



**WILLIAMS METALS
AND WELDING ALLOYS INC.**

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Stainless Filler Metals

Filler Metal Selection Charts These recommendations are general and are useful only as a guide to the proper selection of filler metal. Care should always be taken to meet the engineered requirements of the fabricated item when choosing the filler metal and welding process.

Austenitic Filler Metals The Austenitic group contains chromium and nickel as the primary alloying elements and are the most widely used. They can be hardened by cold working but not by heat treatment. All are essentially non-magnetic. The most common types of Austenitic stainless are the UNS S20000 and S30000 alloys. They are generally considered the most weldable of the stainless steels.

AISI Steel	Recommended Filler Metal	Alternate Filler Metal	AISI Steel	Recommended Filler Metal	Alternate Filler Metal
201, 202, 205	240	308, 347, 309	316H	316H	309MO, 317
301, 302, 302B	308	347, 309	317	317	317L, 309MO, 318
304, 304L	308L	347, 309	321	347	309CB, 310CB, 321
304H	308H	347, 309	347, 348, 347H	347	309CB, 310CB
303, 303SE	312	309MO	320	320LR	320
316, 309S	309	309CB, 310	330	330	-
310, 310S, 314	310	310CB, 310MO	904L	385	-
316, 316L	316, 316L	309MO, 317			

Martensitic Filler Metals The Martensitic group is also classified under the 400 series. The principal alloying element is chrome, with carbon added to produce high levels of strength and hardness after heat treatment. Both Martensitic and Ferritic types are magnetic. Similar precaution, including preheat is necessary in the welding process.

AISI Steel	Recommended Filler Metal	Alternate Filler Metal
403	410	308, 347, 309
410, 410S	410	308, 347, 309
414	410	410NM, 309

Ferretic Filler Metals The Ferritic group is straight grade chrome grades and come under the type 400 series. They cannot be hardened by heat treating and only moderately by cold working. Precautions are required in the welding process to minimize embrittlement and cracking.

AISI Steel	Recommended Filler Metal	Alternate Filler Metal
405	410	308L, 309, 410NM
409	409CB	430, 309LSi
430	430	308L, 309L
442	308L	309L
446	308L	309L



We proudly carry the following brands:

ESAB, Kiewit, National Standard, Select-Arc, Techalloy (Lincoln) and our own private label.

- Birmingham, AL
- Concord, NC
- Garrettsville, OH
- Mansfield, OH
- Pittsburgh, PA
- St. Louis, MO
- Wayne, PA Corporate





Stainless Filler Metals

Precipitation Hardening and Duplex These unique grades were designed for specific applications. Care should be exercised in the welding process to select the proper filler metal and welding procedures.

Precipitation Hardened Filler Metals

AISI Steel	Recommended Filler Metal	Alternate Filler Metal
17-4 PH	630	308, 309
15-5 PH	630	-
13-8 MO	13-8 MO	-
17-7 P	17-7 PH	-

Duplex Filler Metals

AISI Steel	Recommended Filler Metal	Alternate Filler Metal
2205	2209	-
225	2553	-
CD-4MCU	2553	-

Other Welding Filler Metals

Stainless Steel Solid, Metal Cored Wires/Electrodes AWS A5.4, A5.9	Copper & Copper Alloy Wire/Electrodes AWS A5.6, A5.7, A5.27
Stainless Steel Flux Cored Wires AWS A5.22	Titanium & Titanium Alloy Filler Metals AWS A5.16
Aluminum Wires/Electrodes AWS A5.3, A5.10	Nickel Alloy Wires/Electrodes AWS A5.11, A5.14, A5.15
Mild & Low Alloy Steel Flux Cored Wires AWS A5.13	Silver Brazing Filler Metals AWS A5.8
Carbon, Mild & Low Alloy Steel Solid, Metal Cored Wires/Electrodes AWS A5.17, A5.18, A5.23, A5.1, A5.5	Cobalt Alloys AWS A5.13

The Williams Advantage Includes:

- Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) forms are available upon request.
- We offer tech support for applications regarding joint design and repairs, as well.
- Williams Metals & Welding Alloys proudly carries a full range of Stainless welding products.
- Most stainless alloys are available for immediate shipment.
- Materials are available in spooled wire, flux cored, metal cored, and straight lengths.
- Non-Ferrous Metals & Associated Filler Metals Also Available.

Metals quotes call 877-499-1544

Welding/Filler Metal quotes call 877-435-6543

Copper	C101, C102, C103, C107, C110, C116, C122, C145, C147, C172, C17510, C18150, C182, C706, C715 Rod * Bar * Plate * Strip * Sheet * Pipe * Coil * Extruded Shapes * <i>Machined to Print Services Available</i>
Brass	C210, C220, C230, C260, C272, C353, C360, C385, C464, C485 Coil * Rod * Bar * Plate * Pipe * Sheet
Bronze	C314, C510, C544, C630, C655, C673, C954, C959, C863, C89835, C932 (SAE 660), C936 (Modified SAE 64), SAE 841, SAE 863 Rod * Bar * Plate * Continuous Cast Tube * Centrifugal Cast Tube * Sand Casting
Aluminum	6061, 6063, 6101 Pipe * Angles * UABC * Bar * Rod