

で さ 610 MPa す SPV490

Ultra Heavy Gauge SPV490 Steel Plate with Tensile Strength over 610 MPa at Intermediate and Moderate Temperatures for Boiler Pressure Vessels

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:  
 として で PWHT にも さ (TS) 610 MPa  
 す SPV490 150 mm した。 の  
 (vE) は PWHT のいず においても (vE 2 30 C ^ 47 J) す  
 とともに 240 C で 100 J と かった。また y の  
 は 75 C と であった。 MAG および の の は  
 PWHT のいず においても で TS ^ 610 MPa であ とともに vE も  
 に した (vE 2 30 C ^ 47 J) の した。

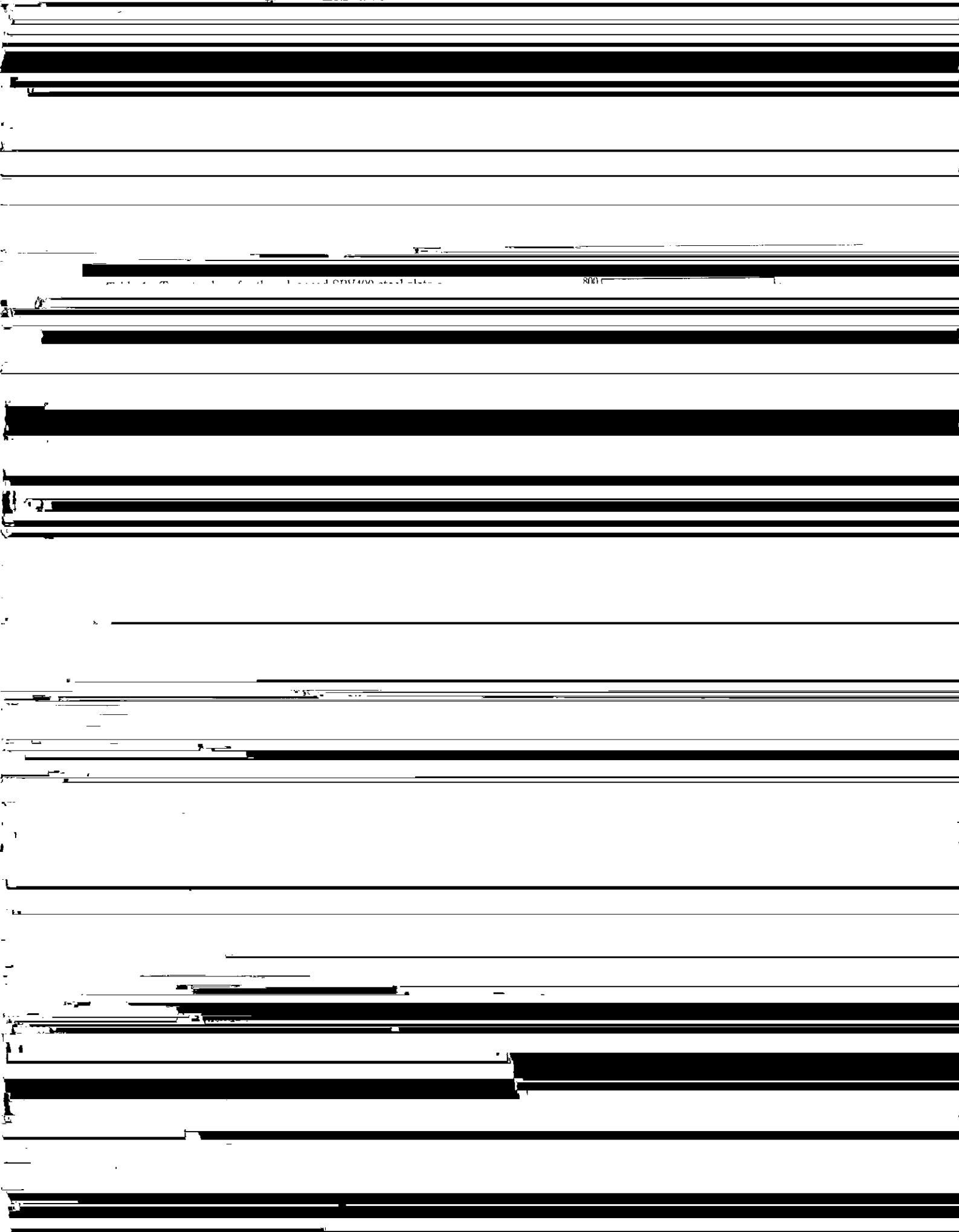
Synopsis :

An advanced type of SPV490 steel plate up to 150 mm in thickness has been developed for boiler pressure vessels. This advanced steel exhibits a tensile strength (TS) greater than 610 MPa after post weld heat treatment (PWHT) at intermediate and moderate temperatures. The Charpy absorbed energy (vE) of base metal was more than 100 J even at 240 C which substantially exceeded the target value (vE 2 30 C ^ 47 J). The preheating at 75 C prevented cold cracking in a y-slit test. The TS of the welded joints made by MAG welding and SAW were also over 610 MPa before and after PWHT at intermediate and moderate temperatures. The vE of those welded joints were greater than the value aimed for base metal (vE 2 30 C ^ 47 J) even after PWHT.

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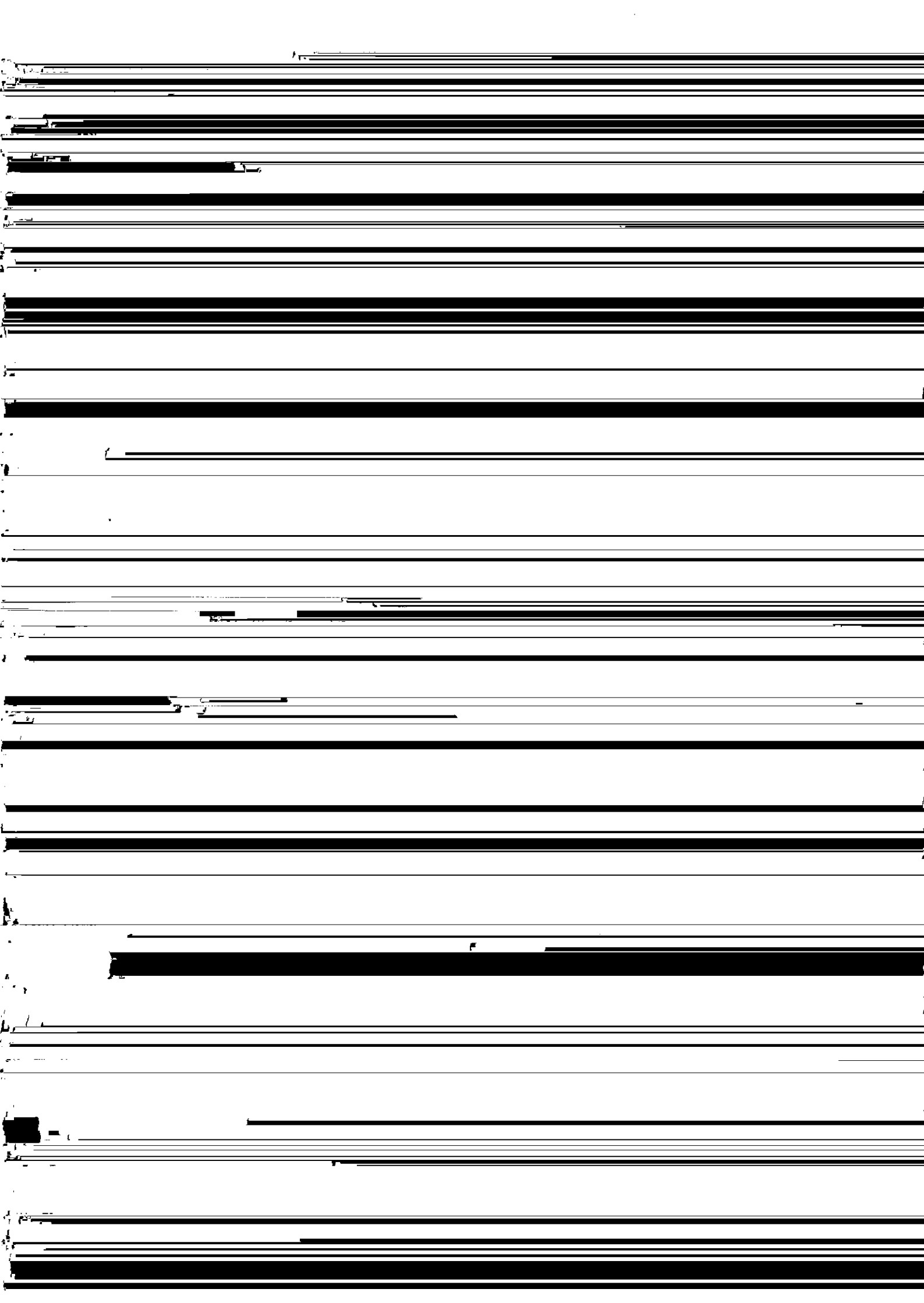


Table 3 Mechanical properties of the advanced SPV490 steel plate and the conventiona

SBV2 steel plate

Steel	Thickness (mm)	PWHT 580°C × 27 h	Position	Tensile properties				Charpy impact properties			Preheat temp. without cracking*1 (°C)
				RT		350°C		vE0°C	vE - 30°C	vTrs	
				YS (MPa)	TS (MPa)	YS (MPa)	TS (MPa)	(J)	(J)	(°C)	
JIS G 3115 SPV490	≤ 75		1/4 t	≥ 490	610-740	—	—	vE - 10°C ≥ 47J	—	—	

Table 4 Welding conditions

項目	条件
溶接方法	SAW
電極	ER70S-G
電流	250 A
電圧	28 V
速度	1.5 mm/min
保護ガス	Ar
预热温度	100℃
後热温度	200℃
後热時間	2h
冷却速度	10℃/min
検査方法	RT, UT, PWHT