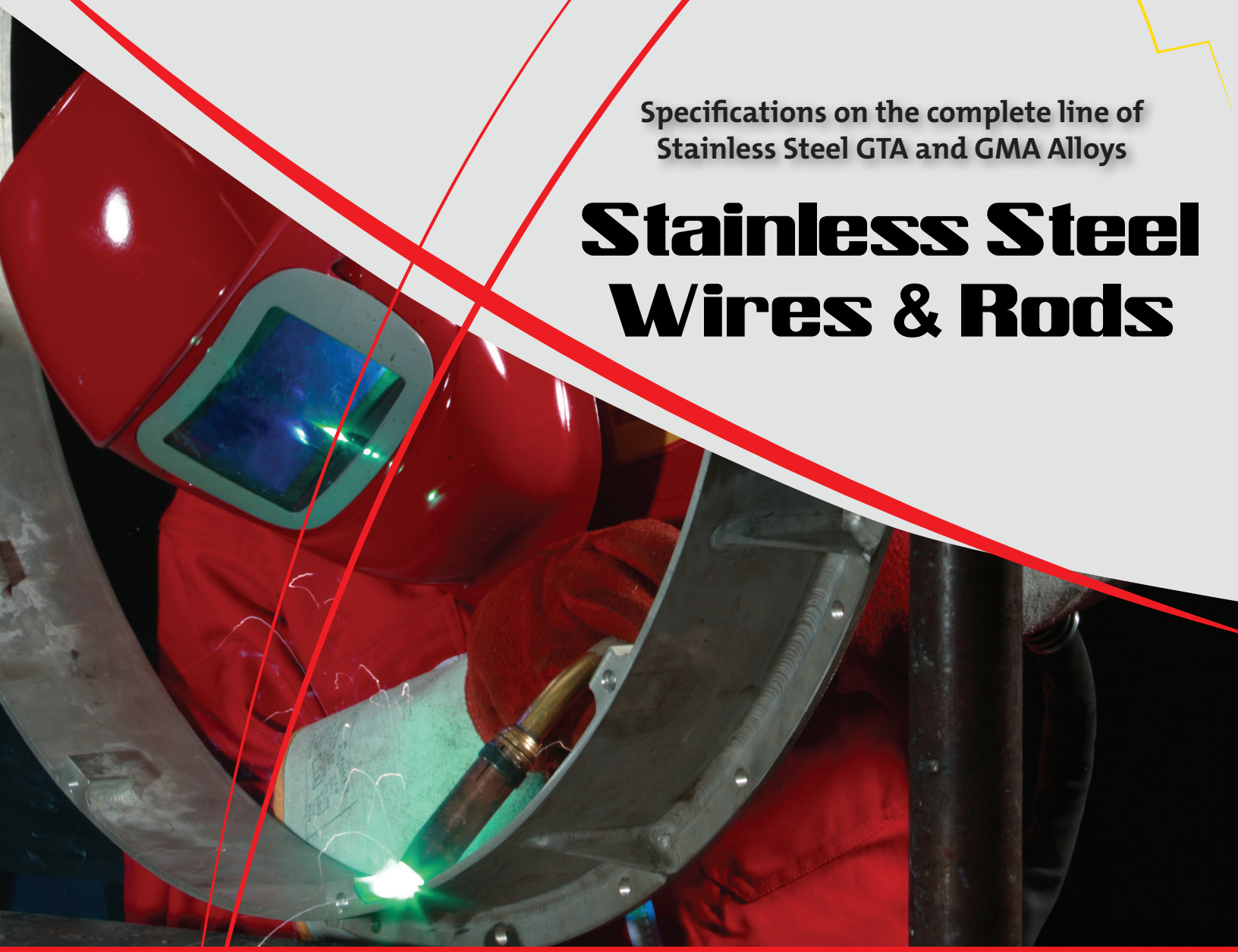
Castolin Eutectic®
Eutectic Castolin



Specifications on the complete line of
Stainless Steel GTA and GMA Alloys

Stainless Steel Wires & Rods

- Industrial stainless steel products in solid wires and rods
- Premium selection for all 300 series stainless steel applications
- Protection, repair and joining alloys from the experts in maintenance and repair

MigTectic® and TigTectic® The Best in Stainless Steel

A wide variety of wires and rods are available for metal and tungsten arc fabrication and maintenance of type 300 stainless steels. In general, straight chrome stainless steels offer resistance against mild corrosion and chrome-nickel alloys offer protection from more severe corrosives. Application considerations are very important when choosing a product, contact Castolin Eutectic Technical Services for recommendations.

MigTectic® and TigTectic® 308L

The rod and wire forms of this alloy offer exceptional corrosion resistance due to the low carbon content. They are brightly finished for ease of handling and feedability. Used to weld type 304L and stainless grades 301, 302, 304 and 305, which are typically found in food, beverage, dairy and distillery industries. Deposits have an austenitic matrix containing a measured ferrite content of 9FN - Schaeffer-DeLong Diagram 8.5FN - Standardized Magne Gauge Method.

Tensile Strength: 87,000 psi (600 N/mm²)
Yield Strength (0.2% offset): 57,000 psi (395 N/mm²)
Elongation(1=5d): 34%
Reduction in Area: 56%
Hardness: 85 HRB
Hardness (Brinell): 160

AWS: A5.9 Class. ER308 | ASME: SFA5.9 Class. ER308 | MIL-E: 19333 Class. MIL - 308

MigTectic® and TigTectic® 308LSi

These products are rod and wire forms of the same ER308LSi chemistry. The addition of silicon improves the weld puddle wetting action, resulting in a smoother deposit with an excellent joint face transition. Used to weld AISI grades such as 304 and 304L. Also suitable for transition welds when used with clad steels. Deposits have an austenitic matrix containing a measured ferrite content of 12FN - Schaeffer-DeLong Diagram 11.5FN - Standardized Magne Gauge Method.

Tensile Strength: 87,000 psi (600 N/mm²)
Yield Strength (0.2% offset): 57,000 psi (395 N/mm²)
Elongation(1=5d): 42%
Reduction in Area: 60%
Hardness: 85 HRB
Hardness (Brinell): 160

AWS: A5.9 Class. ER308LSi | ASME: SFA5.9 Class. ER308LSi | MIL-E: 19333 Class. MIL - 308LSi

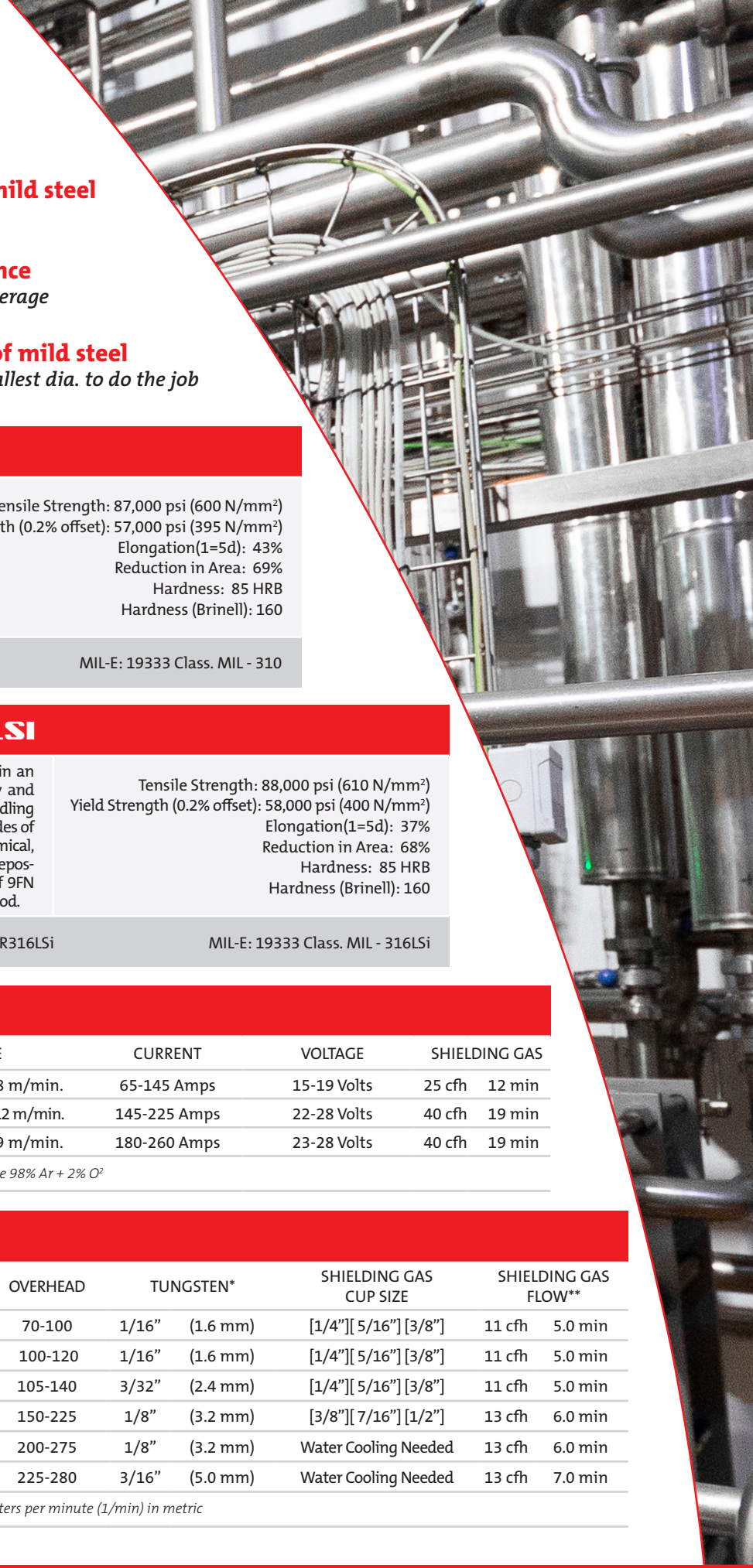
MigTectic® and TigTectic® 309L

These are rod and wire forms of the same chemistry. The low carbon content and high alloy content enables these alloys to be used for joining stainless steels to non-alloy and low alloy steels. Weld deposit temperatures are tolerant up to 600º F (315º C). Recommended for weld overlays and for dissimilar metal joining carbon-manganese steels such as AISI stainless steel grades 302, 304, 309 and 309L. Deposits have an austenitic matrix containing a measured ferrite content of 11FN - Schaeffer-DeLong Diagram 10.5FN - Standardized Magne Gauge Method.

Tensile Strength: 87,000 psi (600 N/mm²)
Yield Strength (0.2% offset): 58,000 psi (400 N/mm²)
Elongation(1=5d): 40%
Reduction in Area: 60%
Hardness: 85 HRB
Hardness (Brinell): 160

AWS: A5.9 Class. ER309L | ASME: SFA5.9 Class. ER309L | MIL-E: 19333 Class. MIL - 309L

Welding 300 Grade Stainless Steels



Coefficients of expansion are 50% > than mild steel

- Increase joint spacing to reduce warping

300 stainless have higher electrical resistance

- Reduce overheating by not exceeding the max amperage

300 stainless thermal conductivity is half of mild steel

- Prevent excess heat and distortion by using the smallest dia. to do the job

TigTectic® 310

This rod is are bright finished for ease of handling and feedability. Scaling resistance in air up to 2000º F (1095º C) and in reducing atmospheres up to 1200º F (650º C) are typical in-service temperature limits. Suitable for joining the heat resistant austenitic steel grade AISI 310 and for joining and surfacing low alloyed steels. Undiluted weld deposits are fully austenitic.

Tensile Strength: 87,000 psi (600 N/mm²)
Yield Strength (0.2% offset): 57,000 psi (395 N/mm²)
Elongation(1=5d): 43%
Reduction in Area: 69%
Hardness: 85 HRB
Hardness (Brinell): 160

AWS: A5.9 Class. ER310 | ASME: SFA5.9 Class. ER310 | MIL-E: 19333 Class. MIL - 310

MigTectic® and TigTectic® 316LSI

These are rod and wire forms of the same chemistry. Alloys contain an increased amount of silicon which improves weld puddle fluidity and welding characteristics. Both are brightly finished for ease of handling and feedability. Suitable for joining AISI 304, 304L, 316 and 316L grades of stainless steel. Grades of steel which are widely used by the Petrochemical, Pharmaceutical, Pulp & Paper and Transportation industries. Weld deposits have an austenitic matrix containing a measured ferrite content of 9FN - Schaeffer-DeLong Diagram 8FN - Standardized Magne Gauge Method.

Tensile Strength: 88,000 psi (610 N/mm²)
Yield Strength (0.2% offset): 58,000 psi (400 N/mm²)
Elongation(1=5d): 37%
Reduction in Area: 68%
Hardness: 85 HRB
Hardness (Brinell): 160

AWS: A5.9 Class. ER316LSi | ASME: SFA5.9 Class. ER316LSi | MIL-E: 19333 Class. MIL - 316LSi

MIG / MAG Welding

	DIAMETER	WIRE FEED RATE		CURRENT	VOLTAGE	SHIELDING GAS	
Short-Arc	.035" (0.9 mm)	13-26 ft/min.	4-8 m/min.	65-145 Amps	15-19 Volts	25 cfh	12 min
Spray-Arc	.035" (0.9 mm)	20-40 ft/min.	6-12 m/min.	145-225 Amps	22-28 Volts	40 cfh	19 min
Spray-Arc	.045" (1.2 mm)	16-30 ft/min.	5-9 m/min.	180-260 Amps	23-28 Volts	40 cfh	19 min

Short-Arc welding use 90% Ar + 7.5% He + 2.5% CO^2 | Spray-Arc welding use 98% Ar + 2% O^2

TIG Welding

WIRE THICKNESS		FILLER ROD	FLAT	VERTICAL	OVERHEAD	TUNGSTEN*		SHIELDING GAS CUP SIZE	SHIELDING GAS FLOW**	
1/16"	(1.6 mm)	1/16"	80-110	70-90	70-100	1/16"	(1.6 mm)	[1/4"][5/16"] [3/8"]	11 cfh	5.0 min
3/32"	(2.4 mm)	3/32"	100-130	90-120	100-120	1/16"	(1.6 mm)	[1/4"][5/16"] [3/8"]	11 cfh	5.0 min
1/8"	(3.2 mm)	3/32"	120-150	110-135	105-140	3/32"	(2.4 mm)	[1/4"][5/16"] [3/8"]	11 cfh	5.0 min
3/16"	(5.0 mm)	1/8"	200-275	150-225	150-225	1/8"	(3.2 mm)	[3/8"][7/16"] [1/2"]	13 cfh	6.0 min
1/4"	(6.3 mm)	3/16"	275-375	210-275	200-275	1/8"	(3.2 mm)	Water Cooling Needed	13 cfh	6.0 min
1/2"	(12.7 mm)	1/4"	350-450	225-280	225-280	3/16"	(5.0 mm)	Water Cooling Needed	13 cfh	7.0 min

** Thoriated tungsten electrodes are recommended. ** Gas flow is given in liters per minute (1/min) in metric*

Pioneering Industrial Sustainability

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