

Introducing the ABREX™ Series

The ABREX* Series features 4 standard options of abrasion resistant steel plate in addition to 3 extra tough options – a product range capable of meeting a variety of needs. All of our products are maintained at very low impurity levels, making them well suited to welding and formability.

Specifications by Type and Designation

Type	Designation	Plate Thickness t (mm)	Brinell Hardness (HBW)*1		Charpy Impact Test (L Direction)*2	
			Aiming	Range	Test Temperature (°C)	Absorbed Energy (J)
Standard Type	ABREX 400	6(4.0) ~ 100	400	360 ~ 440	-	-
	ABREX 450	6(4.5) ~ 50	450	410 ~ 490	-	-
	ABREX 500	6(4.5) ~ 50	500	450 ~ 550	-	-
	ABREX 600	6 ~ 25	600	550 ~ 650	-	-
Extra Tough Type	ABREX 400LT	6 ~ 60	400	360 ~ 440	-40	27
	ABREX 450LT	6 ~ 25	450	410 ~ 490	-40	27
	ABREX 500LT	6 ~ 25	500	450 ~ 550	-40	21

Please consult with us with regard to the figures in parenthesis above.

*1: The Brinell Hardness value is an average of measurements taken from three points on the steel plate surface. A section of the surface from which the decarburized layer is ground off by about 0.7mm should be used as the specimen surface. Prior consultation is recommended in the case of using thicknesses surpassing those listed above.

*2: The Charpy Impact Test shall be applied to steel plates thicker than 12mm.

Type	Designation	Chemical Composition (%) *1										PCM (t: thickness)*2	
		C	Si	Mn	P	S	Ni	Cr	Mo	B	PCM		
											t 25	t > 25	
Standard Type	ABREX 400	0.21	0.70	2.00	0.025	0.010	1.00	1.20	0.60	0.005	0.30	0.35	
	ABREX 450	0.23	0.70	2.00	0.025	0.010	1.00	1.20	0.60	0.005	0.36	0.36	
	ABREX 500	0.35	0.70	2.00	0.015	0.010	1.00	1.20	0.60	0.005	0.42	0.42	
	ABREX 600	0.45	0.70	2.00	0.015	0.010	1.00	1.20	0.60	0.005	0.54	-	
Extra Tough Type	ABREX 400LT	0.21	1.20	2.00	0.020	0.010	1.00	1.20	0.60	0.005	0.30	0.35	
	ABREX 450LT	0.28	1.20	2.00	0.020	0.010	1.00	1.20	0.60	0.005	0.36	-	
	ABREX 500LT	0.35	1.20	2.00	0.015	0.010	1.00	1.20	0.60	0.005	0.42	-	

*1: Elements other than those listed in the table can be added as necessary.

*2: $PCM = C + \frac{Si}{30} + \frac{Mn}{20} + \frac{Cu}{20} + \frac{Ni}{60} + \frac{Cr}{20} + \frac{Mo}{15} + \frac{V}{10} + 5B(\%)$

Typical Properties and Characteristics

Type	Designation	Thick-ness (mm)	Brinell Hardness (HBW)	Mechanical Properties (Reference Values)						
				Tensile Tests		Bending Tests			Charpy Impact Test	
				Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Bend radius (t:thickness)	Angle	Result	Temperature (°C)	Absorbed Energy (J)
Standard Type	ABREX 400	25	414, 417, 416	1075	1322	3t	180 °	No cracking	0	73
	ABREX 450	25	458, 453, 459	1192	1469	3t	180 °	No cracking	0	57
	ABREX 500	25	513, 509, 520	1373	1552	3t	180 °	No cracking	0	43
	ABREX 600	25	611, 606, 601	1568	2058	-	-	-	0	13
Extra Tough Type	ABREX 400LT	60	390, 393, 393	1162	1207	3t	180 °	No cracking	-40	63
	ABREX 450LT	25	464, 464, 467	1237	1560	3t	180 °	No cracking	-40	38
	ABREX 500LT	25	495, 492, 495	1198	1680	3t	180 °	No cracking	-40	38
Test Condition			JIS Z2243 Surface	JIS No.5 T Direction		JIS No. 1 T Direction			2mmV Notch L Direction	

Precautions for Use

Increasing the thickness of the steel plate will lead to a slight decrease in the hardness of the central portion of the plate. In the event that these steel plates need to perform at high temperatures, please consult with us prior to placing your order. In the event that these steel plates need to perform at low temperatures, please select the Extra Tough steel plate options.