

## Prefabricated Cages

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SS ISO 14001:2004



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OHS-2003-0057  
OHSAS 18001:1999



Australian Certification  
Authority for  
Reinforcing Steel

# NatSteel Holdings –

partnering the construction industry for over 40 years



Bored pile cages are used for foundation works.

**NatSteel Holdings**, a wholly-owned subsidiary of **Tata Steel** — the world's top ten largest steel producer, has supported the construction industry in Singapore for over 40 years.

We are the only steel mill in Singapore. Our downstream boasts one of the largest single prefabrication operations in the world, with a capacity of 400,000 metric tonnes for cut-and-bend and precaging.

Our steel products are widely used in the construction of residential, institutional, industrial and commercial buildings, as well as infrastructural works.

The NatSteel Holdings Group employs over 3,500 employees across Singapore, Australia, China, Malaysia, Philippines, Thailand and Vietnam. We have an annual production capacity of more than 2 million tonnes of high quality steel products that cater to the construction industry.

Today, NatSteel Holdings is well-placed to tap into Tata Steel's extensive resources to further expand in the region and achieve our vision of becoming a world-class steel producer.

Prefabricated cages (precages) serve as reinforcements for columns, beams, walls, stiffeners, pile caps, diaphragm walls, retaining walls, and more.



**Advantages of using factory-assembled Prefabricated Reinforcement Steel Cages**

- Improves...
  - productivity
  - safety
  - cost management
  - site management and housekeeping
  - Building & Construction Authority's buildability score
- Reduces...
  - construction cycle time
  - material wastages
  - inventory holding cost
  - site congestion
  - on-site labour
- Weather independent
  - No interruption to construction schedule as production continues in-house

**Our Value-Add**

A dedicated team of technical specialists manage your needs on the onset, providing you support from the tendering stage right up to after-sales service. Technical scheduling, detailing and production planning, complemented with project coordination, ensure that your construction needs are met both timely and accurately.

**We provide...**

- Convenience and productivity as a one-stop centre for all your reinforcement needs
- Quality prefabricated cages for direct on-site installation which requires minimal site labour
- Excellent after-sales service to manage your project requirements

Prefabricated diaphragm wall cages



**Prefabricated column cages**  
 In most cases, vertical support of the main structure requires more time to construct. With our ready-to-install precast columns, your construction time can reduce significantly. The cage can be circular, square, rectangular or a combination of shapes, starting from column stump to end column, and with or without corbel.



Round column cage



Square column cage



Core cage



Prefabricated wall cages are used in load-bearing walls, while a combination of welded mesh and reinforcement bars are also used to form partition wall cages.

Diaphragm wall cage



On-site installation of a diaphragm wall cage



Prefabricated diaphragm wall cages of consistent quality and accuracy provide ease of installation and faster construction.



**Bored pile cages** are used in foundation and contiguous bored piles. The machine-welded bored pile cages ensure consistent quality. These cages can be delivered to the point of use as required and need minimum site labour for installation, thereby increasing construction speed and minimising site material inventory.

## Bored Pile Cages: Types and Configurations

Table 1: Standard bored pile cages (with single layer of straight bar)

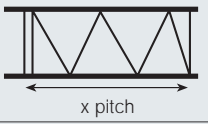
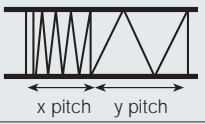
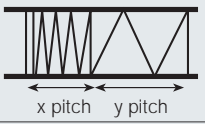
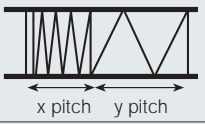
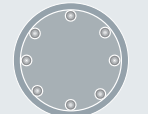
S/No	1	2	3	4
Cage / Pile	Single	Multiple	Single	Multiple
Spiral link size	T10 / T13	T10 / T13	T10 / T13	T10 / T13
Link loop	Single	Single	Single	Single
Link pitch	Single	Single	Multiple	Multiple
Longitudinal section				
Cross-section				

Table 2: Customised bored pile cages






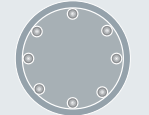
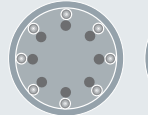

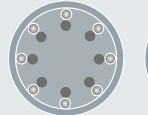

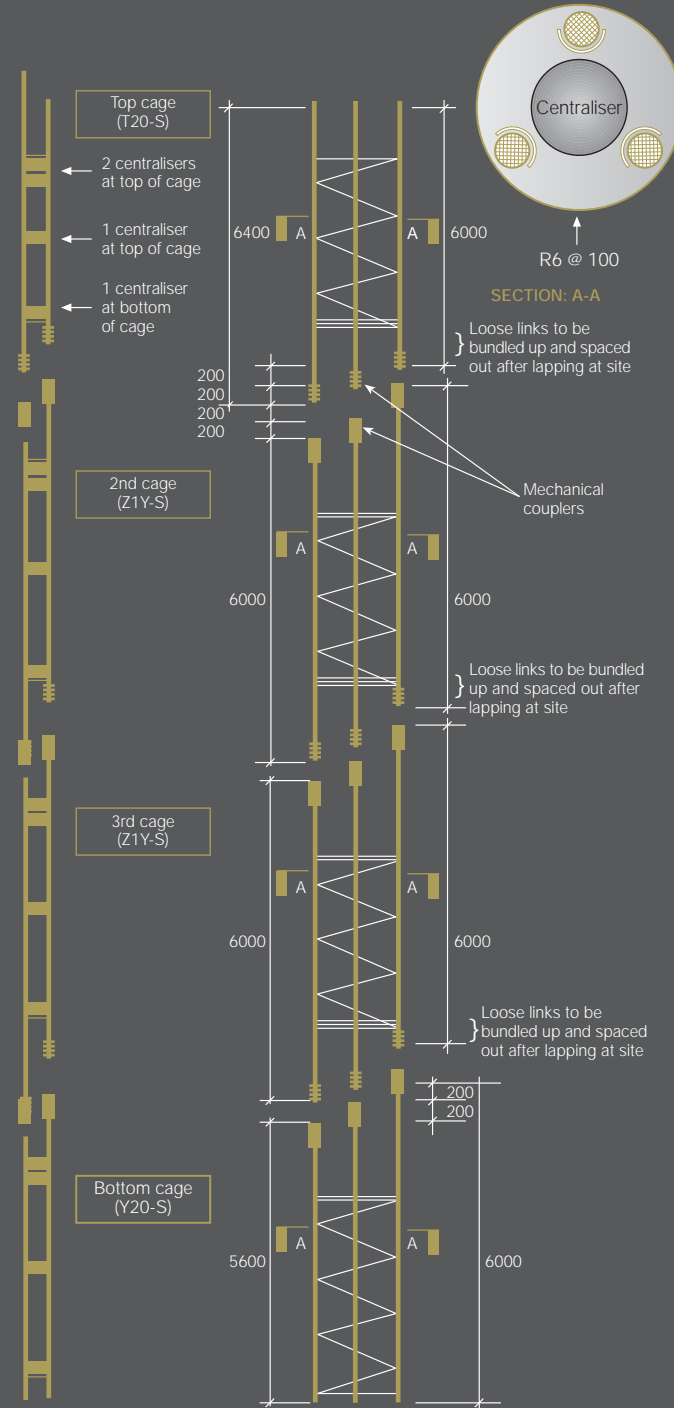
S/No	1	2	3	4	5
Cage / Pile	Multiple	Multiple	Multiple	Multiple	Multiple
Main bar type	Straight / Crank	Straight / Crank	Straight / Crank	Straight / Crank	Straight / Crank
Main bar / Bundle	Single	Single	Double	Double	Double
Spiral link size	T10 / T13 / T16	T10 / T13 / T16	T10 / T13 / T16	T10 / T13 / T16	T10 / T13 / T16
Link loop	Single	Multiple	Single	Single	Multiple
Link pitch	Single / Multiple	Multiple	Single	Multiple	Multiple
Longitudinal section					
Cross-section					

Fig.1: Micropile configuration for staggered lap - 3 bars



Note:  
The method of fabrication must be fixed, and all top cages must always start from the same point to avoid handed issue.

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