I.A.Barnes & Co Ltd
Unit 21, Gunnels Wood Park
Gunnels Wood Road
Stevenage, Hertfordshire
SG1 2BH, UK
Tel: +44 (0)1438 354972
Fax: +44 (0)1438 741530
www.iabco.co.uk

FV520

Wire for precipitation hardening stainless steel

Product name	IABCO FV520
Classification	There are no relevant national standards.
Applications	IABCO FV520 is used for welding martensitic precipitation, or age, hardening stainless steels. These steels have high strength and some of the grades exhibit corrosion resistance comparable to 304 austenitic stainless steel. The IABCO FV520 would only be used for applications that can be subsequently heat treated, if it is not possible to carry out a PWHT then an alternative wire should be considered (eg. IABCO ER2209 or ER2594). Typical applications include pumps, impellers and hydraulic equipment in the oil & gas, petrochemical and marine industries.
Base materials	Matching precipitation hardening stainless steels such as FV520: ASTM: A564/A693/A705 grade XM-25. BS (S series aerospace specifications): 2S.143, 3S.144, 3S.145. UNS: S45000. EN: 1.4594 (X5CrNiMoCuNb14-5). Can als obe used for similar precipitation hardening stainless steels such as 630 / 17-4PH: ASTM: A564/A693/A705 grade 630. UNS: S17400. EN: 1.4542 (X5CrNiCuNb16-4).
Typical analysis of wire, weight %	C: 0.04 Si: 0.4 Mn: 0.8 Cr: 13.5 Ni: 5.5 Mo: 1.4 Cu: 1.6 Nb: 0.3
Typical heat treatment (1)	Preheat: For material above ~15mm 100°C can be beneficial. Interpass temperature: 200°C maximum. PWHT: Different PWHT can be applied to obtain a range of properties; the most common is over-ageing which consists of 750°C/2 hrs followed by 550°C/2 hours with an intermediate air cool to room temperature.
Typical properties of weld deposit (2)	Over-aged 750°C + 550°C / 550°C Single cycle 0.2% proof stress, Rp0.2%: 1050MPa / 1000MPa Tensile strength, Rm: 1100MPa / 1200MPa Elongation, 4d/5d: 19/16% / 19/16% Impact ISO-V, +20°C: 60J / 125J -20°C: 20J / 75J

Notes (1) Application codes and project specifications should always be referred to for specific requirements.

(2) Actual mechanical properties will be dependent on specific welding procedure (including shielding gas, flux, PWHT etc) and should always be confirmed by approval of an appropriate welding procedure.