Technical Report

DW Stainless Series

The Traditional and Advanced Flux-Cored Wires, " DW Stainless Series ", for Various Types of Stainless Steel

" DW Stainless Series " are the various types of flux-cored wires for welding various types of stainless steel used in elevated, cryogenic and room temperatures

Kobe Steel developed and launched a DW stainless flux-cored wire about 20 years ago. Since then, Kobe Steel has researched, developed, and launched new brands of DW stainless wires in order to cope with the great demand in the chemical, oil, food processing, electrical power, rolling stock and auto industries. This research anddevelopment built up a series of DW stainless wires. **Table-1** shows the major brands of the DW stainless series for each application.

Table-1 A Series of DW Stainless Flux-Cored Wires for Various Applications

Welding position	Steel type		Key note in application	Shield gas	DW stainless wire	AWS classification
	ASTM	JIS				
Flat and H-Fil.	304	304	General	CO_2	DW-308	E308T0-1,-4
	304L	304L	Low carbon : 0.04%max.	or	DW-308L	E308LT0-1,-4
	304L	304L	Extra-low carbon : 0.03%max	Ar^+	DW-308EL	E308LT0-1,-4
	304L	304L	High-temp. PWHT	20%CO_2	DW-308LH	E308LT0-1,-4
	304H	—	High temperatures		DW-308H	E308HT0-1,-4
	304	304	Cryogenic temperatures		DW-308LT	E308LT0-1,-4
	304N2	304N2	General		DW-308N2	—
	—	—	Dissimila metal		DW-309	E309T0-1,-4
	—	—	Dissimila metal		DW-309L	E309LT0-1,-4
	—	—	Dissimila metal		DW-309MoL	E309LMoT0-1,-4
	316	316	General		DW-316	E316T0-1,-4
	316L	316L	Low carbon : 0.04%max.		DW-316L	E316LT0-1,-4
	316L	316L	Extra-low carbon : 0.03%max		DW-316EL	E316LT0-1,-4
	316LN	316LN	Low carbon : 0.04%max.		DW-317L	E317LT0-1,-4
	317L	317L	Low carbon : 0.04%max.		DW-317L	E317LT0-1,-4
	347	347	General		DW-347	E347T0-1,-4
	321	321	General		DW-347	E347T0-1,-4
	310S	310S	General		DW-310	—
	—	329J3L	Duplex stainless		DW-329A	E2209T0-1,-4
	405	405	Overlaying in cladding		DW-410Cb	—
	405	405	Underlaying in cladding		DW-430CbS	—
	—	—	13%Cr-Ni base stainless	Ar^+	MXA-135N	—
	—	—	13%Cr-Ni base stainless	10～	MXA-410NM	—
	430	430	Car exhaust system	20%CO_2	MXA-430M	—
	409	409	Car exhaust system		MXA-430M	—
	410L	410L	Car exhaust system		MXA-430M	—
All position	304	304	General	CO_2	DW-308LP	E308LT1-1,-4
	304L	304L	Low carbon : 0.04%max.	or	DW-308LP	E308LT1-1,-4
	—	—	Dissimilar metal	Ar^+	DW-309LP	E309LT1-1,-4
	316	316	General	20%CO_2	DW-316LP	E316LT1-1,-4
	316L	316L	Low carbon : 0.04%max.		DW-316LP	E316LT1-1,-4
	—	—	Dissimilar metal		DW-309MoLP	E309LMoT1-1,-4
	316LN	316LN	Low carbon : 0.04%max.		DW-317LP	E317LT1-1,-4
	—	329J3L	Duplex stainless		DW-329AP	E2209T0-1,-4

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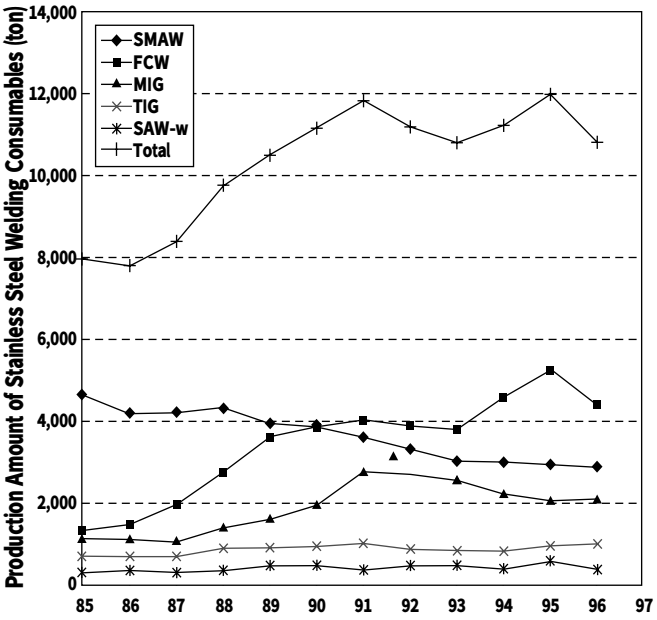


Fig.1

As shown in **Figure-1**, the production of stainless flux-cored wires in Japan has increased, replacing covered electrodes. Because of better usability and higher efficiency, flux-cored wires have succeeded, despite their comparatively higher unit prices over covered electrodes. The decrease in production of flux-cored wires in 1996 as shown in **Figure-1**, is thought to be due to the shift in production from Kobe Steel, Japan to KOBELCO Welding of Europe B. V.

If you have had a chance to use a DW stainless flux-cored wire, no words may need to explain the following outstanding features :

(1) Smoother arc in a wide range of welding currents and voltages
(2) Less spatters, eliminating postweld chipping and gringing work
(3) Self-peeling, hence easier slag removal
(4) Smoother bead surfaces with a fine ripple.

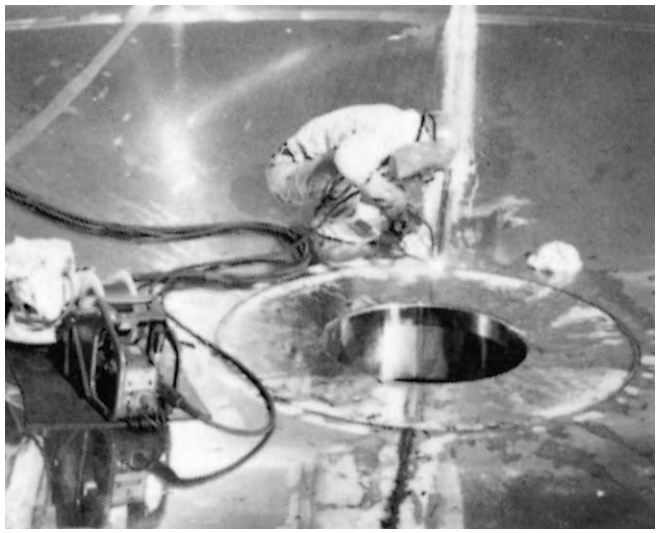
If you are wondering about the economic merits of DW stainless flux-core wires, you may notice that

(1) The deposition rate can be, at least, three times that of covered electrodes, which means you can weld three times faster
(2) The deposition rate can be approximately 1. 2 times that of a solid wire, and money can be saved for expensive argon gas for arc shielding
(3) The deposition efficiency can be approximately 1. 6 times that of covered electrodes, which means you can consume approximately 60% less welding consumables for a certain length of welding line.

If you have examined the technical merits of DW stainless wires, you may know that

(1) DW stainless wires can cover almost all the varieties of your applications, including various types of steel and welding positions
(2) DW stainless wires persistently provide you with excellent usability and well controlled chemical and mechanical properties lot by lot.

Kobe Steel has established a production and sales base in Europe in order to assure better delivery and technical services, matching its increasing worldwide demand for DW stainless series. From the beginning, Kobe Steel has refined the outstanding features of the DW stainless wires so as to fulfill customer's requirements for various applications. Kobe Steel is sure DW stainless series will lead to better productivity in your welding workshops.



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