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CERTAIN HOLLOW STRUCTURAL SECTIONS EXPORTED FROM THE KINGDOM OF THAILAND

MODEL CONTROL CODES (MCCs)

Austube Mills Pty Ltd (Austube Mills) provides the following proposal for model control codes (**MCCs**) to be applied in the review of variable factors for the continuation inquiry relating to exports of Hollow Structural Sections (**HSS**) from the Kingdom of Thailand (**Thailand**) to ensure the appropriate comparison of domestically sold models to those models exported to Australia.

Austube Mills expects that the majority of goods exported to Australia will be manufactured to comply with AS/NZS 1163:2016 and/or AS 1074:1989.

AS/NZS 1163 is the Standard for the production and supply of cold-formed, electric resistance-welded, steel hollow sections used for structural purposes and AS 1074 is the Standard for steel tubes and tubulars for ordinary (or general non-structural) service.

Model Matching

Apart from matching physical characteristics such as shape, gauge (thickness) and surface finish of the exported and domestically sold HSS, the Standard and grade specifications to which they are made and sold are a key category for consideration when model matching Hollow Structural Sections and likely have the greatest influence on price comparability.

a) Standard and grade

Structural HSS sold on the domestic market in Thailand is likely to be sold to the comparable Thai Standard TIS 107-2533 (Hollow Structural Steel Sections), but may also be sold to Japanese Standards JIS G3444:2015 (Carbon Steel Tubes for General Structures) and JIS G3466:2015 (Carbon Steel Square and Rectangular Tubes for General Structures).¹ HSS may also be sold to ASTM A500, with the main market for this product being the United States.²

The comparable grades and standards are noted in the MCC table attached.

b) Minimum Yield Strength

The Australian Hollow Structural Sections Standard AS/NZS 1163 designates grades based on their minimal yield strength specification, ie. 250MPa, 350MPa and 450MPa.

The minimum yield strength of the steel, as certified to a particular Standard, is the point at which, when force is applied, the structural steel member will start to yield and undergo permanent plastic deformation. This is the key property used for structural steel design material selection.

¹ Conf Att 4, p.28.

² Conf Att 4, p.27

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Whilst the minimum tensile strength is also included in structural steel Standards as an indication of how far beyond the yield point the steel can be loaded before complete failure occurs – this is not the key property considered in material selection for structural steel design, i.e. steel is not selected to achieve a certain point of failure.

For consideration of minimum yield strength applicable to the grades of HSS produced by the exporters for domestic and export sale, Austube Mills urges the Commission to **request copies of the Standards to which the grades have been produced and that the minimum requirements contained in those Standards form the basis for model matching comparison**. It is expected that an exporter’s domestic sales invoices will specify the local or international Standard and grade the steel is certified (i.e. represented/warranted) to meet.

Mechanical property results obtained for a heat/batch of steel and recorded on a test certificate must necessarily exceed the minimum requirements for the Standard and grade to which the steel has been certified to be produced.

As such, batches of steel meeting a certain Standard grade’s requirements will necessarily have a distribution of results above the minimums specified. In some instances, these batch results indicated on the test certificates may exceed the minimum requirements for another (e.g. higher yield strength) grade but are not able to be used to justify a model match between these grades or “grade-up” the lower grade of steel.

A test certificate is only applicable to a given batch of steel and can only certify that the given batch meets the minimum requirements of the Standard and grade to which it has been produced. Customers looking to purchase HSS for a structural application will not base their design or selection of grades on available test certificate results but rather will purchase steel based on known properties defined by Standard grades.

c) Non-structural standard pipe

Non-structural pipe or commercial pipe is generally sold on the Thai domestic market to TIS 276-2532 or TIS 277-2532. Pipe sold to these Standards have no requirements for minimum yield strengths,³ and require proper adjustments for fair comparison.

Proposed Model Control Codes HSS

The attached table sets out the following proposed model control codes.

Reasoning for the Model Control Codes

1. **Shapes** – HSS of the same shapes need to be compared to each other due to observable pricing differences.
2. **Prime** – Only Prime HSS models should be compared; Non-Prime is not comparable.
3. **Standard/grade nominal minimum yield strength** - The exported goods are invariably qualified to a Standard (AS/NZS 1163 or AS 1074); the domestic sales Standards and Grades need to be compared to these Standards and grades. **Minimum yield strength is an essential feature for comparison** - Extracts of the

³ Public File Att 4.

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Australian Standards and comparable domestic Standards is at **Confidential Attachment 9**. Austube Mills considers the most comparable Standard grades for domestic sales in the exporters home markets are those having similar minimum yield strengths to those specified for the export Standards and grades, as noted in the MCC table.

4. **Surface finish or coating** – There are observable pricing and cost differences applicable depending on the surface finish or coating applied to the HSS.
5. **Gauge or thickness** – There are observable pricing differences dependant on the gauge of the HSS.
6. **End type** – The exported HSS products mainly have a plain end or may be threaded on one or both ends. There are observable price differences for end types other than plain. and.

The proposed criteria are based on observable price and cost differences. Austube Mills notes that the criteria for shape, Standards, finish or coating, gauge and end type are consistent with the criteria used in REV 445.

For and on behalf of Austube Mills

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Model Control Codes - Hollow Structural Sections (HSS)							
Item	Category	Sub category	Identifier	Sales data	Cost data	Key category	Notes
1	Shape (compare same shapes)	Circular Hollow Section (CHS)	1	Mandatory	Optional	Yes	Like shapes need to be compared to each other, there are observable price and cost differences.
		Rectangular Square Hollow Section (RHS SHS)	2				
		Other (oval, rail, silo)	3				
2	Prime	Prime	P	Mandatory	Optional	Yes	Prime products need to be compared to prime products. Non-prime products are typically downgrade, sold at a different price point and cannot be compared to Prime.
		Non-Prime	N				
3	Steel grades/ Standards nominal minimum yield strength	Minimum yield strength less than 300MPa. AS 1074 and AS/NZS 1163-250 Compare to TIS 107-2533 Grade HS41, JIS G3444 Grade STK400, JIS G3466 Grade STKR400, ASTM A500 Grade A and B	1	Mandatory	Mandatory	Yes	This category reports the steel grade of Hollow Structural Section (HSS). There are observable cost differences in the price of coil used to produce the different grade products. The steel grade determines the guaranteed or typical mechanical properties of the product. The Australian Standard AS/NZS 1163 range of steel grades are noted in bold with the equivalent Thai/Japanese/USA standards noted alongside. The 250 / 350 / 450 type grades are 'Structural' steel grades, with the numerical values designating their minimum Yield Strength.
		Minimum yield strength 300MPa to 380 MPa. AS/NZS 1163-350 Compare to TIS 107-2533 Grade HS51, JIS G3444 Grade STK490, JIS G3466 Grade STKR490, ASTM A500 Grade C	2				
		Minimum yield strength greater than 380MPa. AS/NZS 1163-450	3				
		No nominal minimum yield strength specified TIS 276 or TIS 277	4				
4	Finish or Coating	Other	1	Mandatory	Mandatory	Yes	Reports the surface finish of the HSS. "Other" includes No Oil or Paint (NOPC), oiled, lacquered and any other non-paint or non-galvanised finish.
		Painted	2				
		Galvanised	3				
5	Gauge, thickness	<= 2mm: less than or equal to 2mm thickness	1	Mandatory	Optional	Yes	There are observable price differences depending on the gauge or thickness of the HSS.
		> 2mm to <= 5mm: greater than 2mm to 5mm thickness	2				
		> 5mm: greater than 5mm thickness	3				
6	End type	Plain	1	Mandatory	Optional	Yes	Different end types have observable differences in price points.
		Threaded one end or both ends	2	Mandatory	Optional	Yes	
		Other eg. swaged, shouldered, coupled	3	Mandatory	Optional	Yes	