI INTERNATIONAL JO	CIKARANG-BEKASI	2000
8	TARIK KOLOT PHASE II BRIDGE	POST-TENSIONING	PT. WIKA BETON	CITEUREP - BOGOR	2000
9	TUKAD KUTUH BRIDGE	POST-TENSIONING	PT. ISTAKA KARYA	DENPASAR	2000
10	ITC - MANGGA DUA MALL BRIDGE	POST-TENSIONING	PT. MULTI BANGUN ADHITAMA KONSTRUKSI	JAKARTA	2000
11	PRIMATE CENTER PEDESTRIAN BRIDGE RAGUNAN	POST-TENSIONING	PT. GEMINI ASTRIKARYA	JAKARTA	2000
12	BATANG - WALERI BRIDGE	POST-TENSIONING	PT. WIKA BETON	JAWA TENGAH	2000
13	GADANG BRIDGE	POST-TENSIONING	PT. TUKAD MAS	JAWA TIMUR	2000
14	PONDOK DALEM HOLLOW SLAB BRIDGE	POST-TENSIONING	PT. ADHI KARYA	JAWA TIMUR	2000
15	TULUNG AGUNG BRIDGE	POST-TENSIONING	PT. WIKA BETON	JAWA TIMUR	2000
16	WIDANG 2 (AP14) BRIDGE	POST-TENSIONING	PT. WIKA BETON	JAWA TIMUR	2000
17	CURAH NONGKO BRIDGE	POST-TENSIONING	PT. WIKA BETON	JEMBER - JATIM	2000
18	MADURA BRIDGE	POST-TENSIONING	PT. WIKA BETON	MADURA	2000
19	BETET BRIDGE	POST-TENSIONING	PT. WIKA BETON	MADURA	2000
20	GULBUNG BRIDGE	POST-TENSIONING	PT. WIKA BETON	MADURA	2000
21	TRIWUNG BRIDGE	POST-TENSIONING	PT. WIKA BETON	PASURUAN	2000
22	KALI GARANG II BRIDGE	POST-TENSIONING	PT. WIKA BETON	SEMARANG	2000
23	DUMBO SAYUNG BSOP BRIDGE	POST-TENSIONING	PT. WIKA BETON	SEMARANG	2000
24	SURIP (SEMARANG NORTH RING ROAD SECT.II) BRIDGE	POST-TENSIONING	PT. WIKA BETON	SEMARANG	2000
25	GUNUNG ANYAR - TAMBAK BRIDGE (KB14)	POST-TENSIONING	PT. HUTAMA KARYA	SURABAYA	2000
26	KEBON AGUNG KANAL VOIDED SLAB BRIDGE	POST-TENSIONING	PT. KLAMPIS IRENG	SURABAYA	2000
27	DEMAK BY PASS	POST-TENSIONING	PT. WIKA BETON	SURABAYA	2000
28	WONOREJO BRIDGE	POST-TENSIONING	PT. WIKA BETON	TULUNGAGUNG	2000
29	TIUDAN BRIDGE	POST-TENSIONING	PT. WIKA BETON	TULUNGAGUNG	2000
30	GEREJA SIDANG JEMAAT ALLAH	POST-TENSIONING	PT. TATA MULIA NUSANTARA INDAH	BOGOR	2000
31	KANTOR P.T. CAHAYA KALIMANTAN INDAH	POST-TENSIONING	PT. NUSA RAYA CIPTA	JABABEKA	2000
32	MASJID AL IKHLAS MABES POLRI	POST-TENSIONING	PT. GEMA BANGUN PERSADA	JAKARTA	2000
33	MASJID KOPERBI	POST-TENSIONING	PT. MODERN WIDYA TECHNICAL	JAKARTA	2000
34	MEGA ITC CEMPAKA MAS	POST-TENSIONING	TOTAL-PP J.O.	JAKARTA	2000
35	RUKO CENTRAL PARK	POST-TENSIONING	PT. SURYA GRIYA MAPAN	SURABAYA	2000
36	BENDUNG TIUDAN CS (KUTO ANYAR & GENDINGAN) BRIDGE	POST - TENSIONING	PT. WIKA BETON	TULUNGAGUNG	2001
37	TUKAD BADUNG BALI BRIDGE	POST TENSIONING	IR. IDA.BAGUS ARIMBAWA	BALI	2001
38	KALI JELOK BRIDGE	POST TENSIONING	PT. WIKA BETON	PACITAN	2001
39	PEDESTRIAN BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2001
40	SAMBONG BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2001
41	ICB CITARUM PACKAGE II	POST-TENSIONING	PT. WIKA BETON	BANDUNG	2001
42	KALI BOCOR BRIDGE	POST-TENSIONING	PT. WIKA BETON	KEBUMEN	2001
43	SUGIYO & KEDUNGPRING BRIDGE	POST-TENSIONING	KARTO SUJONO	LAMONGAN	2001
44	KONANG BRIDGE	POST-TENSIONING	PT. WIKA BETON	SEMARANG	2001
45	SUMBER SUKO BRIDGE	POST-TENSIONING	PT. WIKA BETON	SURABAYA	2001
46	BETEK BRIDGE	POST-TENSIONING	PT. WIKA BETON	SURABAYA	2001
47	PORONG (OP47) BRIDGE	POST-TENSIONING	PT. WIKA BETON	SURABAYA	2001
48	KALIWANGI BRIDGE	POST-TENSIONING	PT. WIKA BETON	TULUNGAGUNG	2001
49	KALI BANDREK BRIDGE	POST-TENSIONING	PT. WIKA BETON	TULUNGAGUNG	2001
50	PERHUTANI	POST - TENSIONING	PT. PEMBANGUNAN PERUMAHAN	SURABAYA	2001
51	MASJID AGUNG GRESIK	POST - TENSIONING	C.V. DAYA GUNA	SURABAYA	2001
52	RUMAH TINGGAL JL. ACMAD YANI	POST TENSIONING	PT. FUSO	BALIK PAPAN	2001
53	GEDUNG PASCA SARJANA UI SALEMBA	POST-TENSIONING	PT. PEMBANGUNAN PERUMAHAN CABANG II	JAKARTA	2001

NO	PROJECT	TYPE OF WORK	CLIENT / MAIN CONTRACTOR	LOCATION	YEAR
54	BAPPEDA KALIMANTAN TIMUR	POST-TENSIONING	CV. NINA AFRIDA	SAMARINDA	2001
55	GRAND FAMILY VIEW - DHARMALA	POST-TENSIONING	PT. TATA BUMI RAYA	SURABAYA	2001
56	GEDUNG ANTAR MITRA SEMBADA	POST-TENSIONING	PT. METRAYA PRATAMA	SURABAYA	2001
57	CINCIN BARU BRIDGE	POST TENSIONING	PT. ADHI KARYA	BABAT	2002
58	BABAT BARRAGE BRIDGE	POST TENSIONING	PT. ADHI KARYA	BABAT	2002
59	TUKAD BURUAN GIANYAR BRIDGE	POST TENSIONING	Ir. I. WAYAN SUPARTA	BALI	2002
60	TUKAD UMAR BELIK BRIDGE	POST TENSIONING	Ir. W. ARTHANA SAPUTRA	BALI	2002
61	TUKAD AYUNG BRIDGE	POST TENSIONING	PT. TUNAS JAYA SANUR	BALI	2002
62	TUKAD UDANG-UDANG BRIDGE	POST TENSIONING	PT. ISTAKA KARYA	BALI	2002
63	UNGARAN BRIDGE	POST TENSIONING	PT. WIKA BETON	BOJONEGORO	2002
64	DOUBLE TRACKING OF CIKAMPEK-CIREBON	POST TENSIONING	PT. ADHI KARYA (DIV. KONSTRUKSI IV)	CIKAMPEK	2002
65	FLY OVER BY PASS SECTION II	POST TENSIONING	PT. WIKA BETON	CIREBON	2002
66	BANYUMENENG BRIDGE	POST TENSIONING	PT. WIKA BETON	DEMAK	2002
67	DAAN MOGOT FLYOVER	POST TENSIONING	PT. WASKITA KARYA	JAKARTA	2002
68	ASEM KENEK BRIDGE	POST TENSIONING	PT. WIJAYA KARYA	KETAPANG	2002
69	NAGLIK – LAMONGAN BRIDGE	POST TENSIONING	PT. WIKA BETON	LAMONGAN	2002
70	KALI MANJING BRIDGE	POST TENSIONING	Ir. DWI SUBIYANTORO	MALANG	2002
71	SULFAT BRIDGE	POST TENSIONING	PT. WIKA BETON	MALANG	2002
72	MOJOKERTO BRIDGE	POST TENSIONING	Ir. HADI SANTOSO	MOJOKERTO	2002
73	GEMEKAN BRIDGE	POST TENSIONING	PT. WIKA BETON	MOJOKERTO	2002
74	MOJOREMBUN – NGANJUK BRIDGE	POST TENSIONING	PT. WIKA BETON	NGANJUK	2002
75	PORONG BRIDGE	POST TENSIONING	PT. WIKA BETON	PASURUAN	2002
76	SIBANTENG BRIDGE	POST TENSIONING	PT. WIKA BETON	PEMALANG	2002
77	SIDOGEDE PREMBUN BRIDGE	POST TENSIONING	PT. WIKA BETON	PREMBUN JATENG	2002
78	KADIPODO BRIDGE	POST TENSIONING	NINDYA-ISTAKA JO. IR. UNTUNG HANDOKO	SEMARANG	2002
79	SINPANSIHAPORAS – SIBOLGA	POST TENSIONING	PT. KUMAGAI-WIKA JO.	SIBOLGA	2002
80	KAPURAN III BRIDGE	POST TENSIONING	PT. WIKA BETON	SITUBONDO	2002
81	PASIR PUTIH BRIDGE	POST TENSIONING	PT. WIKA BETON	SITUBONDO	2002
82	KEDURUS RIVER IMPROVEMENT	POST TENSIONING	WIJAYA KARYA -ADHI KARYA JO	SURABAYA	2002
83	SURAMADU BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2002
84	SURAMADU II BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2002
85	KALI GANGSA BRIDGE	POST TENSIONING	PT. WIKA BETON	TEGAL	2002
86	KALI GANGSA PHASE II BRIDGE	POST TENSIONING	PT. WIKA BETON	TEGAL	2002
87	OP-45 BRIDGE	POST-TENSIONING	PT. ISTAKA KARYA	JAWA TENGAH	2002
88	MASPION VOIDED SLAB	POST-TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	SURABAYA	2002
89	PASUPATI ELEVATED ROAD & BRIDGE PROJECT	POST TENSIONING	WIKA-WASKITA-CGC JO.	BANDUNG	2002-2005
90	MASJID AGUNG GRESIK	POST TENSIONING	CV. DAYA GUNA	GRESIK	2002
91	RUMAH DI JL. KARANG BOLONG	POST TENSIONING	PT. ARCON PRATAMA CIPTA	JAKARTA	2002
92	AULA GERAJA JL. KEDOYA	POST TENSIONING	IR. HABIYANTO	JAKARTA	2002
93	ITC KUNINGAN	POST TENSIONING	PT. TOTAL BANGUN PERSADA	JAKARTA	2002
94	GED. TEATER BESAR PKJ-TIM	POST TENSIONING	PT. PEMBANGUNAN PERUMAHAN	JAKARTA	2002
95	STUDIO 2 METRO TV	POST TENSIONING	PT. MULTIBANGUN ADHITAMA KONSTRUKSI	JAKARTA	2002
96	GED. SHOW ROOM KERTAJAYA	POST TENSIONING	IR. JEFFREY GAHARI	SURABAYA	2002
97	SHOW ROOM JL. UNDAAN SURABAYA	POST TENSIONING	CV. DUTA CIPTA	SURABAYA	2002
98	GEREJA JEMAAT ALLAH JL. SURYAKENCANA	POST-TENSIONING	PT. JAYA KUSUMA SARANA	BOGOR	2002
99	WORLD TRADE CENTER MANGGA DUA	POST-TENSIONING	MURINDA-TATA J.O	JAKARTA	2002
100	GEDUNG WALKOTA BONTANG	POST-TENSIONING	PT. GLOBAL DAYA MANUNGGAL	KALTIM	2002
101	PAKET TOPATI KUSUMBA II	POST TENSIONING	CV. NUGROHO	BALI	2003
102	TUKAD BETEL BRIDGE	POST TENSIONING	CV. TENAGA INTI	BALI	2003
103	TUKAD YEH ABE BRIDGE	POST TENSIONING	CV. KARYA ALAM	BALI	2003
104	CIKAPUNDUNG BRIDGE	POST TENSIONING	PT. WIKA BETON	BANDUNG	2003
105	KESAMBEN BLITAR BRIDGE	POST TENSIONING	PT. NEOCELINDO INTIBETON	BLITAR	2003
106	CIKABUYUTAN BRIDGE	POST TENSIONING	PT. WIKA BETON	BREBES	2003
107	KALI KRACAK BRIDGE	POST TENSIONING	PT. WIKA BETON	BREBES	2003
108	PLOSO DEMAK I BRIDGE	POST TENSIONING	PT. WIKA BETON	DEMAK	2003
109	PLOSO DEMAK II BRIDGE	POST TENSIONING	PT. WIKA BETON	DEMAK	2003
110	ROWOKEKE BRIDGE	POST TENSIONING	PT. ADHI KARYA	FLORES	2003
111	UJUNG BATU JEPARA BRIDGE	POST TENSIONING	PT. WIKA BETON	JEPARA	2003
112	SIPON BTB9 PINDODELI BRIDGE	POST TENSIONING	PT. MITRABANGUN ADIGRAHA	KARAWANG	2003
113	DERMAGA TENAU KUPANG	POST TENSIONING	PT. ADHI KARYA	KUPANG	2003
114	MADIUN BRIDGE	POST TENSIONING	PT. WIKA BETON	MADIUN	2003
115	SURAMADU SISI MADURA BRIDGE	POST TENSIONING	PT. WIKA BETON	MADURA	2003
116	SULFAT II BRIDGE	POST TENSIONING	PT. WIKA BETON	MALANG	2003
117	CANGAR BATU BRIDGE	POST TENSIONING	PT. WIKA BETON	MALANG	2003
118	TPA MOJOKERTO BRIDGE	POST TENSIONING	PT. WIKA BETON	MOJOKERTO	2003
119	KALI PURO BRIDGE	POST TENSIONING	PT. WIKA BETON	MOJOKERTO	2003
120	KWARON PACITAN BRIDGE	POST TENSIONING	PT. WIKA BETON	PACITAN	2003
121	BULUSARI PANDAAN BRIDGE	POST TENSIONING	PT. WIKA BETON	PANDAAN	2003

NO	PROJECT	TYPE OF WORK	CLIENT / MAIN CONTRACTOR	LOCATION	YEAR
122	POH JENTREK BRIDGE	POST TENSIONING	PT. WIKA BETON	PASURUAN	2003
123	SLAMARAN BRIDGE	POST TENSIONING	PT. WIKA BETON	PEKALONGAN	2003
124	BAROS BRIDGE	POST TENSIONING	PT. WIKA BETON	PEKALONGAN	2003
125	WALUH PEMALANG BRIDGE	POST TENSIONING	PT. WIKA BETON	PEMALANG	2003
126	GONGSO SUMOWONO BRIDGE	POST TENSIONING	PT. WIKA BETON	SEMARANG	2003
127	DOMBO SAWUNG BS – 1 BRIDGE	POST TENSIONING	PT. HUTAMA KARYA	SEMARANG	2003
128	SIPANSIHAPORAS HYDROELECTRIC POWER II	POST TENSIONING	KUMAGAI - WIKA JO	SIBOLGA	2003
129	CISADANE GADING SERPONG BRIDGE	POST TENSIONING	PT. LAMPIRI DJAYA ABADI	TANGERANG	2003
130	PEDESTRIAN BUNGUR ASIH	POST TENSIONING	PT WIKA BETON	SIDOARJO	2003
131	GLONGGONG SRAGEN BRIDGE	POST TENSIONING	PT. WIKA BETON	SRAGEN	2003
132	MARGO MULYO BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2003
133	PUCANG GADING BS 2 BRIDGE	POST TENSIONING	PT. HUTAMA KARYA	SURABAYA	2003
134	TALANG AIR BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2003
135	MAGUWO RAILWAY BRIDGE	POST TENSIONING	PT. WIKA BETON	YOGYAKARTA	2003
136	BII CABANG BALIKPAPAN	POST TENSIONING	PT. ADHI KARYA	BALIKPAPAN	2003
137	HOTEL BHI BANJARMASIN	POST TENSIONING	PT. SAHABAT ABADI HOTELINDO	BANJARMASIN	2003
138	MALL ARTHA GADING	POST TENSIONING	PT. TATA MULIA	JAKARTA	2003
139	GRAHA REKSO	POST TENSIONING	PT. MURTHY KURNIA UTAMA	JAKARTA	2003
140	OKTROI KEMANG	POST TENSIONING	PT. MULTIBANGUN ADHITAMA KONSTRUKSI	JAKARTA	2003
141	RUMAH PANTAI MUTIARA BLOK Q	POST TENSIONING	PT. ARCON PRATAMA CIPTA	JAKARTA	2003
142	RUMAH JL. YBR NO. 41 KUNINGAN	POST TENSIONING	ISTINI TATIEK SIDDHARTA	JAKARTA	2003
143	GADING PLUIT HOSPITAL	POST TENSIONING	PT. TOTAL BANGUN PERSADA	JAKARTA	2003
144	BANK JATIM CABANG JEMBER	POST TENSIONING	PT. CITRA GADING ASRITAMA	JEMBER	2003
145	GUDANG PT. BB – PROLOGISTIK	POST TENSIONING	PT. BB PROLOGISTIK	PASURUAN	2003
146	RUMAH DI SAMARINDA	POST TENSIONING	CV. JAYA PRATAMA	SAMARINDA	2003
147	TRADE CENTER MALL	POST TENSIONING	PT. WIJAYA KARYA	SURABAYA	2003
148	GEDUNG TERMINAL GIWANGAN YOGYAKARTA	POST TENSIONING	PT. PERWITA KARYA	YOGYAKARTA	2003
149	TUKAD JINAH BRIDGE	POST TENSIONING	CV. NUGROHO LESTARI	BALI	2004
150	DERMAGA BATU AMPAR	POST TENSIONING	PT. HUTAMA KARYA CAB. BATAM	BATAM	2004
151	BUDENG BRIDGE	POST TENSIONING	Ir. I. KOMANG DWI JANUARDI	DENPASAR	2004
152	CIPULIR BRIDGE	POST TENSIONING	PT. SAETI CONCRETINDO WAHANA	JAKARTA	2004
153	BANJIR KANAL TIMUR BRIDGE	POST TENSIONING	PT. WIKA BETON	JAKARTA	2004
154	PEDESTRIAN BUMI SERPONG DAMAI	POST TENSIONING	PT. LAMPIRI JAYA ABADI	JAKARTA	2004
155	SEKEMBU BANDENGAN BRIDGE	POST TENSIONING	PT. WIKA BETON	JEPARA	2004
156	TARAKAN BRIDGE	POST TENSIONING	PT. WIKA BETON	JEPARA	2004
157	CATUR BRIDGE	POST TENSIONING	PT. WIKA BETON	MADIUN	2004
158	BAJUL MATI ARCH BRIDGE	POST TENSIONING	PT. WASKITA KARYA	MALANG	2004
159	MALANG FLYOVER	POST TENSIONING	PT. WIKA BETON	MALANG	2004
160	KEMASAN TANI BRIDGE	POST TENSIONING	PT. WIKA BETON	MOJOKERTO	2004
161	BADUG BRIDGE	POST TENSIONING	PT. WIKA BETON	NGANJUK	2004
162	KRATON BRIDGE	POST TENSIONING	PT. WIKA BETON	PASURUAN	2004
163	JABUNG BRIDGE	POST TENSIONING	PT. WIKA BETON	PROBOLINGGO	2004
164	NGULING BRIDGE	POST TENSIONING	PT. WIKA BETON	PROBOLINGGO	2004
165	MERR 2C-I BRIDGE	POST TENSIONING	PT. WASKITA KARYA	SURABAYA	2004
166	MERR 2C-II BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2004
167	MERR 2C CAHAYA CERAH BRIDGE	POST TENSIONING	PT. CAHAYA CERAH	SURABAYA	2004
168	LESTI BRIDGE	POST TENSIONING	PT. WIKA BETON	WONOKERTO	2004
169	RUMAH DI RANCAMAYA	POST TENSIONING	PT. ART TEKNO ADIPRADANA	BOGOR	2004
170	RITZ CARLTON HOTEL	POST TENSIONING	PT. SUMICON UTAMA	JAKARTA	2004
171	KOLAM RENANG KEMAYORAN	POST TENSIONING	PT. INTERTAMA CITALARAS	JAKARTA	2004
172	LINDETEVES TRADE CENTER	POST TENSIONING	PT. TATAMULIA NUSANTARA INDAH	JAKARTA	2004
173	MERLYNN PARK HOTEL	POST TENSIONING	PT. NUSA RAYA CIPTA	JAKARTA	2004
174	HOTEL & SHOPPING CENTER TARAKAN	POST TENSIONING	PT. GUSHER TARAKAN	KALIMANTAN TIMUR	2004
175	GEDUNG BPD TENGGARONG	POST TENSIONING	PT. KARKA ARGANUSA	KALIMANTAN TIMUR	2004
176	GRIYA KOMPLEKS MARINA	POST TENSIONING	PT. NUSA RAYA CIPTA	SEMARANG	2004
177	HOTEL QUALITY	POST TENSIONING	PT. WASKITA KARYA	SOLO	2004
178	RUMAH POMPA DARMOKALI	POST TENSIONING	PT. WIKA BETON	SURABAYA	2004
179	CIANGSANA BANTAR GEBANG BRIDGE	POST TENSIONING	PT. WIJAYA KARYA BETON	BEKASI	2005
180	DIAPHRAGM KANAL BRIDGE	POST TENSIONING	PT. WIKA BETON	JAKARTA	2005
181	SIBITING BATANG BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TENGAH	2005
182	PONOROGO BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TIMUR	2005
183	DIAPHRAGM MALANG FLY OVER	POST TENSIONING	PT. WIKA BETON	MALANG	2005
184	BADUG NGANJUK BRIDGE	POST TENSIONING	PT. WIKA BETON	NGANJUK	2005
185	CLAY STORAGE IN DARUNG V	POST TENSIONING	PT. SEMEN PADANG	PADANG	2005
186	GONDANG LEGI BRIDGE	POST TENSIONING	PT. WIKA BETON	PASURUAN	2005
187	TEMPERAK BRIDGE	POST TENSIONING	PT. WIKA BETON	JUWONO	2005
188	NGULING 2 BRIDGE	POST TENSIONING	PT. WIKA BETON	PROBOLINGGO	2005
189	DUMBO SAYUNG BRIDGE	POST TENSIONING	PT. WIKA BETON	SEMARANG	2005

NO	PROJECT	TYPE OF WORK	CLIENT / MAIN CONTRACTOR	LOCATION	YEAR
190	WEDUNG ASRI BRIDGE	POST TENSIONING	PT. WIKA BETON	SIDOARJO	2005
191	GEULIS SUCEN BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2005
192	UNDERPASS PT. PAKUWON	POST TENSIONING	PT. TATA BUMI RAYA	SURABAYA	2005
193	BOX GIRDER JAGIR	POST TENSIONING	YONGKY PRANOTO	SURABAYA	2005
194	GELANGGANG OLAH RAGA BALIKPAPAN	POST TENSIONING	PT. KALIRAYA SARI	BALIKPAPAN	2005
195	HOTEL MEGA ANGGREK	POST TENSIONING	PT. ANDALAS SURYA AGUNG	JAKARTA	2005
196	GEREJA MAWAR SARON	POST TENSIONING	YAYASAN MAWAR SARON	JAKARTA	2005
197	AMBARUKMO PLAZA	POST TENSIONING	PT. WASKITA KARYA	JOGYAKARTA	2005
198	PALEMBANG INDAH MALL	POST TENSIONING	PT. TOTAL BANGUN PERSADA	PALEMBANG	2005
199	GRAHA FAMILY	POST TENSIONING	PT. ADHI KARYA	SURABAYA	2005
200	TOWN SQUARE SURABAYA	POST TENSIONING	IR. TEGUH ANGGANA	SURABAYA	2005
201	RUMAH HONGGO WIJAYA	POST TENSIONING	IR. PRAYITNO P.	SURABAYA	2005
202	RUMAH DARMA HUSADA	POST TENSIONING	BUDIYANTO	SURABAYA	2005
203	GEREJA GBI SERPONG	POST TENSIONING	PANITIA PEMBANGUNAN GEREJA	TANGGERANG	2005
204	SAPHIR SQUARE	POST TENSIONING	MURINDA – PULAU INTAN JO	YOGYAKARTA	2005
205	GEDUNG DIKI	POST TENSIONING	PT. PEMBANGUNAN PERUMAHAN	JAKARTA	2005-2006
206	THE WESTIN JAKARTA	POST TENSIONING	PT. NUSA RAYA CIPTA	JAKARTA	2005-2006
207	MTC KAREBOSI	POST TENSIONING	PT. NINDYA KARYA	MAKASSAR	2005-2006
208	GRAHA PENNA	POST TENSIONING	PT. NINDYA KARYA	MAKASSAR	2005-2006
209	BSD JUNCTION	POST TENSIONING	PT. TOTAL BANGUN PERSADA	SERPONG TANGERANG	2005-2006
210	GALAXY MALL	POST TENSIONING	PT. TATA MULIA	SURABAYA	2005-2006
211	TEGAL AMBENGAN BRIDGE	POST TENSIONING	Ir. WAYAN TAMBA	BALI	2006
212	KALI TIDU BRIDGE	POST TENSIONING	PT. WIKA BETON	BOJONEGORO	2006
213	KALI JURANG BRIDGE	POST TENSIONING	PT. WIKA BETON	BREBES	2006
214	JENAR WOJO BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TENGAH	2006
215	DAS TELOMOYO BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TENGAH	2006
216	TRANCAP WONOSOBO BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TENGAH	2006
217	PURWO ASRI BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TIMUR	2006
218	BANGSRI BRIDGE	POST TENSIONING	PT. WIKA BETON	JEPARA	2006
219	MADIUN FLYOVER	POST TENSIONING	PT. WIKA BETON	MADIUN	2006
220	GONDANG LEGI BRIDGE	POST TENSIONING	PT. WIKA BETON	PASURUAN	2006
221	UNDIP TEMBALANG BRIDGE	POST TENSIONING	PT. WIKA BETON	SEMARANG	2006
222	AKSES BANDARA A. YANI	POST TENSIONING	PT. WIKA BETON	SEMARANG	2006
223	BANGERAN BARUNA BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2006
224	GADON BRIDGE	POST TENSIONING	PT. WIKA BETON	TUBAN	2006
225	DERMO BRIDGE	POST TENSIONING	PT. WIKA BETON	TUBAN	2006
226	BULU BRIDGE	POST TENSIONING	PT. WIKA BETON	TUBAN	2006
227	JOKO KENDIL BRIDGE	POST TENSIONING	PT. WIKA BETON	MOJOKERTO	2006
228	SURAMADU SURABAYA SIDE PHASE 2	POST TENSIONING	PT. WIKA BETON	SURABAYA	2006-2007
229	CETOKAN MAGELANG BRIDGE	POST TENSIONING	PT. WIKA BETON	MAGELANG	2006
230	CEMLUNG BRIDGE	POST TENSIONING	PT. WIKA BETON	YOGYAKARTA	2006-2007
231	MOJOMANIS BRIDGE	POST TENSIONING	PT. CALVARY ABADI	MADIUN	2006-2007
232	CIBADAK JONGGOL BRIDGE	POST TENSIONING	PT. WIKA BETON	JAKARTA	2006-2007
233	SAPON BRIDGE	POST TENSIONING	PT. WIKA BETON	YOGYAKARTA	2006-2007
234	RUMAH STELLA ANCOL	POST TENSIONING	NICOLAS CAHYONO	JAKARTA	2006
235	SEKOLAH IPEKA	POST TENSIONING	SYANI S.	JAKARTA	2006
236	KANTOR PAJAK SIDOARJO	POST TENSIONING	PT. PEMBANGUNAN PERUMAHAN	SIDOARJO	2006
237	PASAR ATUM MALL	POST TENSIONING	PT. ADHI KARYA	SURABAYA	2006
238	TOLL WARU FLY OVER	POST TENSIONING	PT. WIKA BETON	SURABAYA	2007
239	MALANG FLY OVER	POST TENSIONING	PT. WIKA BETON	MALANG	2007
240	NEWMONT NUSA TENGGARA BARAT BRIDGES	POST TENSIONING	HAZAMA CORPORATION	SUMBAWA	2007-2008
241	TOLL DUPAK WARU	POST TENSIONING	PT. WIKA BETON	SURABAYA	2007
242	WARINGIN ANOM BRIDGE	POST TENSIONING	PT. WIKA BETON	SITUBONDO	2007
243	TEMPUREJO KENJERAN	POST TENSIONING	PT. WIKA BETON	SURABAYA	2007
244	HOUSE IN RANCAMAYA	POST TENSIONING	PT. ARCON PRATAMA CIPTA	BOGOR	2007
245	GRAHA REFORMED MILLENIUM	POST TENSIONING	PT. TOTAL BANGUN PERSADA	JAKARTA	2007
246	SAHID SUDIRMAN RESIDENCE	POST TENSIONING	PT. NUSA RAYA CIPTA	JAKARTA	2007
247	MENARA 165	POST TENSIONING	PT. WIJAYA KARYA	JAKARTA	2007
248	SHOW ROOM & OFFICE JL. PANJANG	POST TENSIONING	PT. PULAU INTAN	JAKARTA	2007
249	GRAMEDIA EXPO SURABAYA	POST TENSIONING	PT. NUSA RAYA CIPTA	SURABAYA	2007
250	MAHA VIHARA & PUSDIKLAT	POST TENSIONING	MAHA VIHARA	DENPASAR	2007-2008
251	EMPORIUM PLUIT MALL & HOTEL	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2007-2008
252	SLAGAH PASURUAN BRIDGE	POST TENSIONING	PT. WIKA BETON	PASURUAN	2008
253	LUMAJANG BRIDGE	POST TENSIONING	PT. WIKA BETON	LUMAJANG	2008
254	OVERPASS SURAMADU - MADURA SIDE	POST TENSIONING	PT. WIKA BETON	MADURA	2008
255	DIAPHRAGM SURAMADU - MADURA SIDE	POST TENSIONING	PT. ADHI KARYA & WASKITA KARYA JO	MADURA	2008
256	RUAS NGORO MOJOSARI BRIDGE	POST TENSIONING	PT. WIKA BETON	MOJOSARI	2008
257	BAJANGAN BRIDGE	POST TENSIONING	PT. WIKA BETON	PASURUAN	2008

NO	PROJECT	TYPE OF WORK	CLIENT / MAIN CONTRACTOR	LOCATION	YEAR
190	WEDUNG ASRI BRIDGE	POST TENSIONING	PT. WIKA BETON	SIDOARJO	2005
191	GEULIS SUCEN BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2005
192	UNDERPASS PT. PAKUWON	POST TENSIONING	PT. TATA BUMI RAYA	SURABAYA	2005
193	BOX GIRDER JAGIR	POST TENSIONING	YONGKY PRANOTO	SURABAYA	2005
194	GELANGGANG OLAH RAGA BALIKPAPAN	POST TENSIONING	PT. KALIRAYA SARI	BALIKPAPAN	2005
195	HOTEL MEGA ANGGREK	POST TENSIONING	PT. ANDALAS SURYA AGUNG	JAKARTA	2005
196	GEREJA MAWAR SARON	POST TENSIONING	YAYASAN MAWAR SARON	JAKARTA	2005
197	AMBARUKMO PLAZA	POST TENSIONING	PT. WASKITA KARYA	JOGYAKARTA	2005
198	PALEMBANG INDAH MALL	POST TENSIONING	PT. TOTAL BANGUN PERSADA	PALEMBANG	2005
199	GRAHA FAMILY	POST TENSIONING	PT. ADHI KARYA	SURABAYA	2005
200	TOWN SQUARE SURABAYA	POST TENSIONING	IR. TEGUH ANGGANA	SURABAYA	2005
201	RUMAH HONGGO WIJAYA	POST TENSIONING	IR. PRAYITNO P.	SURABAYA	2005
202	RUMAH DARMA HUSADA	POST TENSIONING	BUDIYANTO	SURABAYA	2005
203	GEREJA GBI SERPONG	POST TENSIONING	PANITIA PEMBANGUNAN GEREJA	TANGGERANG	2005
204	SAPHIR SQUARE	POST TENSIONING	MURINDA – PULAU INTAN JO	YOGYAKARTA	2005
205	GEDUNG DIKTI	POST TENSIONING	PT. PEMBANGUNAN PERUMAHAN	JAKARTA	2005-2006
206	THE WESTIN JAKARTA	POST TENSIONING	PT. NUSA RAYA CIPTA	JAKARTA	2005-2006
207	MTC KAREBOSI	POST TENSIONING	PT. NINDYA KARYA	MAKASSAR	2005-2006
208	GRAHA PENA	POST TENSIONING	PT. NINDYA KARYA	MAKASSAR	2005-2006
209	BSD JUNCTION	POST TENSIONING	PT. TOTAL BANGUN PERSADA	SERPONG TANGERANG	2005-2006
210	GALAXY MALL	POST TENSIONING	PT. TATA MULIA	SURABAYA	2005-2006
211	TEGAL AMBENGAN BRIDGE	POST TENSIONING	Ir. WAYAN TAMBA	BALI	2006
212	KALI TIDU BRIDGE	POST TENSIONING	PT. WIKA BETON	BOJONEGORO	2006
213	KALI JURANG BRIDGE	POST TENSIONING	PT. WIKA BETON	BREBES	2006
214	JENAR WOJO BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TENGAH	2006
215	DAS TELOMOYO BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TENGAH	2006
216	TRANCAP WONOSOBO BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TENGAH	2006
217	PURWO ASRI BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TIMUR	2006
218	BANGSRI BRIDGE	POST TENSIONING	PT. WIKA BETON	JEPARA	2006
219	MADIUN FLYOVER	POST TENSIONING	PT. WIKA BETON	MADIUN	2006
220	GONDANG LEGI BRIDGE	POST TENSIONING	PT. WIKA BETON	PASURUAN	2006
221	UNDIP TEMBALANG BRIDGE	POST TENSIONING	PT. WIKA BETON	SEMARANG	2006
222	AKSES BANDARA A. YANI	POST TENSIONING	PT. WIKA BETON	SEMARANG	2006
223	BANGERAN BARUNA BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2006
224	GADON BRIDGE	POST TENSIONING	PT. WIKA BETON	TUBAN	2006
225	DERMO BRIDGE	POST TENSIONING	PT. WIKA BETON	TUBAN	2006
226	BULU BRIDGE	POST TENSIONING	PT. WIKA BETON	TUBAN	2006
227	JOKO KENDIL BRIDGE	POST TENSIONING	PT. WIKA BETON	MOJOKERTO	2006
228	SURAMADU SURABAYA SIDE PHASE 2	POST TENSIONING	PT. WIKA BETON	SURABAYA	2006-2007
229	CETOKAN MAGELANG BRIDGE	POST TENSIONING	PT. WIKA BETON	MAGELANG	2006
230	CEPLUNG BRIDGE	POST TENSIONING	PT. WIKA BETON	YOGYAKARTA	2006-2007
231	MOJOMANIS BRIDGE	POST TENSIONING	PT. CALVARY ABADI	MADIUN	2006-2007
232	CIBADAK JONGGOL BRIDGE	POST TENSIONING	PT. WIKA BETON	JAKARTA	2006-2007
233	SAPON BRIDGE	POST TENSIONING	PT. WIKA BETON	YOGYAKARTA	2006-2007
234	RUMAH STELLA ANCOL	POST TENSIONING	NICOLAS CAHYONO	JAKARTA	2006
235	SEKOLAH IPEKA	POST TENSIONING	SYANI S.	JAKARTA	2006
236	KANTOR PAJAK SIDOARJO	POST TENSIONING	PT. PEMBANGUNAN PERUMAHAN	SIDOARJO	2006
237	PASAR ATUM MALL	POST TENSIONING	PT. ADHI KARYA	SURABAYA	2006
238	TOLL WARU FLY OVER	POST TENSIONING	PT. WIKA BETON	SURABAYA	2007
239	MALANG FLY OVER	POST TENSIONING	PT. WIKA BETON	MALANG	2007
240	NEWMONT NUSA TENGGARA BARAT BRIDGES	POST TENSIONING	HAZAMA CORPORATION	SUMBAWA	2007-2008
241	TOLL DUPAK WARU	POST TENSIONING	PT. WIKA BETON	SURABAYA	2007
242	WARINGIN ANOM BRIDGE	POST TENSIONING	PT. WIKA BETON	SITUBONDO	2007
243	TEMPUREJO KENJERAN	POST TENSIONING	PT. WIKA BETON	SURABAYA	2007
244	HOUSE IN RANCAMAYA	POST TENSIONING	PT. ARCON PRATAMA CIPTA	BOGOR	2007
245	GRAHA REFORMED MILLENIUM	POST TENSIONING	PT. TOTAL BANGUN PERSADA	JAKARTA	2007
246	SAHID SUDIRMAN RESIDENCE	POST TENSIONING	PT. NUSA RAYA CIPTA	JAKARTA	2007
247	MENARA 165	POST TENSIONING	PT. WIJAYA KARYA	JAKARTA	2007
248	SHOW ROOM & OFFICE JL. PANJANG	POST TENSIONING	PT. PULAU INTAN	JAKARTA	2007
249	GRAMEDIA EXPO SURABAYA	POST TENSIONING	PT. NUSA RAYA CIPTA	SURABAYA	2007
250	MAHA VIHARA & PUSDIKLAT	POST TENSIONING	MAHA VIHARA	DENPASAR	2007-2008
251	EMPORIUM PLUIT MALL & HOTEL	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2007-2008
252	SLAGAH PASURUAN BRIDGE	POST TENSIONING	PT. WIKA BETON	PASURUAN	2008
253	LUMAJANG BRIDGE	POST TENSIONING	PT. WIKA BETON	LUMAJANG	2008
254	OVERPASS SURAMADU - MADURA SIDE	POST TENSIONING	PT. WIKA BETON	MADURA	2008
255	DIAPHRAGM SURAMADU - MADURA SIDE	POST TENSIONING	PT. ADHI KARYA & WASKITA KARYA JO	MADURA	2008
256	RUAS NGORO MOJOSARI BRIDGE	POST TENSIONING	PT. WIKA BETON	MOJOSARI	2008
257	BAJANGAN BRIDGE	POST TENSIONING	PT. WIKA BETON	PASURUAN	2008

NO	PROJECT	TYPE OF WORK	CLIENT / MAIN CONTRACTOR	LOCATION	YEAR
258	KUPANG BRIDGE	POST TENSIONING	WILLY	KUPANG	2008
259	DIAPHRAGM SURABAYA - MOJOKERTO	POST TENSIONING	PT. WIKA BETON	SURABAYA	2008
260	TUKAD MATI	POST TENSIONING	PT. TRIJAYA NASIONAL	BALI	2008
261	DIAPHRAGM OVERPASS MADURA	POST TENSIONING	PT. TELAGA MEGABUANA	MADURA	2008
262	PEMBANGUNAN JALAN PELAIHARI	POST TENSIONING	PT. PEMBANGUNAN PERUMAHAN - HUTAMA KARYA	SOUTH KALIMANTAN	2008-2009
263	KINTAB SEBAMBAM	POST TENSIONING	PT. PEMBANGUNAN PERUMAHAN	SOUTH KALIMANTAN	2008-2009
264	KPC KUTAI KALTIM BRIDGE	POST TENSIONING	PT. WIKA BETON	EAST KALIMANTAN	2008
265	KALI BENG NGANJUK BRIDGE	POST TENSIONING	PT. WIKA BETON	EAST JAVA	2008
266	SEI ASAM-ASAM BRIDGE	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	SOUTH KALIMANTAN	2008-2009
267	TUKAD PERASAN BRIDGE	POST TENSIONING	PT. DHARMA BUANA KARYA	BALI	2008
268	DERMAGA JETTY JENEBORA	POST TENSIONING	PT. WIJAYA KARYA	EAST KALIMANTAN	2008
269	KEDUNG ROWO - PRIMBON BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2008
270	RELOKASI INFRASTRUKTUR JALAN ARTERI PORONG	POST TENSIONING	PT. WIKA BETON	SURABAYA	2008-2009
271	NGRAHO BRIDGE	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	EAST JAVA	2008
272	SURAMADU APPROACH	POST TENSIONING	PT. WIKA BETON	SURABAYA	2008
273	PEDESTRIAN SURAMADU	POST TENSIONING	PT. WIKA BETON	SURABAYA	2008
274	PLAZA MULIA SAMARINDA	POST TENSIONING	PT. SELYCA MULIA	SAMARINDA	2008
275	GRAND KUTA LEISURE APARTMENT	POST TENSIONING	PT. TATA MULIA NUSANTARA INDAH	BALI	2008
276	CENTRAL PARK	POST TENSIONING	PT. TOTAL BANGUN PERSADA	JAKARTA	2008 - 2009
277	BSD ENTERTAINMENT CENTRE	POST TENSIONING	PT. WIJAYA KARYA	SERPONG	2008
278	MERITUS HOTEL	POST TENSIONING	PT. WIJAYA KARYA	SURABAYA	2008 - 2009
279	PURA DALAM AGUNG PADANG TEGAL	POST TENSIONING	PANITIA PEMBANGUNAN PURA AGUNG	BALI	2008
280	PURA WANTILAN	POST TENSIONING	PANITIA PEMBANGUNAN PURA WANTILAN	BALI	2008 - 2009
281	STIS BUILDING	POST TENSIONING	PT. PEMBANGUNAN PERUMAHAN - ADHI KARYA	JAKARTA	2008 - 2009
282	JEMBATAN MEGA MALL PLUIT	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	JAKARTA	2009
283	BAYEMAN 3	POST TENSIONING	PT. WIKA BETON	SURABAYA	2009
284	SEI PAIWAKAN	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	SOUTH KALIMANTAN	2009
285	DIAPRAGM MERR	POST TENSIONING	PP - WIKA - KBSN JO	SURABAYA	2009
286	CANTILEVER BRIDGE RIAU	POST TENSIONING	PT. VIRAJAYA - PT. WIDYA SATHIA JO	RIAU	2009
287	TEMBELANG JOMBANG	POST TENSIONING	PT. WIKA BETON	EAST JAVA	2009
288	MARTAPURA BRIDGE	POST TENSIONING	PT. WIKA BETON	SOUTH KALIMANTAN	2009
289	ATAMBUA BRIDGE SUMBAWA	POST TENSIONING	MR. WILLY	SUMBAWA	2009
290	BADUG BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2009
291	KEPANJEM BRIDGE MALANG	POST TENSIONING	PT. WIKA BETON	SURABAYA	2009
292	SURABAYA - MOJOKERTO TOLL ROAD PHASE 2	POST TENSIONING	PT. WIKA BETON	SURABAYA	2009-2010
293	KANCI - PEJAGAN TOLL ROAD	POST TENSIONING	PT. ADHI KARYA	CIREBON	2009-2010
294	BENTUKA KUPANG BRIDGE	POST TENSIONING	PT. USAHA KARYA BUANA	KUPANG	2009
295	SEI ANDAI	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	EAST KALIMANTAN	2009
296	CEMENT SILO DUMAI	POST TENSIONING - CIRCULAR	PT. WASKITA KARYA	DUMAI	2009
297	NGANJUK BRIDGE	POST TENSIONING	PT. WIKA BETON	EAST JAVA	2009
298	JAKARTA OUTER RING ROAD PACKAGE W1-8	POST TENSIONING	PT. WIKA BETON	JAKARTA	2009
299	VOIDED SLAB PUBLIC FACILITY	POST TENSIONING	PT. WIKA BETON	GRESIK	2009
300	DIAPRAGM BANJIR KANAL TIMUR	POST TENSIONING	PT. WIKA BETON	JAKARTA	2009
301	TELUK GONG BRIDGE	POST TENSIONING	PT. GIRDER INDONESIA	JAKARTA	2009
302	SEDAYU LAWAS	POST TENSIONING	PT. WIKA BETON	SURABAYA	2009
303	MARAPUNG ANAK ALANG BRIDGE	POST TENSIONING	PT. NASIONAL JAYA	SUMBA BARAT	2009-2010
304	DIAPHRAGM TRASH RACK KALI CIPINANG	POST TENSIONING	PT. WIKA BETON	JAKARTA	2009
305	BANK MEGA MAKASAR	POST TENSIONING	PT. TOTAL BANGUN PERSADA	MAKASSAR	2009
306	GBI CHURCH BINTARO	POST TENSIONING	PANITIA PEMBANGUNAN GBI BINTARO	JAKARTA	2009
307	VIHARA SAMARINDA	POST TENSIONING	PANITIA PEMBANGUNAN VIHARA SAMARINDA	EAST KALIMANTAN	2009
308	ISLAMIC CENTER ROKAN HULU	POST TENSIONING	PT. TOTAL BANGUN PERSADA	RIAU	2009
309	JGC BUILDING	POST TENSIONING	PT. TATA MULIA NUSANTARA INDAH	JAKARTA	2009-2010
310	MAHAKARUNA BUDDHIST CENTER	POST TENSIONING	PANITIA PEMBANGUNAN VIHARA MEDAN	MEDAN	2009
311	CANOPY SLAMET RIADI	POST TENSIONING	CV. SINAR MITRA ABADI	MEDAN	2009
312	MITRA BUILDING	POST TENSIONING	PT. CITRA MANDIRI CIPTA	SURABAYA	2009
313	POWER CENTER	POST TENSIONING	PT. SINAR WARINGIN ADIKARYA	SURABAYA	2009-2010
314	DARMO SQUARE	POST TENSIONING	PT. SURYA BANGUN PERSADA INDAH	SURABAYA	2009-2010
315	HANDY'S RESIDENCE	POST TENSIONING	PT ARCON PRIMA	JAKARTA	2009
316	INDOCEMENT BRIDGE	POST TENSIONING	PT. WIKA BETON	CITEUREUP, BOGOR	2010
317	GARDEN CITY BRIDGE	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	JAKARTA	2010
318	BANGSAL BRIDGE	POST TENSIONING	PT. ADIMIX PRECAST INDONESIA	SURABAYA	2010
319	BLITAR BRIDGE	POST TENSIONING	PT. WIKA BETON	BLITAR	2010
320	KALI ANGKE CIPONDOH	POST TENSIONING	PT. WIKA BETON	JAKARTA	2010
321	CIBITUNG BEKASI BRIDGE	POST TENSIONING	PT. WIKA BETON	JAKARTA	2010
322	MOJOKERTO - KERTOSONO TOLL ROAD	POST TENSIONING	PT. WIKA BETON	MOJOKERTO	2010 - 2011
323	PEJAGAN - KRANJI	POST TENSIONING	PT. ADHI KARYA	CIREBON	2010

NO	PROJECT	TYPE OF WORK	CLIENT / MAIN CONTRACTOR	LOCATION	YEAR
324	RUNGKUT	POST TENSIONING	PT. WIKA BETON	SURABAYA	2010
325	BALIKPAPAN ACCESS ROAD	POST TENSIONING	PT. ADIMIX PRECAST INDONESIA	BALIKPAPAN	2010
326	MOLALAHU GORONTALO	POST TENSIONING	PT. WIKA BETON	GORONTALO	2010
327	GADANG BRIDGE BUMI AYU	POST TENSIONING	PT. WIKA BETON	MALANG	2010
328	PEDESTRIAN TANJUNG PRIOK	POST TENSIONING	PT. WIKA BETON	JAKARTA	2010
329	JABUNG BRIDGE	POST TENSIONING	PT. WIKA BETON	LAMONGAN	2010
330	NGEPIRIH-PUJON BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2010
331	TRUMIX BRIDGE	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	CILEGON, JABAR	2010
332	PEDESTRIAN JAKARTA KOTA - ANCOL	POST TENSIONING	PT. WIKA BETON	JAKARTA	2010
333	BY PASS CHANNEL	POST TENSIONING	PT. WIKA BETON	BLITAR	2010
334	YASULINTEX BRIDGE	POST TENSIONING	PT. WIKA BETON	JAKARTA	2010
335	DENPASAR BRIDGE	POST TENSIONING	IR. SUMINDRA	DENPASAR	2010
336	TAWING BRIDGE	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	JAKARTA	2010
337	TOLL CINERE - JAGORAWI	POST TENSIONING	PT. WIKA BETON	JAKARTA	2010
338	AHMAD YANI BRIDGE	POST TENSIONING	PT. WIKA BETON	BEKASI	2010
339	BANYUWANGI BRIDGE	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	BANYUWANGI	2010
340	OFFICE DINAMIKA	POST TENSIONING	PT. TATA MULIA NUSANTARA INDAH	JAKARTA	2010
341	VIHARA MEDAN 2	POST TENSIONING	PANITYA PEMBANGUNAN VIHARA MEDAN	MEDAN	2010
342	MASJID SIDOTOPO	POST TENSIONING	PANITYA PEMBANGUNAN MASJID SIDOTOPO	SURABAYA	2010
343	BOJONEGORO BARAGI BRIDGE	POST TENSIONING	PT. WIKA BETON	BOJONEGORO	2011
344	PASAR KEMBANG FLY OVER	POST TENSIONING	PT. WIKA BETON	SURABAYA	2011
345	KALI KRUKUT BRIDGE 2	POST TENSIONING	PT. WIKA BETON	JAKARTA	2011
346	TOLL CINERE - JAGORAWI 2	POST TENSIONING	PT. WIKA BETON	JAKARTA	2011
347	CIRARAB BRIDGE	POST TENSIONING	PT. KODEMA	JAKARTA	2011
348	MARAH HALOQ BRIDGE	POST TENSIONING	PT. KARATON KONTRAKSINDO	KALIMANTAN TIMUR	2011
349	DIAPHRAGM SUMARECON 2	POST TENSIONING	PT. WIKA BETON	JAKARTA	2011
350	DIAPHRAGM MAUK BRIDGE	POST TENSIONING	PT. WIKA BETON	MAUK	2011
351	SAYANG MANUK BRIDGE	POST TENSIONING	PT. WIKA BETON	CIREBON	2011
352	MOTADELEK - BELU BRIDGE	POST TENSIONING	PT. UTAMA KARYA TIMOR	NUSA TENGGARA TIMUR	2011
353	TOLL JAGORAWI	POST TENSIONING	PT. WIKA BETON	JAKARTA - BOGOR	2011
354	LOANG BALOK & KARANG RUMUK	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	NUSA TENGGARA TIMUR	2011
355	TUKAD YEH EMPAS	POST TENSIONING	PT. TEGUH KARYA	BALI	2011- 2012
356	CIBERES BRIDGE	POST TENSIONING	PT. WIKA BETON	INDRAMAYU	2011
357	KEDUNG WARINGIN	POST TENSIONING	PT. WIKA BETON	BEKASI	2011
358	CRAKEN & BAYAM	POST TENSIONING	PT. WIKA BETON	TRENGGALEK	2011
359	BOOKWEDI	POST TENSIONING	PT. WIKA BETON	PASURUAN	2011
360	SERPONG MAJA	POST TENSIONING	PT. WIKA BETON	TANGERANG	2011
361	SOLO - KERTOSONO TOLL ROAD	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	SOLO	2011
362	MERAH PUTIH BRIDGE	POST TENSIONING	PT. WIKA BETON	AMBON	2011- 2012
363	TUKAD PANAHAN	POST TENSIONING	KSO USAHA TEGUH	BALI	2011- 2012
364	KARIAGI BRIDGE	POST TENSIONING	PT. LEILEM JAYA	MANADO	2011- 2012
365	TEMBERU ALIT	POST TENSIONING	PT. WIKA BETON	MADURA	2011
366	KALI BENING BRIDGE	POST TENSIONING	PT. WIKA BETON	SURABAYA	2011
367	WATUMBACA BRIDGE	POST TENSIONING	PT. ARISON KARYA SEJAHTERA	SUMBA TIMUR	2011
368	BOGOR KEREK	POST TENSIONING	PT. WIKA BETON	SURABAYA	2011
369	SAPAWEA DOMOLODO	POST TENSIONING	PT. WIKA BETON	GORONTALO	2011
370	CISUMDAWU BRIDGE	POST TENSIONING	PT. WIKA BETON	SUMEDANG	2011- 2012
371	SUPER CLUSTER SERPONG	POST TENSIONING	PT. WIKA BETON	SERPONG TANGERANG	2011
372	DELTA SILICON	POST TENSIONING	PT. WIKA BETON	CIKARANG-BEKASI	2012
373	JORR W2 PAKET 1	POST TENSIONING	PT. WIKA BETON	JAKARTA	2012
374	DIAFRAGMA NGANJUK PAKUAN	POST TENSIONING	PT. WIKA BETON	NGANJUK	2012
375	UNDERPASS SEMEN GRESIK	POST TENSIONING	PT. WIKA BETON	GRESIK	2012
376	TOLL SEMARANG - SOLO	POST TENSIONING	PT. PRACETAK BETONINDO	SEMARANG	2012
377	GRIYA NUSANTARA BRIDGE	POST TENSIONING	PT. WIKA BETON	SENTUL	2012
378	MOTADELEK BELU	POST TENSIONING	PT. PERDANA LESTARI	NUSA TENGGARA TIMUR	2012
379	PELEBARAN JALAN BANDARA SOEKARNO-HATTA	POST TENSIONING	PT. WIKA BETON	JAKARTA	2012
380	TRISILA BLITAR	POST TENSIONING	PT. HUTAMA KARYA	BLITAR	2012
381	BERAU COAL BRIDGE	POST TENSIONING	PT. KALI RAYA SARI	BERAU, KALIMANTAN	2012
382	TOLL SUMO 3	POST TENSIONING	PT. WIKA BETON	SURABAYA	2012
383	TOL GEMPOL PASURUAN PAKET I	POST TENSIONING	PT. ADHI KARYA DIV. PRECAST DAN PERALATAN	PASURUAN	2013
384	JEMBATAN ALAYA BUKIT SENTUL	POST TENSIONING	PT. PRIMA CIPTA KARYA	SENTUL	2013
385	JEMBATAN DE GREEN PASTEUR	POST TENSIONING	PT. CATUR BANGUN MANDIRI	BANDUNG	2013
386	RAWARSSARI BANJARMASIN	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	BANJARMASIN	2013
387	JEMBATAN MEDIAN TROTOAR SUMBERSARI	POST TENSIONING	PT. WIKA BETON	EAST KALIMANTAN	2013
388	JEMBATAN KALIMENIR DAN JEMBATAN CIDONGKOL	POST TENSIONING	PT. MINA FAJAR ABADI	INDRAMAYU	2013
389	JEMBATAN KALI GUNTING MOJOAGUNG	POST TENSIONING	PT. RIDLATAMA BAHTERA CONSTRUCTION	JOMBANG	2013
390	KAPUK NAGA INDAH	POST TENSIONING	PT. WASKITA KARYA	PLANT CIBITUNG	2013

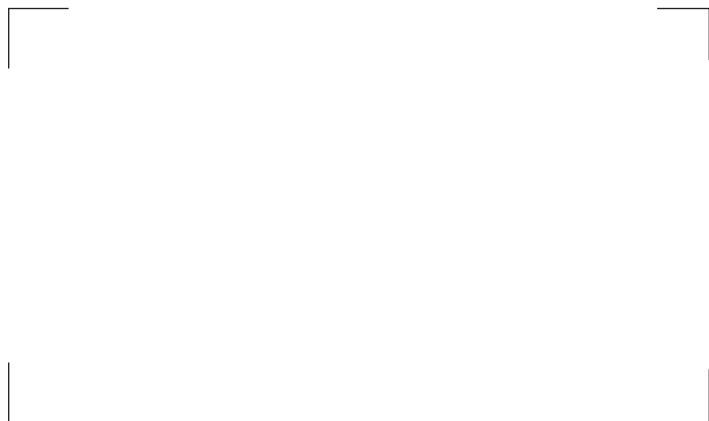
NO	PROJECT	TYPE OF WORK	CLIENT / MAIN CONTRACTOR	LOCATION	YEAR
391	TOL SURABAYA - GEMPOL PAKET 3B	POST TENSIONING	PT. WASKITA KARYA DIV. PRECAST	SURABAYA	2013
392	GAJAH MADA MATARAM NTB BRIDGE	POST TENSIONING	PT. SAETI BETON PRACETAK	NUSA TENGGARA BARAT	2013
393	JEMBATAN PASR CIBINONG	POST TENSIONING	PT. RIMBA ARTHA PERTIWI	CIBINONG	2013
394	KALI URANG MALANG BRIDGE	POST TENSIONING	PT. RIDLATAMA BAHTERA CONSTRUCTION	MALANG	2013
395	TOL GEMPOL - PANDAAN	POST TENSIONING	PT. WIJAYA KARYA	GEMPOL - PANDAAN	2013
396	TOLL MOJOKERTO - KERTOSONO	POST TENSIONING	PT. HUTAMA KARYA	MOJOKERTO - KERTOSONO	2013
397	JEMBATAN WAI LOKO DAN AKE TOBATU SOFIFI	POST TENSIONING	PT. WIKA BETON	MALUKU UTARA	2013
398	JEMBATAN FUTUAT DAN FAIFUN II	POST TENSIONING	PT. SUMBER OELUN	KUPANG	2013
399	JEMBATAN SEI PANGERAN	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	BANJARMASIN	2013
400	SADHANA BRIDGE	POST TENSIONING	PT. MURINDA IRON STEEL	MALANG	2013
401	PULAU LAUT	POST TENSIONING	PT. PERTROSEA	KALIMANTAN SELATAN	2013
402	JEMBATAN PANGODONGAN - SEPATAN	POST TENSIONING	CV. NURHAYA SUKSES MAKMUR	BANTEN	2013
403	JEMBATAN KALI CISADANE PASENGGRAHAN	POST TENSIONING	PT. WIKA DSU	JAKARTA	2013
404	KONT. PENYANGGA BANDARA KALTIM	POST TENSIONING	CV. GIRI BANGUN	EAST KALIMANTAN	2013
405	JEMBATAN GHUPUSMU CIKUTRA	POST TENSIONING	PT. WIKA BETON	BANDUNG	2013
406	PORT KARIANGO (TIE WIRE)	POST TENSIONING	PT. BUDI PERKASA ALAM	EAST KALIMANTAN	2013
407	DERMAGA PACKING PLANT DUMAI	POST TENSIONING	PT. BUDI PERKASA ALAM	DUMAI	2013
408	JEMBATAN AKSES KIM	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	KARAWANG TIMUR	2013
409	JEMBATAN ANGGANA	POST TENSIONING	PT. MAHA KARUNIA	SAMARINDA	2013
410	JEMBATAN SUNGAI ENTAPAI SEPARI	POST TENSIONING	PT. ENERGI BARA PRATAMA PUTRA	EAST KALIMANTAN	2013
411	JEMBATAN ATAMBUA 2	POST TENSIONING	ALBERTUS BALDION TANNUR	KUPANG	2013
412	JEMBATAN KALIPERAWAN INDRAMAYU	POST TENSIONING	PT. PUTRA SHB SEJAHTERA	INDRAMAYU	2013
413	PENGADAAN PACKING PLANT LAMPUNG	POST TENSIONING	PT. ADHI KARYA DIV. KONSTRUKSI II	LAMPUNG	2013
414	PEMASANGAN PACKING PLANT LAMPUNG	POST TENSIONING	PT. ADHI KARYA DIV. KONSTRUKSI II	LAMPUNG	2013
415	PENGADAAN DAN PEMASANGAN TIRE WIRE	POST TENSIONING	PT. ADHI KARYA DIV. KONSTRUKSI II	LAMPUNG	2013
416	JEMBATAN CANGKRING - PACITAN	POST TENSIONING	PT. WIKA BETON	PACITAN	2013
417	JEMBATAN TIMUR STADION - PACITAN	POST TENSIONING	PT. WIKA BETON	PACITAN	2013
418	JEMBATAN KUNCI	POST TENSIONING	CV. SUMBER NAFKAH	NGANJUK	2013
419	JEMBATAN KARANGLO	POST TENSIONING	PT. ADHI BHAKTI PRIMA	TUBAN	2013
420	JEMBATAN LEGUNDI BUNDER	POST TENSIONING	PT. BAITASARI	LEGUNDI - GRESIK	2013
421	DERMAGA TANJUNG TEMBANGA	POST TENSIONING	PT. CAHAYA CERAH	PROBOLINGGO	2013
422	JEMBATAN PENANGGULANGAN TERORIS	POST TENSIONING	PT. HASURA BATHARA JAYA	SENTUL	2013
423	FRONTAGE RELOKASI JALAN ARTERI	POST TENSIONING	PT. BRANGTAS ABIPRAYA	PORONG - SIDOARJO	2013
424	JEMBATAN SEI ULIN	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	BANJARMASIN	2013
425	JEMBATAN SUNGAI SELOR	POST TENSIONING	PT. WIJAYA KARYA	EAST KALIMANTAN	2013
426	KARAWINAGON	POST TENSIONING	CV. WONOSALAM MAKMUR	MOJOAGUNG	2013
427	JEMBATAN SUKASARI SEPATAN	POST TENSIONING	CV. NURHAYA SUKSES MAKMUR	TANGERANG	2013
428	BEARING YADANA	POST TENSIONING	PT. GUNANUSA UTAMA FABRICATORS	MYANMAR	2013
429	TIEBACK DERMAGA TAMBAT	POST TENSIONING	PT. WILMAR NABATI INDONESIA	GRESIK	2013
430	DBD CILANGKAP DEPOK	POST TENSIONING	CV. BATRAT PUTRA SEJAHTERA	DEPOK	2013
431	BANK MANDIRI SOLO	POST TENSIONING	PT. ADHI KARYA DIV. KONSTRUKSI IV	SURABAYA	2013
432	TOWN HOUSE KELAPA GADING	POST TENSIONING	PT. HASURA BATHARA JAYA	JAKARTA	2013
433	PARAHYANGAN RESIDENCE	POST TENSIONING	PT. JKS REALTY	BANDUNG	2013
434	BPD MELAK	POST TENSIONING	PT. CITRA MANDIRI CIPTA	EAST KALIMANTAN	2013
435	RIVER VALLEY LEBAK BULUS	POST TENSIONING	PT. FANITRA INDONESIA	JAKARTA	2013
436	CARREFOUR PLUIT MEGA MALL	POST TENSIONING	PT. TRANS RETAIL INDONESIA	JAKARTA	2013
437	STADION JEMBER	POST TENSIONING	PP-BMP-BLI.KSO.	JEMBER	2013
438	ALILA HOTEL BALI	POST TENSIONING	PT. ACSET INDONESIA	BALI	2013
439	THE ROYAL OLIVE RESIDENCE	POST TENSIONING	PT. WASKITA KARYA	JAKARTA	2013
440	SATU8 RESIDENCE	POST TENSIONING	PT. NUSA KONSTRUKSI ENJINIRING	JAKARTA	2013
441	HOTEL RATTAN INN	POST TENSIONING	PT. JAYA KUSUMA SARANA	BANJARMASIN	2013
442	HOTEL GRAND SANTIKA	POST TENSIONING	PT. CATUR BANGUN MANDIRI	JAKARTA	2013
443	BINUS ALAM SUTERA	POST TENSIONING	PT. TOTAL BANGUN PERSADA	ALAM SUTERA	2013
444	PROYEK GRAHA PENYA	POST TENSIONING	PT. PP (Persero) Tbk DVO III	SURABAYA	2013
445	LOMBOK EPICENTRUM MALL	POST TENSIONING	PT. NUSA RAYA CIPTA	MATARAM	2013
446	MARINA ANCOL RESIDENCE	POST TENSIONING	PT. TOPINDO ATLAS ASIA	JAKARTA	2013
447	HOTEL PADMA KARAWANG	POST TENSIONING	PT. MURINDA IRON STEEL	KARAWANG	2013
448	THE GREEN PRAMUKA	POST TENSIONING	PT. KARMA MANGGALA YUDHA	JAKARTA	2013
449	SKYLINE TOWERS OFFICE DAN CONDOTEL SURABAYA	POST TENSIONING	PT. NUSA KONSTRUKSI ENJINIRING	SURABAYA	2013
450	BLISS PARK BATAM	POST TENSIONING	PT. TATAMULIA NUSANTARA INDAH	BATAM	2013
451	JEMBATAN JATIJAJAR	POST TENSIONING	PT. ELSINDO PRATAMA	DEPOK	2014
452	FLY OVER TANDES- SURABAYA	POST TENSIONING	PT. PEMBANGUNAN PERUMAHAN	SURABAYA	2014
453	JEMBATAN PESAWANGAN	POST TENSIONING	PT. WIKA BETON	MANADO	2014
454	PELEBARAN TOL JAGORAWI	POST TENSIONING	PT. SUMBER BATU	JAKARTA - BOGOR - CIAWI	2014
455	CISUMDAWU	POST TENSIONING	PT. PRACETAK BETONINDO	CILEUNYI - SUMEDANG - DAWUAN	2014

NO	PROJECT	TYPE OF WORK	CLIENT / MAIN CONTRACTOR	LOCATION	YEAR
456	TOL SURABAYA - MOJOKERTO	POST TENSIONING	PT. WIJAYA KARYA	SURABAYA	2014
457	PLANT PASURUAN	POST TENSIONING	PT. WASKITA KARYA	PASURUAN	2014
458	JEMBATAN TAMBANGAN - MADURA	POST TENSIONING	PT. SADAR DINAMIS	MADURA	2014
459	JEMBATAN JAMBU SUMBAWA	POST TENSIONING	PT. TRIJAYA NASIONAL	SUMBAWA	2014
460	CIKAMPEK PALIMANAN	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	CIKAMPEK	2014
461	SUNGAI BATANG ANAI	POST TENSIONING	PT. RINENGGO RIA JAYA	PADANG	2014
462	AKSES KALI BARU PLANT CIBITUNG	POST TENSIONING	PT. WASKITA KARYA	CIBITUNG	2014
463	PLANT PASURUAN	POST TENSIONING	PT. WASKITA KARYA	PASURUAN	2014
464	BANDARA SOETA RAMP PENJARINGAN	POST TENSIONING	PT. WASKITA KARYA	TANGERANG	2014
465	PINTU AIR MANGGARAI	POST TENSIONING	PT. JAYA KONSTRUKSI MP Tbk.	JAKARTA	2014
466	JEMBATAN MONDO KEDIRI	POST TENSIONING	PT. TRIPLE'S PUTRA KEDIRI	KEDIRI	2014
467	JEMBATAN KELEKAR	POST TENSIONING	PT. BUDI BAKTI PRIMA	JAKARTA	2014
468	UNDERPASS SIMPANG PATAL	POST TENSIONING	PT. WASKITA BETON PRECAST	PALEMBANG	2014
469	TOLL PEJAGAN PEMALANG	POST TENSIONING	PT. WASKITA BETON PRECAST	PEMALANG	2014
470	TOLL SURABAYA - MOJOKERTO	POST TENSIONING	PT. WIKA BETON	SURABAYA	2014
471	TOL BECAKAYU	POST TENSIONING	PT. WASKITA BETON PRECAST	BEKASI - JAKRTA	2014
472	HOTEL ASTON	POST TENSIONING	PT. INDO CITRA EKA ABADI	SURABAYA	2014
473	SOHO TOWER & PODIUM	POST TENSIONING	PT. TIARA METROPOLITAN INDAH	JAKARTA	2014
474	MARANATHA	POST TENSIONING	PT. PP (Persero) Tbk DVO II	BANDUNG	2014
475	SAPHIR HOTEL	POST TENSIONING	PT. SURYA BANGUN PERSADA INDAH	YOGYAKARTA	2014
476	GRAND ISLAND PAKUWON CITY	POST TENSIONING	PT. ARTISAN SURYA KREASI-RES-PC	SURABAYA	2014
477	TELKOM	POST TENSIONING	PT. TELKOM LANDMARK TOWER	JAKARTA	2014
478	BICC BANDUNG	POST TENSIONING	PT. NUSA RAYA CIPTA	BANDUNG	2014
479	GEDUNG ARSIP DKI	POST TENSIONING	PT. ROSA LICA	JAKARTA	2014
480	GARUDA WISNU KENCANA	POST TENSIONING	PT. TATAMULIA NUSANTARA INDAH	DENPASAR	2014-2015
481	ASTRA GATRA TIMUR	POST TENSIONING	PT. ANDIKA WIJAYA SARANA	JAKARTA	2014-2015
482	METLAND CITY	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	TANGGERANG	2014-2015
483	METLAND PURI	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	TANGGERANG	2014-2015
484	LNG DONGGI SENORO	POST TENSIONING	FREYSSINET INTERNATIONAL & CIE	SENGKANG	2015
485	PAGAR HAUR BRIDGE	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	TANGERANG	2015
486	JEMBATAN MANTULL II SEI BEGAU	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	BANJARMASIN	2015
487	JEMBATAN KANIGORO - MALANG	POST TENSIONING	PT. TIRTA PERKASA ABADI	MALANG	2015
488	JEMBATAN SEN ANDAI-III	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	BANJARMASIN	2015
489	PEGEDANGAN BRIDGE BSD CITY	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	TANGGERANG	2015
490	JEMBATAN SEMBAYAT, MANYAR DAN TAMBAK OMBO	POST TENSIONING	PT. WIKA BETON	JAWA TIMUR	2015
491	JEMBATAN NTT	POST TENSIONING	PT. MODERN SURYA JAYA	NUSA TENGGARA TIMUR	2015
492	PLANT KARAWANG	POST TENSIONING	PT. WASKITA BETON PRECAST	KARAWANG	2015
493	RETAINING WALL FO AIR HITAM	POST TENSIONING	PT. WIJAYA KARYA	SAMARINDA	2015
494	JEMBATAN BULONG KULON	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	GRESIK	2015
495	JEMBATAN LILI & FATUPIZA	POST TENSIONING	RUJI SUSENO	NUSA TENGGARA TIMUR	2015
496	TUKAD LEMBANG BRIDGE	POST TENSIONING	PT. DHAMBA PRIMA UTAMA	DENPASAR	2015
497	JEMBATAN MOTWE II PULAU BUTON	POST TENSIONING	PT. JAYA BETON INDONESIA	PULAU BUTON	2015
498	JEMBATAN PLANT SADANG	POST TENSIONING	PT. WASKITA BETON PRECAST	SADANG	2015
499	PLANT SADANG	POST TENSIONING	PT. WASKITA BETON PRECAST	SADANG	2015-2016
500	KUALA TANJUNG	POST TENSIONING	PT. WASKITA BETON PRECAST	MEDAN	2015-2016
501	JETTY RAJABASA	POST TENSIONING	PT. NUSA KONSTRUKSI ENJINIRING	LAMPUNG	2015
502	SEOKARNO BRIDGE	POST TENSIONING	PT. UPAJIWA BUSINESS SOLUTION	MANADO	2015
503	JEMBATAN PETUK KUPANG	POST TENSIONING	PT. WIKA BETON	KUPANG	2015-2016
504	INUL LIGNITE KPC SANGATA - KALTIM	POST TENSIONING	PT. WIJAYA KARYA	SANGATA - KALTIM	2015
505	JEMBATAN TELONANG DAN SAMOTA	POST TENSIONING	PT. BUNGA RAYA LESTARI	SUMBAWA	2015
506	PO JEMBATAN CIPUNAGA	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	SUKABUMI	2015
507	RESINDA PARK MALL	POST TENSIONING	PT. MURINDA IRON STEEL	KARAWANG	2015-2016
508	MENARA PROTEKSI	POST TENSIONING	PT. WASKITA KARYA DIV. GEDUNG	JAKARTA	2015
509	ST. REGIS	POST TENSIONING	SSANGYONG-TOTALINDO J.O.	JAKARTA	2015
510	SIERA MADRE	POST TENSIONING	PT. CIGEDE GRIYA PERMAI	SENTUL	2015
511	HOTEL NEO MATARAM	POST TENSIONING	PT. BRILLIAN PANCA KENCANA	MATARAM	2015
512	KIRANA COMMERCIAL AVENUE	POST TENSIONING	PT. TOTALINDO EKA PERSADA	JAKARTA	2015
513	MENARA KOMPAS	POST TENSIONING	PT. TOTAL BANGUN PERSADA	JAKARTA	2015
514	BINUS ALAM SUTRA	POST TENSIONING	PT. TOTAL BANGUN PERSADA Tbk.	ALAM SUTERA	2015
515	MENARA ASTRA	POST TENSIONING	JO. SHIMIZU-TOTAL	JAKARTA	2015-2016
516	CITRA MAJA RAYA	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	TANGGERANG	2015
517	MUSEM NASIONAL POST TENSIONING	POST TENSIONING	PT. WIKA BETON	JAKARTA	2015
518	TUNJUNGAN PLAZA 6	POST TENSIONING	PT. PP (Persero) Tbk DVO III	SURABAYA	2015-2016
519	COOLING TOWER	POST TENSIONING	HAWKINS BCK JO	JAKARTA	2015
520	AMARTA UNILEVER	POST TENSIONING	PT. BAM DECORIENT INDONESIA	TANGGERANG	2015-2016
521	TOLL TRANS SUMATERA	POST TENSIONING	PT. WASKITA BETON PRECAST	LAMPUNG	2016
522	JEMBATAN KAPUAS	POST TENSIONING	JO CHINA - PT. WIJAYA KARYA TBK	KALIMANTAN	2016
523	JEMBATAN 4 KOTABARU	POST TENSIONING	PT. ADHI KARYA DIV. KONSTRUKSI I	KOTA BARU PARAHYANGAN	2016

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524	TOL MEDAN KUALANAMU	POST TENSIONING	PT. WASKITA BETON PRECAST	MEDAN	2016
525	JEMBATAN SPRINGLAKE - SUMMARECON	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	BEKASI	2016
526	JEMBATAN II SULAWESI	POST TENSIONING	PT. PACIFIC PRESTRESS INDONESIA	BANJARMASIN	2016
527	JEMBATAN 4 KOTA BARU PARAHYANGAN	POST TENSIONING	PT. ADHI KARYA DIV. KONSTRUKSI I	KOTA BARU PARAHYANGAN	2016
528	TOLL MEDAN KUALANAMU - TEBING TINGGI	POST TENSIONING	PT. PEMBANGUNAN PERUMAHAN	MEDAN	2016
529	PIERHEAD OF LRT CAWANG-CIBUBUR	POST TENSIONING	PT. ADHI KARYA	SENTUL	2016
530	JEMBATAN SUNGAI MANGGAR	POST TENSIONING	PT. WIJAYA KARYA	BALIKPAPAN	2016
531	TOL BECAKAYU	POST TENSIONING	PT. WASKITA DIV. INFRASTRUKTUR	BEKASI - JAKRTA	2016
532	FLY OVER AMPLAS	POST TENSIONING	PT. NINDYA KARYA WILAYAH I	MEDAN	2016
533	JALAN PENJAGAN	POST TENSIONING	PT. WASKITA BETON PRECAST	JAKARTA	2016
534	DERMAGA MERAK VI	POST TENSIONING-TIE BACK	PT. CEMERLANG SAMURDRA KONTRINDO	BANTEN	2016
535	PIERHEAD LRT CAWANG-CIBUBUR	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2016
536	TOL PEJAGAN-PEMALANG SEKSI IV	POST TENSIONING	PT. WASKITA BETON PRECAST	JAWA TENGAH	2016
537	JALAN KA BANDARA SOEKARNO-HATTA	POST TENSIONING	PT. WASKITA BETON PRECAST	JAKARTA	2016
538	TOL PEJAGAN-PEMALANG SEKSI III	POST TENSIONING	PT. WASKITA BETON PRECAST	JAWA TENGAH	2016
539	PACITAN BRIDGE	POST TENSIONING	PT. WIKA BETON	JAWA TIMUR	2016
540	BERAU BRIDGE	POST TENSIONING	PT. WIKA BETON	KALIMANTAN TIMUR	2016
541	TOL NGAWI-KERTOSONO	POST TENSIONING	PT. WASKITA BETON PRECAST	JAWA TENGAH	2016
542	TOL PEJAGAN-PEMALANG SEKSI IV	POST TENSIONING	PT. WASKITA BETON PRECAST	JAWA TENGAH	2016
543	PIER HEAD CAWANG - BEKASI TIMUR	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2016
544	TOLL MANADO BITUNG	POST TENSIONING	PT. WASKITA BETON PRECAST	JAKARTA	2016
545	TOLL PEMALANG BATANG	POST TENSIONING	PT. WASKITA BETON PRECAST	JAKARTA	2016
546	KARANG WINONGAN MOJOAGUNG	POST TENSIONING	PT. WIKA BETON	JAKARTA	2016
547	SERPONG BRIDGE - VIRGINIA	POST TENSIONING	PT. JAYA BETON	TANGERANG SELATAN	2016
548	DERMAGA VII - BAKAUHENI	POST TENSIONING-TIE BACK	PT. PEMBANGUNAN PERUMAHAN	LAMPUNG	2016
549	UNDERPASS PEDAYAK - SANGATA KUTA	POST TENSIONING	PT. WIKA BETON	KALIMANTAN TIMUR	2016
550	SAPOLSA I & SAPOLSA II	POST TENSIONING	PT. WIKA BETON		2016
551	TOLL SOLO - NGAWI - KERTOSONO (AK)	POST TENSIONING	PT. WIKA BETON	JAWA TIMUR	2016
552	FLYOVER SP SURABAYA- BANDA ACEH	POST TENSIONING	JAYA KONSTRUKSI - BRANTAS ABIPRAYA	ACEH	2016
553	OI OMBO BRIDGE	POST TENSIONING	PT. WIKA BETON	NUSA TENGGARA BARAT	2016
554	BW LUXURY HOTEL - JAMBI	POST TENSIONING	PT. WASKITA KARYA DIV. REGIONAL BARAT	JAMBI	2016
555	WISMA INDOMOBIL 4	POST TENSIONING	PT. MULTIBANGUN ADHITAMA KONSTRUKSI	JAKARTA	2016
556	WISMA CIPINANG INDAH	POST TENSIONING	PT. INTI UTAMA DHARMA	JAKARTA	2016
557	HOTEL HARIS - SOLO	POST TENSIONING	PT. CIPTA PROPRTI AGUNG	JAWA TENGAH	2016
558	HANURA BUILDING	POST TENSIONING	PT. TOTALINDO EKA PERSADA	JAKARTA	2106
559	GRAND DADAP CITY - TANGERANG	POST TENSIONING	PT. CIPTA GRAHA TARUMANAGARA	BANTEN	2016
560	FLY OVER SETIA ASHI - BEKASI	POST TENSIONING	PT. PPI	BEKASI	2017
561	KALADIAN BRIDGE	POST TENSIONING	PT. WIJAYA KARYA		2017
562	BPL BELAWAN	POST TENSIONING	PT. ADHI KARYA		2017
563	PUCUNG PADPADAN	POST TENSIONING	PT. WIJAYA KARYA		2017
564	BOCIMI - TOLL BOGOR CIAWI SUKABUMI	POST TENSIONING	PT. WASKITA BETON PRECAST	JAWA BARAT	2017
565	PIER HEAD VIADUCT 2 - TMII	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2017
566	PIER HEAD TIPE 2 PLANT SENTUL	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2017
567	TOLL CIMANGGIS CILIWUNG	POST TENSIONING	PT. WASKITA BETON PRECAST	JAKARTA	2017
568	PANDA BRIDGE - BIMA	POST TENSIONING	PERMATA - BHUMI KSO		207
569	TUKAD YEH PAYUYUAN	POST TENSIONING	PT. WIKA BETON	BALI	2017
570	PASURUAN PROBOLINGGO (PASPRO)	POST TENSIONING	PT. WASKITA BETON PRECAST	JAWA TIMUR	2017
571	COMORO BRIDGE	POST TENSIONING	CARYA TIMOR LESTE PTY. LTD	TIMOR LESTE	2017
572	TOLL TRANS SUMATRA (LAMPUNG BRIDGE)	POST TENSIONING	PT. WASKITA BETON PRECAST	LAMPUNG	2017
573	LRT EXTENDED PIER HEAD	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2017
574	LRT TURN OUT LINTAS I CAWANG-CIBUBUR TMII	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2017
575	PIERHEAD BECAKAYU	POST TENSIONING	PT. WASKITA KARYA	JAKARTA	2017
576	TOLL PEMALANG BATANG TAMBAHAN 1	POST TENSIONING	PT. WASKITA BETON PRECAST	JAWA TENGAH	2017
577	PANCER - TUBAN	POST TENSIONING	PT. WIJAYA KARYA	JAWA TIMUR	2017
578	DODOKAN - NTB	POST TENSIONING	PT. WIJAYA KARYA	NUSA TENGGARA BARAT	2017
579	GANSEAN C5 - MADURA	POST TENSIONING	PT. WIJAYA KARYA	JAWA TIMUR	2017
580	BP-SOLO KERTOSONO	POST TENSIONING	PT. WIJAYA KARYA - PT. PP JO	JAWA TENGAH	2017
581	TUKAD YEH PUSUT	POST TENSIONING	PT. WIJAYA KARYA BETON		2017
582	FATUMATAK	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	NTT	2017
583	OSOWILANGUN	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA		2017
584	STASIUN LRT CIBUBUR-CAWANG	POST TENSIONING	PT. ADHI PERSADA BETON	JAKARTA	2017
585	JEMBATAN BATU LENGER & TEPOH MADURA	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	JAWA TIMUR	2017
586	JAYA BETON PLANT TANGERANG	POST TENSIONING	PT. JAYA BETON INDONESIA	TANGERANG	2017
587	YEH MAWA KUPANG	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	NTT	2017
588	LRT TURN OUT LINTAS I CAWANG-CIKUNIR	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2017
589	LRT PIER HEAD RUAS TAMAN MINI - CIBUBUR	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2017
590	LRT PORTAL RUAS TAMAN MINI - CIBUBUR	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2017

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591	JEMBATAN PASONGSONGAN	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	JAKARTA	2017
592	LRT PIER HEAD STASIUN	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2017
593	WEILING ALOR NTT	POST TENSIONING	MITRA CIPTA BANGUN, CV	NTT	2017
594	TIEBACK JAWA 2 CAPP TANJUNG PRIUK	POST TENSIONING	PT. SATYAMITRA SURYA PERKASA	JAKARTA	2017
595	JEMBATAN SPRAU MADIUN	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	MADIUN	2017
596	JEMBATAN GANDUL MADIUN	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	MADIUN	2017
597	TOL SOLO KERTOSONO	POST TENSIONING	PT. WIJAYA KARYA	MADIUN	2017
598	JEMBATAN SIDOREJO MADIUN	POST TENSIONING	PT. WIJAYA KARYA	MADIUN	2017
599	LRT CAWANG DUKUH ATAS	POST TENSIONING	PT. ACSET INDONESIA	JAKARTA	2017
600	NOTOG	POST TENSIONING	PT. NINDYA KARYA		2017
601	JEMBATAN EMPOL MATARAM	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	NTB	2017
602	JEMBATAN SEMPAN MADURA	POST TENSIONING	PT. WIJAYA KARYA	MADURA	2017
603	JEMBATAN CENGCEGAN	POST TENSIONING	PT. WIJAYA KARYA		2017
604	JEMBATAN MENDIUM	POST TENSIONING	PT. AMPEL MULYA UTAMA	BALI	2017
605	JEMBATAN MERANCANG BEAU	POST TENSIONING	PT. WIJAYA KARYA BETON	KALIMANTAN TIMUR	2017
606	TOL JAKARTA CIKAMPEK	POST TENSIONING	WASKITA - ACSET, KSO	JAKARTA	2017
607	AIS BALI	POST TENSIONING	PT. KRISTEF MEGA SEJAHTERA	BALI	2017
608	HOTEL BW LUXURY JAMBI	POST TENSIONING	PT. WASKITA KARYA	JAMBI	2017
609	HOTEL GRAND ZURI PALEMBANG	POST TENSIONING	TRIPUTRA HOTEL INDONESIA	SUMATERA SELATAN	2017
610	RESIDENCE PANTAI MUTIARA	POST TENSIONING	HERINDO ADHIKARYA JAYA	JAKARTA	2017
611	SRONDOL MIXED USE DEVELOPMENT	POST TENSIONING	PT. PP (PERSERO) TBK	SEMARANG	2017
612	UMAH TINGGAL PLUIT KENCANA	POST TENSIONING	PT. HERINDO ADHIKARYA JAYA	JAKARTA	2017
613	PEJAGAN PEMALANG SEKSI III	POST TENSIONING	PT. WASKITA BETON PRECAST	JAWA TENGAH	2018
614	LRT ECCENTRIC PIER HEAD	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2018
615	LRT UPPER PIER HEAD STATION	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2018
616	JEMBATAN JALUR GANDA LINTAS SELATAN (DOUBLE TRACK)	POST TENSIONING	PT. WIJAYA KARYA BETON		2018
617	TOL SURABAYA - GEMPOL PAKET 1	POST TENSIONING	PT. WIJAYA KARYA BETON	JAWA TIMUR	2018
618	JEMBATAN CIPAMINGKIS	POST TENSIONING	PT. ARSIDI BUMI PONDASI		2018
619	DERMAGA VII MERAK	POST TENSIONING	PT. PP	JAKARTA	2018
620	JEMBATAN HINASALOLO SERAM MALUKU	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	MALUKU	2018
621	JEMBATAN TANGSIL JEMBER	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	JAWA TIMUR	2018
622	JEMBATAN RABAUJALA PULAU DOBO	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	MALUKU	2018
623	JEMBATAN KESEJAHTERAAN	POST TENSIONING	PT. WIKA BETON	NTB	2018
624	JEMBATAN BABULU	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	NTT	2018
625	STASIUN BANDARA ADI SUMARMO SOLO	POST TENSIONING	PT. PP	JAWA TENGAH	2018
626	JEMBATAN MUSTIKA & TRITUNGKAL GORONTALO	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	SULAWESI UTARA	2018
627	JEMBATAN KALI AMPRONG KOTA MALANG	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	JAWA TIMUR	2018
628	JEMBATAN PADOLO - PANOTAI	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA		2018
629	JEMBATAN SUNGAI BOLONG, PINRANG	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	SULAWESI SELATAN	2018
630	JEMBATAN MILLIR AKSES NGBEL PONOROGO	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	JAWA TIMUR	2018
631	JEMBATAN GEMAH TAHAP 2 MAGETAN	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	JAWA TIMUR	2018
632	JEMBATAN RUSUNAWA	POST TENSIONING	PT. JAWA BETON INDONESIA	JAKARTA	2018
633	JEMBATAN ADI SUMARMO	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	JAWA TENGAH	2018
634	TOL BALIKPAPAN - SAMARINDA	POST TENSIONING	PT. WIJAYA KARYA BETON	KALIMANTAN TIMUR	2018
635	JEMBATAN CEKATUNG GIANYAR	POST TENSIONING	PT. WIJAYA KARYA BETON	BALI	2018
636	JEMBATAN PURANA, PEMALANG	POST TENSIONING	PT. ADHIMIX PRECAST INDONESIA	JAWA TENGAH	2018
637	JEMBATAN PADOLO BIMA	POST TENSIONING	PT. WIJAYA KARYA BETON	NTB	2018
638	SEKOLAH KRISTEN ELYON SURABAYA	POST TENSIONING	PT. TATAMULIA NUSANTARA INDAH	SURABAYA	2018
639	POLLUX MEISTERSDADT BATAM	POST TENSIONING	PT. PP	BATAM	2018
640	UCC MOJOKERTO PHASE 2	POST TENSIONING	PT. JAWA OBAYASHI	SURABAYA	2018
641	APARTEMEN TENTREM SEMARANG	POST TENSIONING	PT. NUSA RAYA CIPTA	SEMARANG	2018
642	VIHARA PURVA VAIDURYA	POST TENSIONING	MAHAVIRA GRAHA BUDDHIST CENTER	PONTIANAK	2018
643	LRT PT BAR DIA 32MM	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2019
644	TOL JAKARTA CIKAMPEK	POST TENSIONING	WASKITA - ACSET KSO	JAKARTA	2019
645	JALUR GANDA KA (JGKM 3)	POST TENSIONING	PT. WIKA BETON	JAWA TENGAH	2019
646	JEMBATAN KA JALUR GANDA LINTAS SELATAN (JGKM 8)	POST TENSIONING	PT. WIKA BETON	JAWA TENGAH	2019
647	TOL CISUMDAWU PHASE III	POST TENSIONING	CRBC - ADHI KARYA JO	JAWA BARAT	2019
648	JEMBATAN SEI MERBAU	POST TENSIONING	PT. JAWA BETON	MEDAN	2019
649	JEMBATAN SEI DELI A BELAWAN	POST TENSIONING	PT. JAWA BETON	MEDAN	2019
650	JEMBATAN SEI RAMBI	POST TENSIONING	PT. JAWA BETON	MEDAN	2019
651	JALAN TOL CIMANGGIS CIBITUNG (CCTW) SEKSI 2	POST TENSIONING	PT. WASKITA KARYA	BEKASI	2019
652	LRT CAWANG - DUKUH ATAS	POST TENSIONING	PT. ACSET	JAKARTA	2019
653	LRT STRESSING BRACKET PORTAL KUNINGAN DUKUH ATAS	POST TENSIONING	PT. ADHI KARYA	JAKARTA	2019
654	JEMBATAN CIPAMINGKIS	POST TENSIONING	PT. WIKA	BOGOR, JABAR	2019
655	TOL BALIKPAPAN - SAMARINDA	POST TENSIONING	WIKA BETON	KALIMANTAN	2019
656	TOL CISUMDAWU PHASE III	POST TENSIONING	CRBC - ADHI KARYA JO	MAJALENGKA, JABAR	2019
657	TOL SIGLI - BANDA ACEH	POST TENSIONING	PT. ADHI PERSADA BETON	ACEH	2019
658	LRT AKSES TO DEPO RUAS CIBEK	POST TENSIONING	PT. ADHI KARYA	CINA-JABABEKA	2019

NO	PROJECT	TYPE OF WORK	CLIENT / MAIN CONTRACTOR	LOCATION	YEAR
659	JEMBATAN PURANA (CLAIM IDLE)	POST TENSIONING	PT. ADHIMIX PRECAST	PEMALANG, JATENG	2019
660	SIMPANG SUSUN SENTUL SELATAN	POST TENSIONING	PT. PP	SENTUL	2019
661	LRT PC STRAND RUAS CIKUNIR - BEKASI TIMUR	POST TENSIONING	PT. ADHI KARYA	BEKASI	2019
662	LRT PORTAL PH EXTENDED	POST TENSIONING	PT. ADHI KARYA	BEKASI	2019
663	TOL MANADO - BITUNG	POST TENSIONING	WASKITA BETON PRECAST	SULAWESI UTARA	2019
664	BORR	POST TENSIONING	PP URBAN	BOGOR, JABAR	2019-2020
665	INDONESIA NAVY CLUB	POST TENSIONING	YASA INDUSTRI NUSANTARA		2019
666	KLINIK NATASHA	POST TENSIONING	TEKNO ARTHA MANDIRI	MEDAN	2019
667	GIRI UNGGUL	POST TENSIONING	PT. WIJAYA KARYA		2019
668	THAMRIN NINE PHASE II	POST TENSIONING	PT. TOTAL BANGUN PERSADA		2019
669	UCC 3 PIECES FACTORY AND WAREHOUSE	POST TENSIONING	PT. JAYA OBAYASHI		2019
670	GEREJA HKBP DI SETIABUDI	POST TENSIONING	SINERGI GEMILANG ABADI, PT	JAKARTA	2019
671	PUSAT PEMBELAJARAN ARNZT - GEISE TAHAP II UNPAR	POST TENSIONING	PT. NUSA RAYA CIPTA	BANDUNG, JABAR	2019
672	RUMAH TINGGAL MEDITERANIA	POST TENSIONING	HERINDO ADIKARYA JAYA		2019
673	WISMA MATAHARI POWER	POST TENSIONING	MULTIKON		2019
674	POLLUX MEISTERSTADT BATAM	POST TENSIONING	PT. PP	BATAM	2019
675	UCC MOJOKERTO PHASE 2	POST TENSIONING	JAYA OBAYASHI	MOJOKERTO, JATIM	2019
676	SHOWROOM DI PONDOK GEDE	POST TENSIONING	ADIGRAHA AYODYA PERTIWI	JAKARTA	2019
677	IKEA-2 JAKARTA GARDEN CITY	POST TENSIONING	BAM DECORIENT	JAKARTA	2019
678	MEMORIAL HALL VIHARA PONTIANAK	POST TENSIONING	PANITIA PELAKSANA PEMBANGUNAN VIHARA	PONTIANAK	2019
679	BENTENG SURABAYA	POST TENSIONING	PT. BENTENG ANUGRAH SEJAHTERA	SURABAYA, JATIM	2019-2020
680	TOL TRANS SUMATERA (PALEMBANG)	POST TENSIONING	PT. HAKAASTON	PALEMBANG	2020
681	TOL TRANS SUMATERA (BENGKULU)	POST TENSIONING	PT. HAKAASTON	BENGKULU	2020
682	TOL SERPONG - BALARAJA SEKSI 1A	POST TENSIONING	PT. WIJAYA KARYA	TANGERANG	2020
683	APARTEMEN CASPIAN STRUKTUR	POST TENSIONING	PT. PP	SURABAYA	2020



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