



Tensioning Procedures – Armorwire Cable Barrier

General safety

- All required traffic safety precautions should be complied with. All workers should wear required safety clothing - high visibility vests, steel capped footwear, gloves, hard hats, safety glasses etc.
- Only authorised trained personnel should operate any machinery.
- Gloves should be worn at all times.

Before Tensioning

NOTE: DO NOT TENSION A BARRIER FOR AT LEAST 7 DAYS AFTER THE FOUNDATION PILES HAVE BEEN CAST.

Design, selection and placement of the Armorwire shall be in accordance with the local road authority guidelines and the details shown in the construction drawings. Installation shall be in accordance with the Armorwire Cable Barrier Installation & Product Manual.

Before installing an Armorwire cable barrier, ensure that all components required for the system are on site and have been identified. The Armorwire cable barrier is a highly engineered safety device made up of relatively small number of parts. Before starting installation ensure that one is familiar with the make up of the system. Refer to the 'Bill of Materials' and 'Parts Identification' sections in the Installation & Product Manual for more information.

Tensioning

It is important that when tensioning the **Armorwire** that the tension machine is set to make allowance for the air temperature at the time of installation. A tension machine is usually pre-set so advice should be sought on all installations from CSP Pacific.

Note: As with all cable barrier systems it is recommended that 2 weeks after the barrier is tensioned for the first time, it should be re-tensioned to remove 'construction creep'. It is also recommended that the tension on the cables is checked after impacts. A tension meter supplied by CSP Pacific can be used to check the tension after installation is complete.

Tension Table								
Temp °C (air)	0-3	4-9	10-14	15-20	21-26	26-32	33-37	38-43
Tension kN's	32	30.5	28.5	26.5	25	23.2	21.5	19.5



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Tension bays

For installations less than 300m long, 1 tension bay located near the middle of the **Armorwire** installation is sufficient. For installations greater than 300m, multiple tension bays will be required. The first tension bay is to be located 150m in from each terminal end and any other tension bays are at a maximum spacing of 350m from each other or as often as necessary to correctly tension the system. When positioning the strong back brackets, care must be taken to cut the cables mid-span between the posts so that they are offset to each other.

Note: Do not place two strong backs within 30m of each other when on the same cable.

Tools required

The tools required to install the **Armorwire** cable barrier are:

- Drilling or excavating machinery suitable for foundation design
- Concrete trowel or float, string line, measuring tape and marker pen
- Machinery capable of lifting the cable reel and a single axle spindle
- Cut off saw (generator)
- Tensioning Machine
- CSP Pacific Swaging Unit if Swage Fittings are to be used instead of Cable Grips

USE ONLY METRIC 24MM STAINLESS STEEL NUT SUPPLIED WHEN TENSIONING AND SWAGING

Pressure to Force Conversion Chart:

PSI	Kpa	KN	Wire Temp °C
1600	11032	18.8	38 – 43
1800	12411	21.2	33 – 37
2000	13790	23.6	26 – 32
2100	14480	24.8	21 – 26
2200	15169	26	15 – 20
2400	16548	28.4	10 – 14
2600	17927	30.8	4 – 9
2700	18616	32	0 – 3

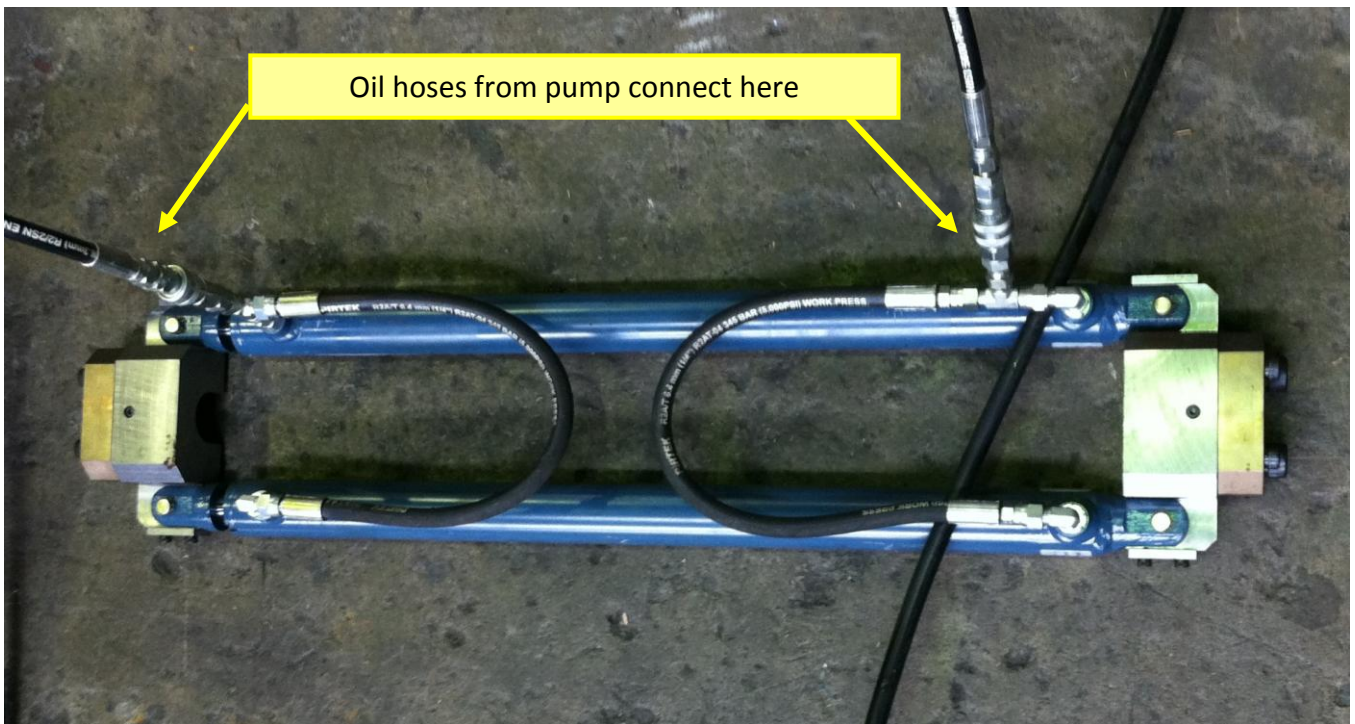
Tensioning Cables

Before commencing tensioning of the Armorwire ensure that the cables are anchored at each end of the run and pull out the slack progressively out of the cable. Refer to the Armorwire Cable Barrier Installation & Product Manual.

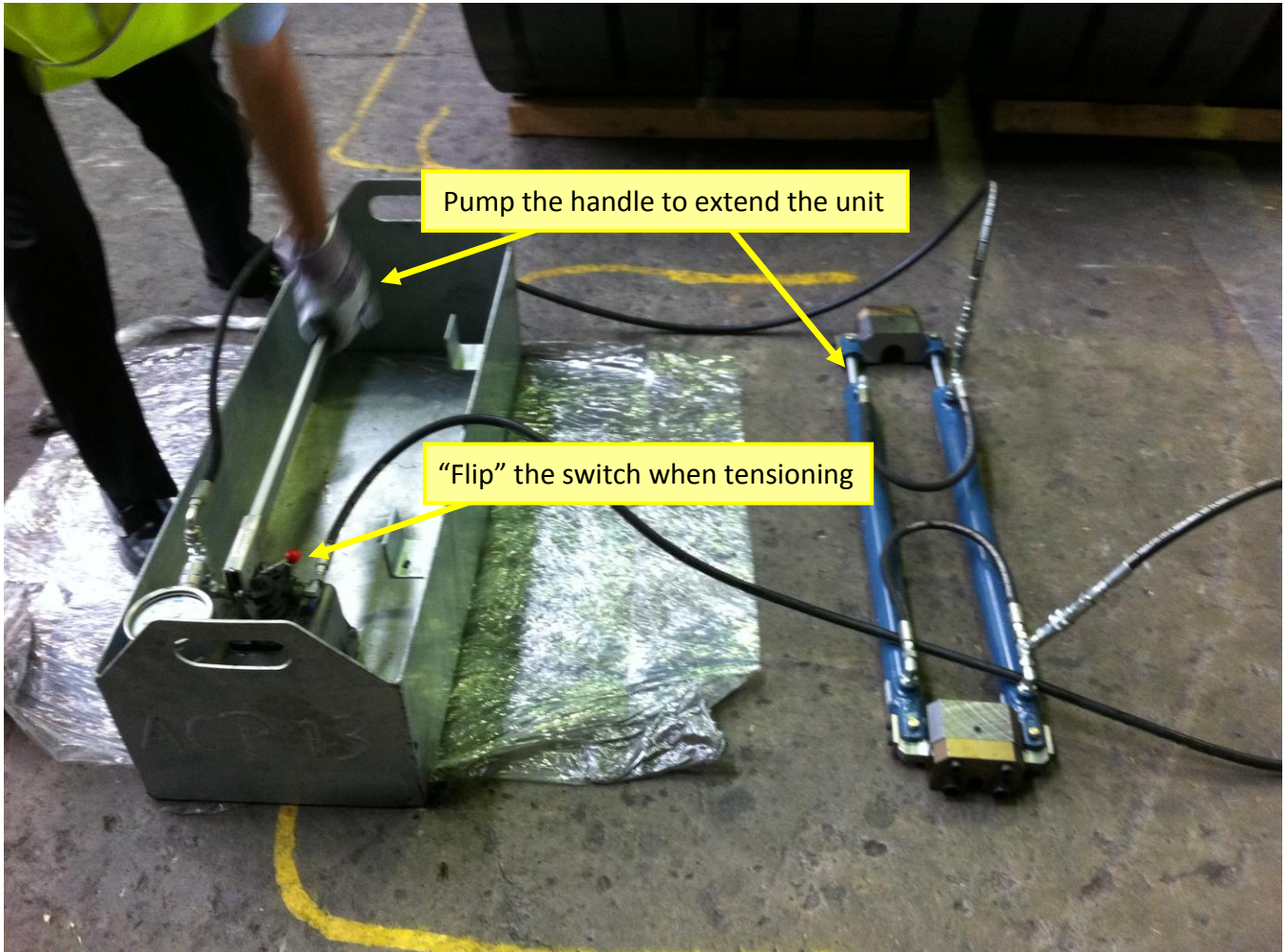
Operation of the Tensioning Machine Unit

Locate the tensioning unit within about 5 metres of the tension turnbuckle.

Attach the air hoses from the pump to the tensioning unit.



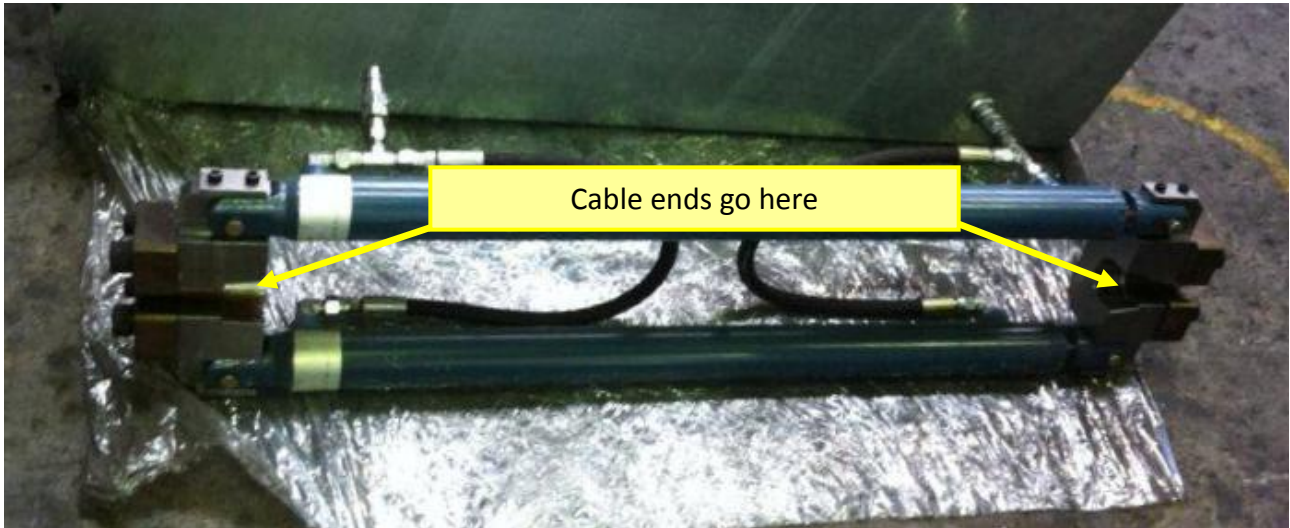
Pump the unit to the required extension.



Lay the tensioning unit alongside the cables, ensuring that the hoses are not pinched or kinked.

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Fit the tension unit over the 2 cable ends to be pulled together. The swaged ends should locate against the inside of the hardened pulling blocks, with the 2 cables leading through the “U” shaped slot in each block back to the cable anchor at each end of the run.0.



ENSURE ALL PERSONEL STAND WELL CLEAR OF THE CABLE WHEN UNDER TENSION, IN CASE AN END FITTING FAILS DURING THE TENSIONING OPERATION.

Switch the red lever near the pressure gauge to reverse the pump, then pump the handle to pull the 2 cable ends together, until the required pressure is reached on the pressure gauge and the turnbuckle body can be fitted.

