



3.6 Welding

To find the welding energy input and the preheat temperature required for use with a particular welding process on a particular piece of XLERPLATE® steel of known thickness, the steps given below should be followed:

Step 1 - From Table 1 find the 'Group Number' for the XLERPLATE® steel grade. For joints containing different steels use the higher Group Number.

Step 2 - Using Figure 1 (page 56) calculate the 'Combined Thickness' of the joint.

Step 3 - From Figure 1 (page 56) find the closest curve to the intersection of Combined Thickness and Group Number. This curve designates the 'Joint Weldability Index Letter'.

Step 4 - From Figure 2 (page 57) and using the curve bearing the same Joint Weldability Index Letter found from Step 3, read off the preheat temperature for the welding energy input or vice versa.

XLERPLATE® STEEL GRADES AND GROUP NUMBERS

Qualifying notes

- 0 - Any electrode type or welding process is satisfactory.
- H/O - Hydrogen controlled electrodes, or semi-automatic, or automatic processes are recommended, but rutile or other electrodes may be used.
- H - Hydrogen controlled electrodes, or semi-automatic, or automatic processes are essential for good welding.
- SC - Slow cooling from welding or preheat temperature is recommended.
- SR - Post-weld heat treatment (stress relief) is suggested for high quality work, particularly where severe service conditions apply to the component.

Note: Good joint fit-up under moderate levels of restraint are assumed and additional preheat beyond that recommended will be required where fit-up is poor or where high levels of restraint are likely to be encountered.



TABLE 1: XLERPLATE® STEEL WELDABILITY GUIDE

Grade designation	Group numbers	Qualifying notes
XLERPLATE® steel Structural Grades – AS/NZS 3678		
250, 250L15	4	0
300, 300L15	4	0
350, 350L15	5	H/O
400, 400L15	5	H/O
450	5	H/O
WR350 (AUS TEN)	5	H/O
XLERPLATE® steel Analysis Grades – AS/NZS 3678		
A1006	1	0
K1042	8	H, SC, SR
XLERPLATE® steel Boiler and Pressure Vessel Grades		
AS 1548-PT430	4	0
AS 1548-PT460	4	0
AS 1548-PT490	5	H/O
XLERPLATE LITE™ steel		
HA1	1	0
HA1006	1	0
HA1010	1	0
HA200	1	0
HA250	3	0
HA300, HA300/1	3	0
HA350	4	0
HW350	5	H/O
HXK15B28	8	H, SC, SR



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FIGURE 1

Method of establishing Joint Weldability Index (A to L) from Grade Group Number and Joint Combined Thickness.

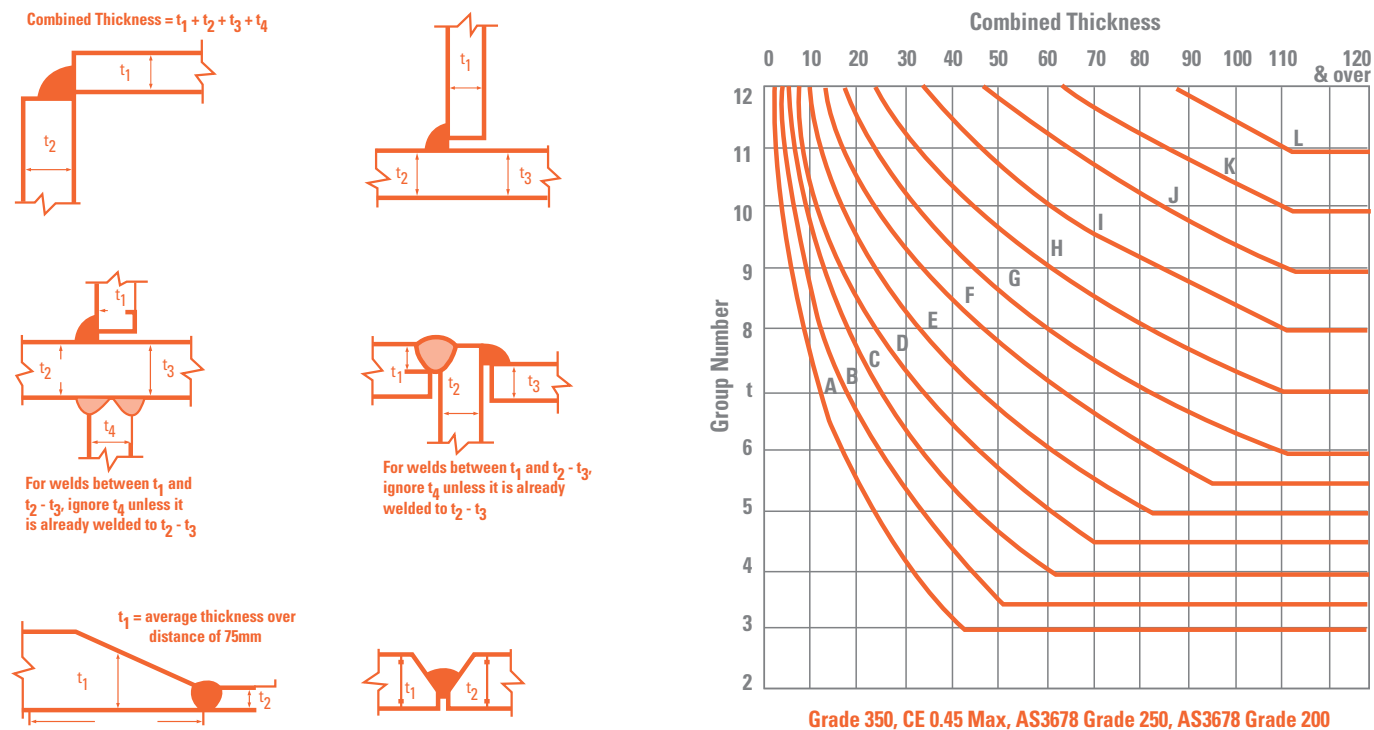
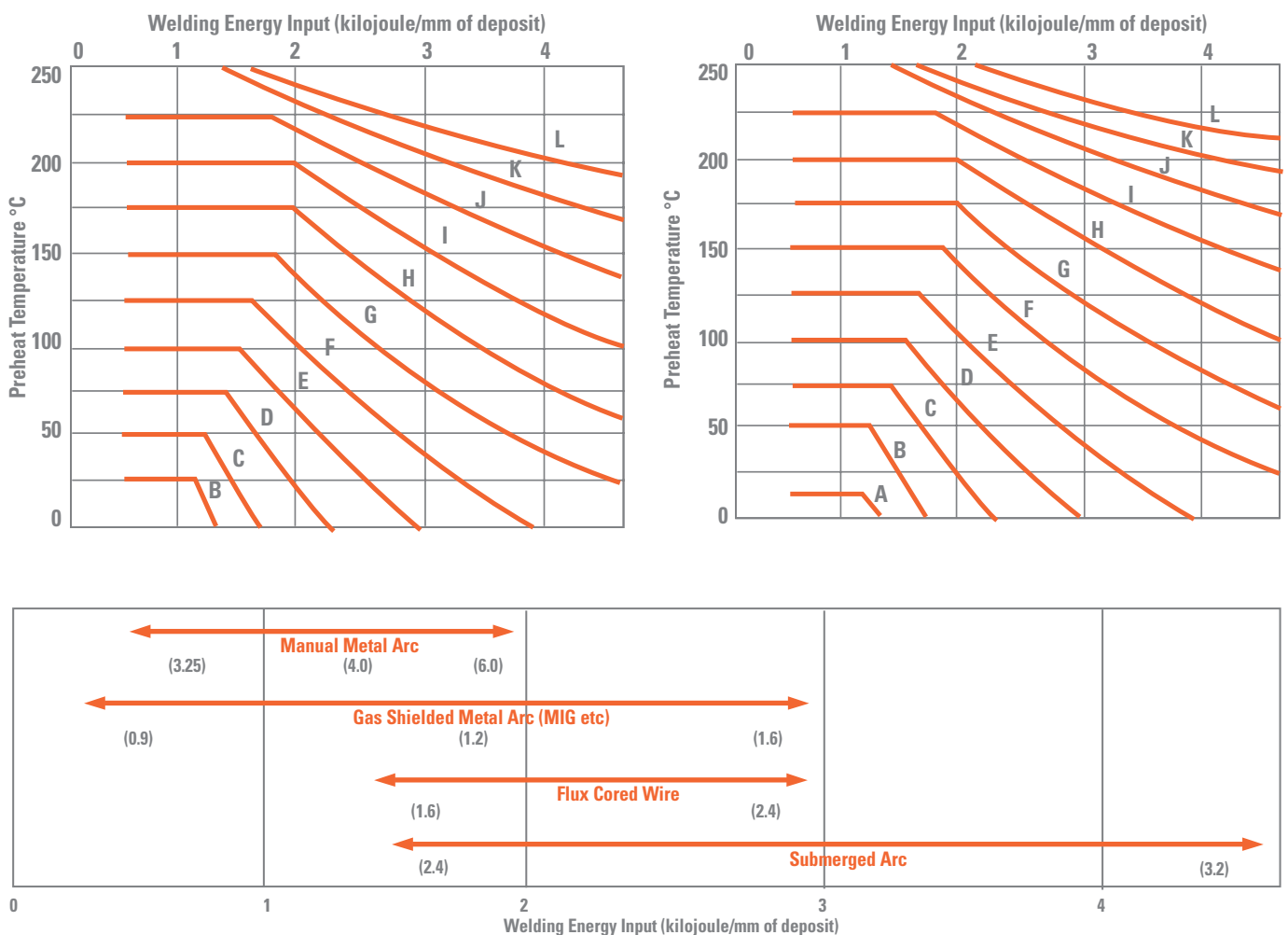




FIGURE 2

Method of establishing Preheat Temperature using Joint Weldability Index Letter and Welding Energy Input.





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