

# Selection table for repair welding of dissimilar base materials

for covered electrodes (simplified model)

Base material		SMAW electrode	Remarks
Unalloyed structural steel	C-eq < 0,40	Supra, Pantafix	Preheating Root runs with lower preheating temperature
High strength struc. steel	ReL < 450 N/mm <sup>2</sup>	Baso G, Conarc 49C	
Low alloyed / high strength	ReL < 600 N/mm <sup>2</sup>	Conarc 70G	
Low alloyed / high strength	restraint structures	Root run: 1 strength grade lower than BM Severe restraint: Kardo	
High carbon steel	0,2 < C < 0,4%	RepTec 29 RepTec 126	Preheating to reduce hardness in the HAZ 200-300°C
Stainless steel	AISI 304(L), 316(L) as well as Ti or Nb (Cb) stabilised	RepTec 210	Ti < 150°C
Heat resistant CrNi-steel	Si < 1,5%, Al and Ti < 0,2%	RepTec 46	Ti < 100°C
Stainless steel to un- or low alloyed steel		RepTec 126 RepTec 29	Ti < 150°C
14% Mn wear resistant steel		RepTec 126	Cold weldable
Armour steel		RepTec 126	Preheating
NiCr-alloys as well as 3,5 - 5 - 9% Ni-steel		RepTec 7	Ti < 100°C
NiCu-alloys		RepTec 5	Ti < 100°C
Grey cast iron and Nodular cast iron		RepTec Cast 1 RepTec Cast 31	Low heat input + peening
Aluminium bronze		RepTec Cu 8	
Aluminium plates and profiles		RepTec AlSi 5	
Aluminium cast alloys		RepTec AlSi 12	

Ti = interpass temperature

$$C\text{-equivalent} = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$