Welding & Cutting Catalogue

Automotive, commercial vehicles and construction machinery

2nd edition/11 2012

ESAB®

Understanding the **challenges**

ESAB is a world leader in welding & cutting solutions for the transportation fabrication industry with a broad, worldwide customer base in automotive, commercial vehicles and construction machinery.

ESAB is an ideal partner for one-stop-shopping, supplying a full range of consumables, equipment and automation for all standard arc welding processes, solutions for manual and automated cutting, as well as personal protection equipment for welder safety.

Quality, the environment and safety are three key areas of focus. ESAB is the single welding company to have achieved ISO 14001 and OHSAS 18001 standards in Environmental, Health & Safety Management Systems across all our global manufacturing facilities.

With ESAB, you are assured of a partner who understands the challenges of the transportation fabrication industry and responds with innovative welding and cutting technology.

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DISCLAIMER

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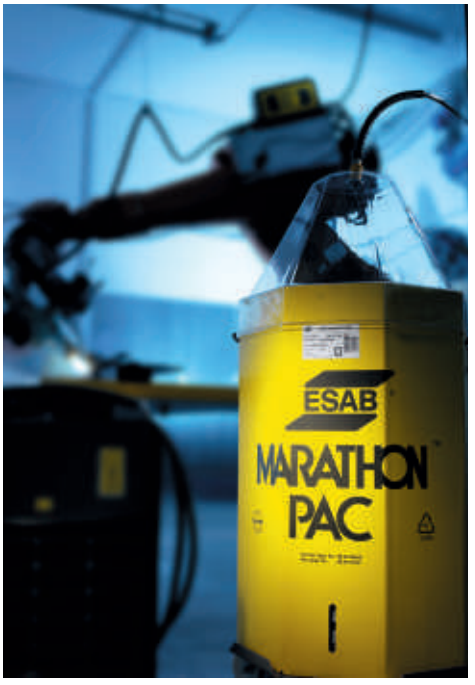
World leader in welding and cutting technology systems

ESAB operates at the forefront of welding and cutting technology. Over one hundred years of continuous improvement in products and processes enables us to meet the challenges of technological advances in every sector in which ESAB operates.

Quality and environment standards
Quality, the environment and safety are three key areas of focus. ESAB is one of few international companies to have achieved the ISO 14001 and OHSAS 18001 standards in Environmental, Health & Safety Management Systems across all our global manufacturing facilities.

At ESAB, quality is an ongoing process that is at the heart of all our production processes and facilities worldwide.

Multinational manufacturing, local representation and an international network of independent distributors brings the benefits of ESAB quality and unrivalled expertise in materials and processes within reach of all our customers, wherever they are located.



Welding consumables

- Globally available, vast range of high productivity welding consumables covering all applications.
- Consistent high quality.
- Productive, environmentally-friendly packaging solutions.
- Consumables innovations such as AristoRod™ with Advanced Surface Characteristics.
- Most of the range produced in house: own development, metallurgy skills, QA.
- Production standards rigorously proved and tested to meet customer requirements.
- Full range of accessories to connect consumables to machines.
- Approved by major approval societies.

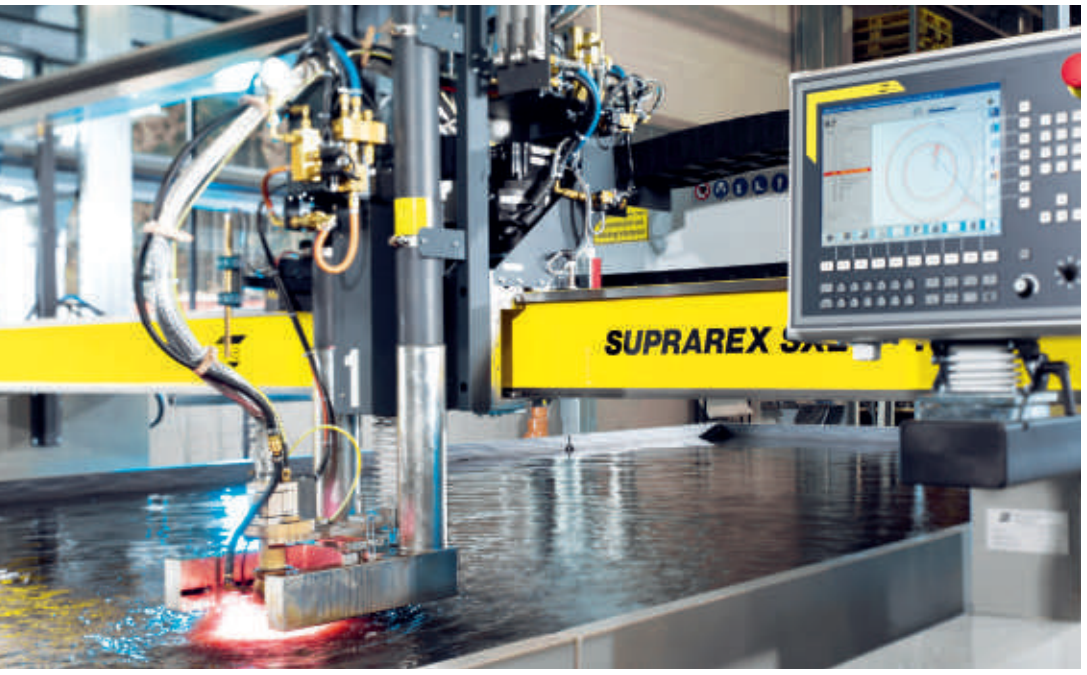
Equipment

- Large variety of equipment designed for anything from mass production to repair and maintenance.
- All arc welding processes relevant to the segment.
- Designed for semi-automation and automation. High and low end mechanised semi-automation.
- Integration into robotic environment.
- Various degrees of freedom to adjust optimum process.
- User friendly controls.
- Reduced energy consumption.
- Smart welding processes such as SuperPulse™, SAT™ and QSet™.
- Smart technology for consistent quality, long product life (durability).

Automation & robotics integration

- Complete welding solutions for different customer needs.
- Full range of processes from MIG/MAG to SAW.
- Easy to integrate field bus interfaces.
- Reduced downtime in production due to smart designs.
- Packaging solutions for continuous, high duty cycle welding.

World leader in welding and cutting technology systems



Cutting

- Cutting machines from 2 to 36m machine width.
- Filter systems.
- Cutting tables.
- Plasma system solutions from 1 to 120mm cutting thickness.
- Specialised cutting software and easy to operate CNC controls.
- High duty oxyfuel cutting equipment.
- Tools for automated weld-edge preparation.

Personal protection equipment

- Full range of personal protection equipment.
- Complying to and exceeding the relevant standards.
- Specifications of welding glasses fullfil advanced optical requirements.
- UV and IR filtering.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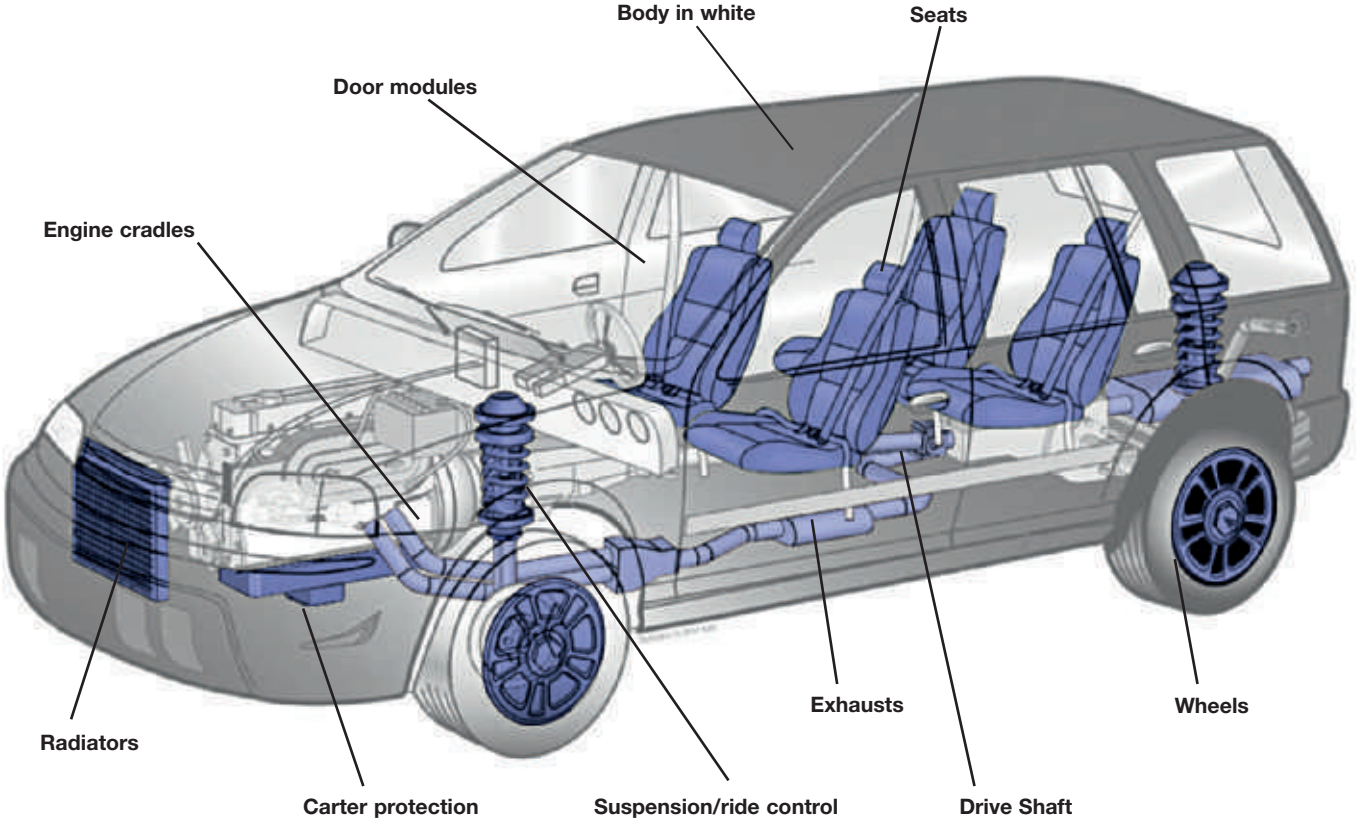
Consumables selector for light vehicles

Cars • vans • light trucks

Solid wires mild steel	AWS A5.18	EN ISO 14341	Mat. nr	Body in white	Door modules	Engine cradles	Exhausts	Radiators	Suspension	Wheels	Axles/ drive shaft	Carter protection	Seats	Towbars/ bullbars/ carriers	Colision repair	Page
OK AristoRod 12.50	ER70S-6	G3Si1	1.5125	x	x	x	x		x	x	x	x	x	x	x	18
OK Autrod 12.51	ER70S-6	G3Si1	1.5125	x	x	x	x		x	x	x	x	x	x	x	18
OK AristoRod 12.63	ER70S-6	G4Si1	1.5130	x	x	x	x		x	x	x	x	x	x	x	18
OK Autrod 12.64	ER70S-6	G4Si1	1.5130	x	x	x	x		x	x	x	x	x	x	x	18
		EN ISO 636-A														
OK Tigrod 12.60	ER70S-3	W2Si		x	x	x	x		x	x	x	x	x	x	x	19
OK Tigrod 12.64	ER70S-6	W4Si-1	1.5130	x	x	x	x		x	x	x	x	x	x	x	19
Cored wires mild steel	AWS A5.18	EN ISO 17632-A	Mat. nr													
OK Tubrod 14.11	E70C-6M H4	T 42 4 M M 3 H5		x	x	x	x		x	x	x	x		x		20
OK Tubrod 14.13	E70C-6M	T 42 2 M M 2 H5				x					x	x				20
Coreweld 46LS	E70C-6M H4	T 46 4 M M 2 H5		x	x	x	x		x	x	x	x		x		20
Solid wires low alloyed	AWS A5.28	EN ISO 16834-A	Mat. nr													
OK AristoRod 13.12	ER80S-G	GCrMo1Si (EN ISO 21952-A)	1.7339						x							21
OK AristoRod 55	ER100S-G	G Mn3NiCrMo	1B13	x	x	x			x	x	x		x	x	x	21
OK AristoRod 69	ER110S-G	G Mn3Ni1CrMo	1B29	x	x	x			x	x	x		x	x	x	21
OK AristoRod 79	ER120S-G	G Mn4Ni2CrMo	1B31	x	x	x			x	x	x		x	x	x	22
OK AristoRod 89	ER120S-G	G Mn4Ni2CrMo	1B96	x	x	x			x		x		x	x	x	22
OK Tigrod 13.16	ER80S-B2			x	x	x			x		x		x	x		22
Cored wires ferritic	AWS A5.9		Mat. nr													
Arcaloy MC409Ti	EC409						x									23
Arcaloy MC409Nb	EC409Nb						x									23
Arcaloy MC439Ti	EC439						x									23
Arcaloy MC18CrCb							x									23
Solid wires ferritic	AWS A5.9	EN ISO 14343-A	Mat.nr													
OK Autrod 430LNbTi		G Z 18 LNbTi					x									24
OK Autrod 430LNb		G Z 17 LNb	1.4511				x									24
OK Autrod 430Ti		G Z 17 Ti	1.4502				x									24
OK Tigrod 430Ti		W Z 17 Ti	1.4502				x									24
OK Autrod 409Nb	ER409Nb						x									24
Solid wires austenitic	AWS A5.9	EN 14343-A	Mat. nr													
OK Autrod 16.95		G 18 8 Mn	1.4370				x							x		25
OK Autrod 308LSi	ER308LSi	G 19 9 LSi	1.4316				X							x		25
OK Autrod 309LSi	ER309LSi	G 23 12 LSi	1.4332	x	x		X				x			x	x	25
OK Autrod 316LSi	ER316LSi	G 19 12 3 LSi	1.4430				X									25
OK Tigrod 308LSi	ER308LSi	W 19 9 LSi	1.4316				X							x		26
OK Tigrod 316LSi	ER316LSi	W 19 12 3 LSi	1.4430				X									26
Cored wires austenitic		EN ISO 17633-A	Mat.nr													
OK Tubrod 15.30		T 19 9 L M M 2					x							x		27
OK Tubrod 15.31		T 19 12 3 L M M 2					X									27
OK Tubrod 15.34		T 18 8 Mn M 2					X						x			27

Solid wires nickel based	AWS 5.14	EN ISO 18274	Mat. nr	Body in white	Door modules	Engine cradles	Exhausts	Radiators	Suspension	Wheels	Axles/ drive shaft	Carter protection	Seats	Towbars/ bullbars/ carriers	Colision repair	Page
OK Autrod 19.82	ERNiCrMo-3	NiCr22Mo9Nb	2.4831				x									28
OK Autrod 19.85	ERNiCr-3	NiCr20Mn3Nb	2.4806				X									28
OK Tigrod 19.82	ERNiCrMo-3	NiCr22Mo9Nb	2.4831				x									28
OK Tigrod 19.85	ERNiCr-3	NiCr20Mn3Nb	2.4806				x									28
Solid wires aluminium	**AWS A5.10**	**EN ISO 18273**	**Mat. nr**													
OK Autrod 5183 (OK Tigrod 5183)	ER5183	S Al 5183 (AlMg4.5Mn0.7(A))	3.3548	x	x							x		x		29
OK Autrod 5356 (OK Tigrod 5356)	ER5356	S Al 5356 (AlMg5Cr(A))	3.3556	x		x			x			x	x	x		29
OK Autrod 5554 (OK Tigrod 5554)	ER5554	AlMg3Mn(A)	3.3537	x		x				x				x		30
OK Autrod 4043 (OK Tigrod 4043)	ER4043	S Al 4043A (AlSi5(A))	3.2245	x		x		x	x		x	x	x		x	29
OK Autrod 4047 (OK Tigrod 4047)	ER4047	S Al 4047A (AlSi12(A))	3.2581	x	x			x	x			x			x	29
Solid wires copper based	**AWS A5.7**	**EN ISO 24373**	**Mat. nr**													
OK Autrod 19.30 (OK Tigrod 19.30)	ERCuSi-A	S Cu 6560(CuSi3Mn1)		x	x								x		x	31
OK Autrod 19.40 (OK Tigrod 19.40)	ERCuAl-A1	S Cu 6100 (CuAl8)		x	x		x						x		x	31
OK Autrod 19.41 (OK Tigrod 19.41)		S Cu 6327 (CuAl8Ni2)		x	x		x									31
OK Autrod CuSi laser	ERCuSi-A	S Cu 6560 (CuSi3Mn1)		x												31

(OK Tigrod XXXX): equivalent Tigrod available.



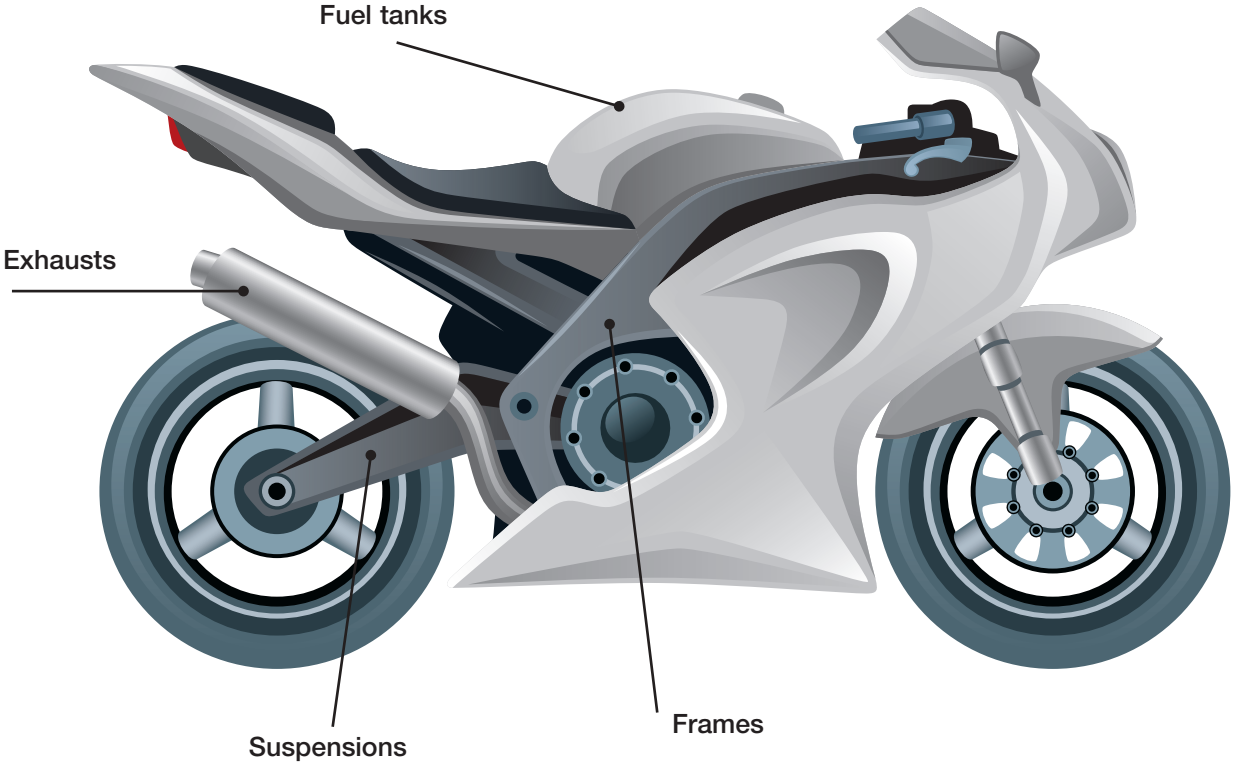
Consumables selector for two wheelers

Motorcycles • quads • snowmobiles • scooters • mopeds

				Frame construction	Exhausts	Fuel tanks	Suspension	
Solid wires mild steel	AWS A5.18	EN ISO 14341	Mat. nr					Page
OK AristoRod 12.50	ER70S-6	G3Si1	1.5125	x	x	x	x	18
OK Autrod 12.51	ER70S-6	G3Si1	1.5125	x	x	x	x	18
OK AristoRod 12.63	ER70S-6	G4Si1	1.5130	x	x	x	x	18
OK Autrod 12.64	ER70S-6	G4Si1	1.5130	x	x	x	x	
		EN ISO 636-A						
OK Tigrod 12.60	ER70S-3	W2Si		x	x	x	x	19
OK Tigrod 12.64	ER70S-6	W4Si-1	1.5130	x	x	x	x	19
Cored wires mild steel	AWS A5.18	EN ISO 17632-A	Mat. nr					
OK Tubrod 14.11	E70C-6M H4	T 42 4 M M 3 H5					x	20
OK Tubrod 14.13	E70C-6M	T 42 2 M M 2 H5						20
Coreweld 46LS	E70C-6M H4	T 46 4 M M 2 H5		x	x	x	x	20
Solid wires low alloyed	AWS A5.28	EN ISO 16834-A	Mat. nr					
OK AristoRod 13.12	ER80S-G	GCrMo1Si (EN ISO 21952-A)	1.7339	x			x	21
OK AristoRod 55	ER100S-G	G Mn3NiCrMo	1B13	x			x	21
OK AristoRod 69	ER110S-G	G Mn3Ni1CrMo	1B29	x			x	21
OK AristoRod 79	ER120S-G	G Mn4Ni2CrMo	1B31	x			x	22
OK AristoRod 89	ER120S-G	G Mn4Ni2CrMo	1B96	x			x	22
OK Tigrod 13.16	ER80S-B2			x			x	22
Cored wires ferritic	AWS A5.9		Mat. nr					
Arcaloy MC409Ti	EC409		-		x			23
Arcaloy MC409Nb	EC409Nb		-		x			23
Arcaloy MC439Ti	EC439		-		x			23
Arcaloy MC18CrCb			-		x			23
Solid wires ferritic	AWS A5.9	EN ISO 14343-A	Mat. nr					
OK Autrod 430LNbTi		G Z 18 LNbTi			x			24
OK Autrod 430LNb		G Z 17 LNb	1.4511		x			24
OK Autrod 430Ti		G Z 17 Ti	1.4502		x			24
OK Tigrod 430Ti		W Z 17 Ti	1.4502		x			24
Solid wires austenitic	AWS A5.9	EN 14343-A	Mat. nr					
OK Autrod 16.95		G 18 8 Mn	1.4370	x	x		x	25
OK Autrod 308LSi	ER308LSi	G 19 9 LSi	1.4316		x			25
OK Autrod 309LSi	ER309LSi	G 23 12 LSi	1.4332		x			25
OK Autrod 316LSi	ER316LSi	G 19 12 3 LSi	1.4430		x			25
OK Tigrod 308LSi	ER308LSi	W 19 9 LSi	1.4316		x			26
OK Tigrod 316LSi	ER316LSi	W 19 12 3 LSi	1.4430		x			26
Cored wires austenitic		EN ISO 17633-A	Mat. nr					
Ok Tubrod 15.30		T 19 9 L M M 2			x			27
OK Tubrod 15.31		T 19 12 3 L M M 2			x			27
OK Tubrod 15.34		T 18 8 Mn M 2			x			27

				Frame construction	Exhausts	Fuel tanks	Suspension	
Solid wire nickel based	AWS 5.14	EN ISO 18274	Mat. nr					Page
OK Autrod 19.82	ERNiCrMo-3	NiCr22Mo9Nb	2.4831		x			28
OK Autrod 19.85	ERNiCr-3	NiCr20Mn3Nb	2.4806		x			28
OK Tigrod 19.82	ERNiCrMo-3	NiCr22Mo9Nb	2.4831		x			28
OK Tigrod 19.85	ERNiCr-3	NiCr20Mn3Nb	2.4806		x			28
Solid wires aluminium	AWS A5.10	EN ISO 18273	Mat. nr					
OK Autrod 5183 (OK Tigrod 5183)	ER5138	S Al 5183 (AlMg4.5Mn0.7(A))	3.3548	x		x	x	29
OK Autrod 5356 (OK Tigrod 5356)	ER5356	S Al 5356 (AlMg5Cr(A))	3.3556	x		x	x	29
OK Autrod 5554 (OK Tigrod 5554)	ER5554	AlMg3Mn(A)	3.3537					30
OK Autrod 4043 (OK Tigrod 4043)	ER4043	S Al 4043A (AlSi5(A))	3.2245	x	x	x	x	29
OK Autrod 4047 (OK Tigrod 4047)	ER4047	S Al 4047A (AlSi12(A))	3.2581		x	x		29
Solid wires copper based	AWS A5.7	EN ISO 24373	Mat. nr					
OK Autrod 19.30 (OK Tigrod 19.30)	ERCuSi-A	S Cu 6560(CuSi3Mn1)				x		31
OK Autrod 19.40 (OK Tigrod 19.40)	ERCuAl-A1	S Cu 6100 (CuAl8)		x		x		31
OK Autrod 19.41 (OK Tigrod 19.41)		S Cu 6327 (CuAl8Ni2)		x				31

(OK Tigrod XXXX): equivalent Tigrod available.

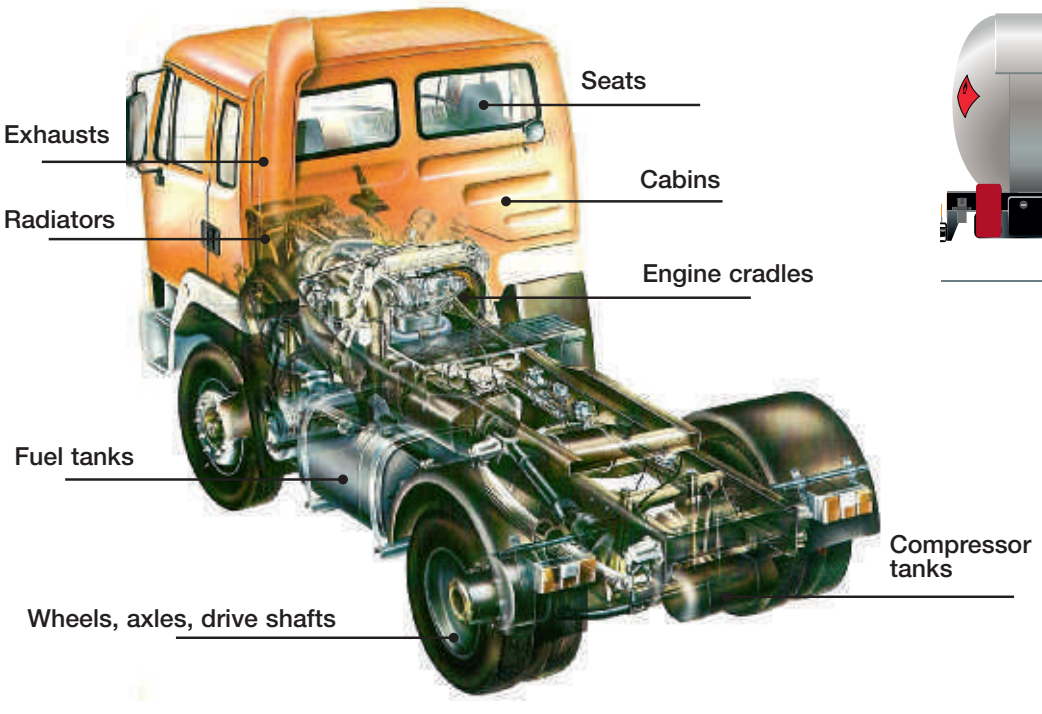


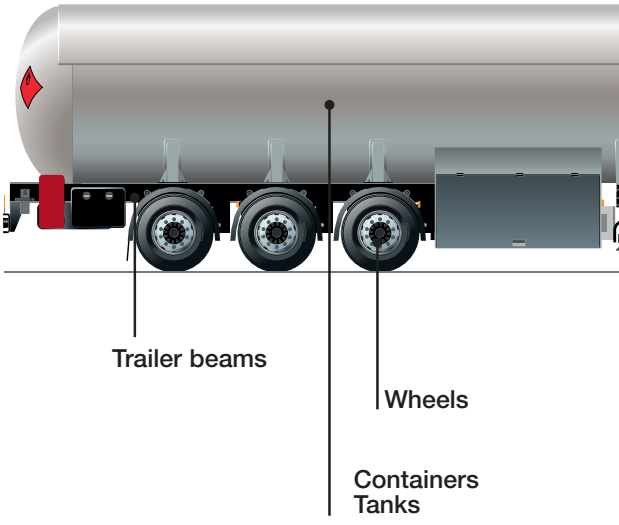
Consumables selector for trucks, trailers and buses

Solid wires mild steel	AWS A5.18	EN ISO 14341	Mat. nr	Chassis/trailer beams	Engine cradles, axles, drive shafts	Cabins	Exhausts	Dump platforms	Seats	Compressor tanks	Tanks	Containers	Wheels	Radiators	Fuel tanks	Chassis	Engine cradles, axles, drive shafts	Cabins	Compressor tanks	Exhausts	Seats	Wheels	Water tanks	Fuel tanks	Page
				Trucks and trailers												Buses									
OK AristoRod 12.50	ER70S-6	G3Si1	1.5125	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	18
OK Autrod 12.51	ER70S-6	G3Si1	1.5125	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	18
OK AristoRod 12.63	ER70S-6	G4Si1	1.5130	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	18
OK Autrod12.64	ER70S-6	G4Si1	1.5130	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	18
		EN ISO 636-A																							
OK Tigrod 12.60	ER70S-3	W2Si		x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	19
OK Tigrod 12.64	ER70S-6	W4Si-1	1.5130	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	19
Cored wires mild steel	AWS A5.18	EN ISO 17632-A	Mat. nr																						
OK Tubrod 14.11	E70C-6M H4	T 42 4 M M 3 H5		x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	20
OK Tubrod 14.13	E70C-6M	T 42 2 M M 2 H5		x	x							x				x	x					x			20
Coreweld 46LS	E70C-6M H4	T 46 4 M M 2 H5		x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	20
Solid wires low alloyed	AWS A5.28	EN ISO 16834-A	Mat. nr																						
OK AristoRod 55	ER100S-G	G Mn3NiCrMo	1B13	x	x		x	x	x	x		x	x			x	x		x	x	x	x			21
OK AristoRod 69	ER100S-G	G Mn3Ni1CrMo	1B29	x	x		x	x	x	x		x	x			x	x		x	x	x	x			21
OK AristoRod 79	ER110S-G	G Mn4Ni2CrMo	1B31	x	x		x	x	x	x		x	x			x	x		x	x	x	x			21
OK AristoRod 89	ER120S-G	G Mn4Ni2CrMo	1B96	x	x		x	x	x	x		x	x			x	x		x	x	x	x			21
OK Tigrod 13.16	ER80S-B2			x	x		x									x	x			x					21
Cored wires ferritic	AWS A5.9		Mat. nr																						
Arcaloy MC409Ti	EC409						x													x					23
Arcaloy MC409Nb	EC409Nb						x													x					23
Arcaloy MC439Ti	EC439						x													x					23
Arcaloy MC18CrCb							x													x					23
Solid wires ferritic	AWS A5.9	EN ISO 14343-A	Mat.nr																						
OK Autrod 430LNbTi		G Z 18 LNbTi					x													x					24
OK Autrod 430LNb		G Z 17 LNb	1.4511				x													x					24
OK Autrod 430Ti		G Z 17 Ti	1.4502				x													x					24
OK Tigrod 430Ti		W Z 17 Ti	1.4502				x													x					24
Solid wires austenitic	AWS A5.9	EN 14343-A	Mat. nr																						
OK Autrod 16.95		G 18 8 Mn	1.4370				x				x	x			x	x		x		x				x	25
OK Autrod 308LSi	ER308LSi	G 19 9 LSi	1.4316				x				x	x			x	x		x		x			x	x	25
OK Autrod 309LSi *	ER309LSi	G 23 12 LSi	1.4332				x				x	x			x					x				x	25
OK Autrod 316LSi	ER316LSi	G19 12 3 LSi	1.4430				x				x	x			x					x				x	26
OK Tigrod 308LSi	ER308LSi	W 19 9 LSi	1.4316				x				x	x			x	x		x		x			x	x	26
OK Tigrod 316LSi	ER 316 LSi	W 19 12 3 LSi	1.4430				x				x	x			x					x				x	26

Cored wires austenitic		EN ISO 17633-A	Mat.nr	Trucks and trailers												Buses							Page
				Chassis/trailer beams	Engine cradles, axles, drive shafts	Cabins	Exhausts	Dump platforms	Seats	Compressor tanks	Tanks	Containers	Wheels	Radiators	Fuel tanks	Chassis	Engine cradles, axles, drive shafts	Cabins	Compressor tanks	Exhausts	Seats	Wheels	Water tanks	Fuel tanks	
Ok Tubrod 15.30		T 19 9 L M M 2	-				x			x	x				x			x		x			x	27
OK Tubrod 15.31		T 19 12 3 L M M 2	-				x			x	x							x					x	27
OK Tubrod 15.34		T 18 8 Mn M 2	-				x			x	x				x			x					x	27
Solid wires nickel based	AWS 5.14	EN ISO 18274	Mat. nr																				
OK Autrod 19.82	ERNiCrMo-3	NiCr22Mo9Nb	2.4831				x			x										x				28
OK Autrod 19.85	ERNiCr-3	NiCr20Mn3Nb	2.4806				x			x										x				28
OK Tigrod 19.82	ERNiCrMo-3	NiCr22Mo9Nb	2.4831				x			x										x				28
OK Tigrod 19.85	ERNiCr-3	NiCr20Mn3Nb	2.4806				x			x										x				28
Solid wires aluminum	AWS A5.10	EN ISO 18273	Mat. nr																				
OK Autrod 5183 (OK Tigrod 5183)	ER5183	S Al 5183 (AlMg4.5Mn0.7(A)	3.3548	x	x	x		x			x	x			x	x	x	x					x	x	29
OK Autrod 5356 (OK Tigrod 5356)	ER5356	S Al 5356 (AlMg5Cr(A))	3.3556	x	x	x		x		x		x			x	x	x	x	x				x	x	29
OK Autrod 5554 (OK Tigrod 5554)	ER5554	AlMg3Mn(A)	3.3537								x														30
OK Autrod 4043 (OK Tigrod 4043)	ER4043	S Al 4043A (AlSi5(A))	3.2245				x	x		x			x		x					x		x			29
OK Autrod 4047 (OK Tigrod 4047)	ER4047	S Al 4047A (AlSi12(A))	3.2581				x							x	x					x					29
Solid wires copper based	AWS A5.7	EN ISO 24373	Mat. nr																				
OK Autrod 19.30 (OK Tigrod 19.30)	ERCuSi-A	S Cu 6560(CuSi3Mn1)					x													x			x		31
OK Autrod 19.40 (OK Tigrod 19.40)	ERCuAl-A1	S Cu 6100 (CuAl8)																							31
OK Autrod 19.41 (OK Tigrod 19.41)		S Cu 6327 (CuAl8Ni2)						x														x			31
OK Autrod CuSi laser	ERCuSi-A	Cu 6560 (CuSi3Mn1)																		x					
SAW Flux	AWS	EN ISO 24373	Basicity index																				
OK Flux 10.61		SA FB 1 65 DC	2.6																						32
OK Flux 10.71		SA AB 1 67 AC H5	1.5	x	x			x																	32
OK Flux 10.76		SA AB 1 89 AC	1.5		x								x				x								33
OK Flux 10.81		SA AR 1 97 AC	0.6	x	x			x		x			x			x	x		x				x		33
OK Flux 10.87		EN 760: SA AR 1 95 AC	0.4	x				x		x		x	x			x	x		x				x		34

(OK Tigrod XXXX): equivalent Tigrod available.





Consumables selector for industrial vehicles/earth moving equipment

Construction • Earthmoving • Argicultural • Forrestry • Mining Equipment

				Chassis, axles, drive shafts	Cabins	Fuel/Hydraulic tanks	Exhausts	Buckets	Hydraulic cilinders	Wheels	Beams	
Solid wires mild steel	AWS A5.18	EN ISO 14341	Mat. nr									Page
OK AristoRod 12.50	ER70S-6	G3Si1	1.5125	x	x	x	x	x	x	x	x	18
OK Autrod 12.51	ER70S-6	G3Si1	1.5125	x	x	x	x	x	x	x	x	18
OK AristoRod 12.63	ER70S-6	G4Si1	1.5130	x	x	x	x	x	x	x	x	18
OK Autrod 12.64	ER70S-6	G4Si1	1.5130	x	x	x	x	x	x	x	x	18
		EN ISO 636-A										
OK Tigrod 12.60	ER70S-3	W2Si		x	x	x	x		x	x	x	19
OK Tigrod 12.64	ER70S-6	W4Si-1	1.5130	x	x	x	x		x	x	x	19
Cored wires mild steel	AWS A5.18	EN ISO 17632-A	Mat. nr									
OK Tubrod 14.11	E70C-6M H4	T 42 4 M M 3 H5		x	x	x	x	x	x	x	x	20
OK Tubrod 14.13	E70C-6M	T 42 2 M M 2 H5		x		x		x	x	x	x	20
Coreweld 46LS	E70C-6M H4	T 46 4 M M 2 H5		x	x	x	x	x	x	x	x	20
Solid wires low alloyed	AWS A5.28	EN ISO 16834-A	Mat. nr									
OK AristoRod 13.12	ER80S-G	GCrMo1Si (EN ISO 21952-A)	1.7339	x	x	x		x	x	x	x	21
OK AristoRod 55	ER100S-G	G Mn3NiCrMo	1B13	x	x	x		x	x	x	x	21
OK AristoRod 69	ER110S-G	G Mn3Ni1CrMo	1B29	x	x	x		x	x	x	x	21
OK AristoRod 79	ER120S-G	G Mn4Ni2CrMo	1B31	x	x	x		x	x	x	x	22
OK AristoRod 89	ER120S-G	G Mn4Ni2CrMo	1B96	x	x	x		x	x	x	x	22
OK Tigrod 13.16	ER80S-B2			x	x	x					x	22
Cored wires ferritic	AWS A5.9		Mat. nr									
Arcaloy MC409Ti	EC409						x					23
Arcaloy MC409Nb	EC409Nb						x					23
Arcaloy MC439Ti	EC439						x					23
Arcaloy MC18CrCb							x					23
Solid wires ferritic	AWS A5.9	EN ISO 14343-A	Mat.nr									
OK Autrod 430LNbTi		G Z 18 LNbTi	1.4509				x					24
OK Autrod 430LNb		G 18 LNb	1.4511				x					24
OK Autrod 430Ti		G Z 17 Ti	1.4502				x					24
OK Tigrod 430Ti		W Z 17 Ti	1.4502				x					24
Solid wires austenitic	AWS A5.9	EN 14343-A	Mat. nr									
OK Autrod 16.95		G 18 8 Mn	1.4370	x	x	x	x		x			25
OK Autrod 308LSi	ER308LSi	G 19 9 LSi	1.4316			x	x					25
OK Autrod 309LSi *	ER309LSi	G 23 12 LSi	1.4332			x	x					25
OK Autrod 316LSi	ER316LSi	G 19 12 3 LSi	1.4430			x	x					25
OK Tigrod 308LSi	ER308LSi	W 19 9 LSi	1.4316			x	x					26
OK Tigrod 316LSi	ER316LSi	W 19 12 3 LSi	1.4430			x	x					26

				Chassis	Cabins	Fuel/hydraulic tanks	Exhausts	Buckets	Hydraulic cilinders	Wheels	Beams	
Cored wires austenitic		EN ISO 17633-A	Mat.nr									Page
Ok Tubrod 15.30		T 19 9 L M M 2					x					27
OK Tubrod 15.31		T 19 12 3 L M M 2					x					27
OK Tubrod 15.34		T 18 8 Mn M 2			x		x		x			27
Solid wires nickel based	AWS 5.14	EN ISO 18274	Mat. nr									
OK Autrod 19.82	ERNiCrMo-3	NiCr22Mo9Nb	2.4831				x					28
OK Autrod 19.85	ERNiCr-3	NiCr20Mn3Nb	2.4806				x					28
OK Tigrod 19.82	ERNiCrMo-3	NiCr22Mo9Nb	2.4831				x					28
OK Tigrod 19.85	ERNiCr-3	NiCr20Mn3Nb	2.4806				x					28
Solid wires aluminum	AWS A5.10	EN ISO 18273	Mat. nr									
OK Autrod 5183 (OK Tigrod 5183)	ER5356	S Al 5356 (AlMg4.5Mn0.7(A))	3.3548		x	x						29
OK Autrod 5356 (OK Tigrod 5356)	ER5138	S Al 5183 (AlMg4,5Mn0,7)	3.3556		x	x						29
OK Autrod 5554 (OK Tigrod 5554)	ER5554	AlMg3Mn(A)	3.3537									30
OK Autrod 4043 (OK Tigrod 4043)	ER4043	S Al 4043A (AlSi5(A))	3.2245		x	x	x					29
OK Autrod 4047 (OK Tigrod 4047)	ER4047	S Al 4047A (AlSi12(A))	3.2581		x	x						29
Solid wires copper based	AWS A5.7	EN ISO 24373	Mat. nr									
OK Autrod 19.30 (OK Tigrod 19.30)	ERCuSi-A	S Cu 6560(CuSi3Mn1)			x							31
OK Autrod 19.40 (OK Tigrod 19.40)	ERCuAl-A1	S Cu 6100 (CuAl8)			x							31
OK Autrod 19.41 (OK Tigrod 19.41)		S Cu 6327 (CuAl8Ni2)			x		x					31
SAW flux	AWS	EN 760	Basicity index									
OK Flux 10.61		SA FB 1 65 DC	2.6	x		x		x	x	x		32
OK Flux 10.71		SA AB 1 67 AC H5	1.5	x				x	x	x		32
OK Flux 10.76		SA AB 1 89 AC	1.5									33
OK Flux 10.81		SA AR 1 97 AC	0.6	x					x	x		33
OK Flux 10.87		EN 760: SA AR 1 95 AC	0.4	x	x						x	33

(OK Tigrod XXXX): equivalent Tigrod available.

			Bucket tooths	Crane wheels	Steel hammers	Dredger buckets	
Solid/cored wires hardfacing	DIN	remarks					Page
OK Autrod 13.91	MSG-6-GZ-C-6OG		-	-	x	x	35
OK Tubrodur 14.70	MF10-GF-55-GPTZ		x	-	-	-	35
OK Tubrodur 14.71	-	18.8.6Mn	-	-	x	x	35
OK Tubrodur 15.40	MF1-GF-350P		-	x	-	-	36
OK Tubrodur 15.52			-	-	x	x	36
OK Tubrodur 15.60	MF8-GF-200-GKPR		-	-	x	x	36
OK Tubrodur 15.65	MF8-GF-200-GKPR		-	-	x	x	36
OK Tubrodur 15.84	MF3-50-ST		x	-	-	-	36

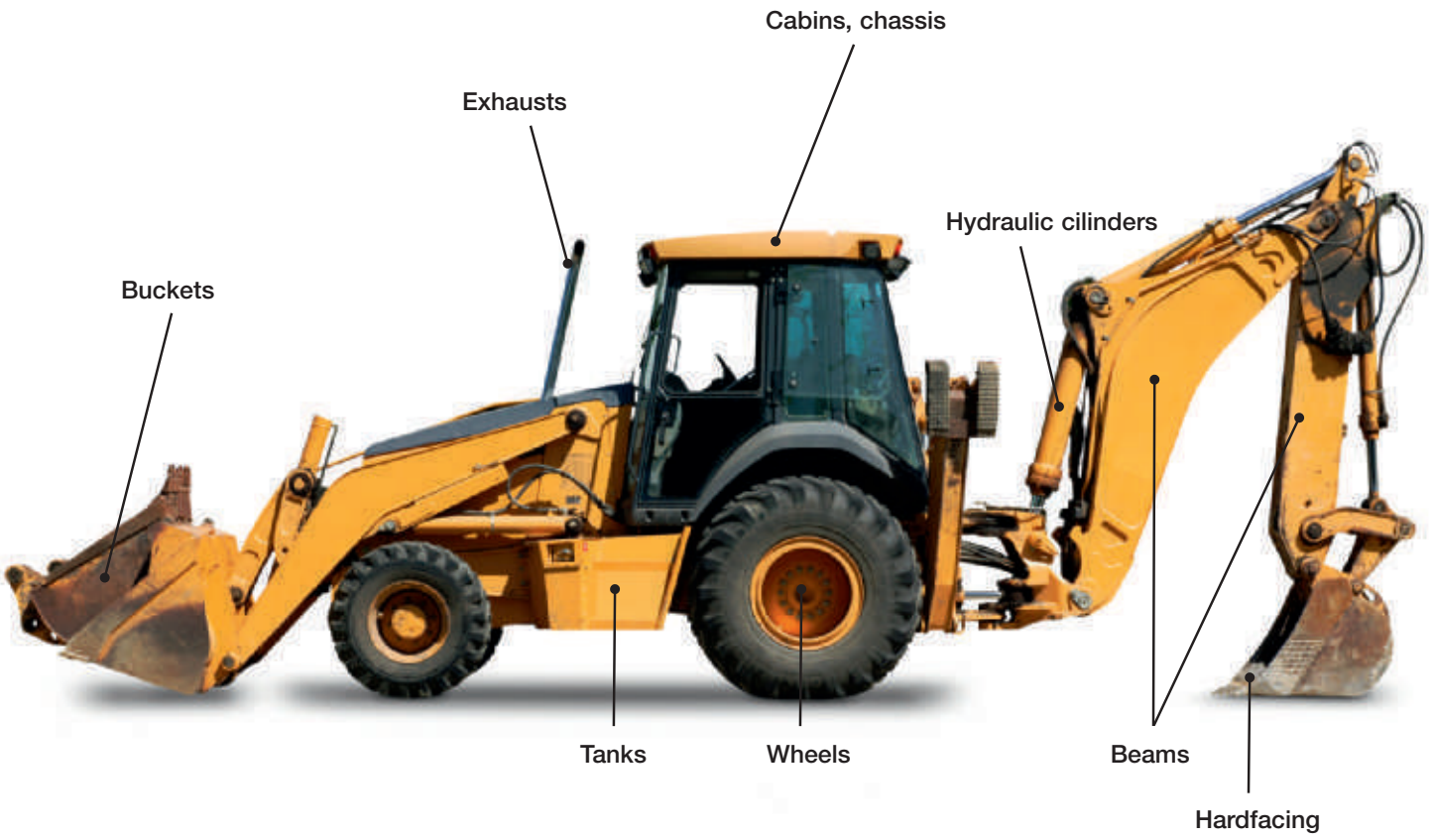


Photo courtesy New Holland

A choice of welding equipment

Light vehicles

GMAW	Page	GTAW	Page
Robotic welding		*Robotic welding*	
Aristo® Mig 3001/5000 based robotic package	55	Aristo® Mig U5000 based robotic package	54
Origo™ Mig 4002/5002c based robotic package	55		
Hand welding		*Hand welding*	
Caddy® Mig C200i	39	Caddy® Tig 2200i with TA34	40
Origo™ Mig C3000i with MA24/U6	39	Caddy® Tig 2200i AC/DC with TA34 AC/DC	40
Aristo® Mig 3001/4001/5000i + AristoFeed 3004	42		
Origo™ Mig 4002/5002c + OrigoFeed 3004	38		

Commercial vehicles

GMAW	Page	GTAW	Page
Robotic welding		*Robotic welding*	
Aristo® Mig 3001/5000 based robotic package	**54**	Aristo® Mig U5000 based robotic package	**56**
Origo™ Mig 4002/5002c based robotic package	**54**		
Hand welding		*Hand welding*	
Caddy® Mig C200i	**39**	Caddy® Tig 2200i with TA34	**40**
Origo™ Mig C3000i with MA24/U6	**39**	Caddy® Tig 2200i AC/DC with TA34 AC/DC	**40**
Aristo® Mig 3001/4001/5000i + AristoFeed 3004			
Origo™ Mig 4002/5002c + OrigoFeed 3004	**38**		
Origo™ Mig 402/502c + OrigoFeed 304	**44**		

SAW	Page	Manual cutting/gauging	Page
Robotic/mechanised			
LAF 1001	**51**	PowerCut™ 700/900	**47**
PEK	**49**		
A2/A6 head	**49, 50**		
CaB 2200	**52**		
MechTrac	**52**		
Beam welder	**53**		

Industrial vehicles

GMAW	Page	GTAW	Page
Robotic welding		*Robotic welding*	
Aristo® Mig 5000 based robotic package	**55**	Aristo® Mig U5000 based robotic package	**55**
Origo™ Mig 5002/6502c based robotic package	**55**		
Hand welding:			
Caddy® Mig C200i	**39**		
Origo™ Mig C3000i with MA24/U6	**39**		
Aristo® Mig 3001/4001/5000i + AristoFeed 3004			
Origo™ Mig 4002/5002/6502c + OrigoFeed 4804	**38**		
Origo™ Mig 402/502/652c + OrigoFeed 304/484	**44**		

SAW	Page	Manual cutting/gouging	Page
Robotic/mechanised			
LAF 1001	51	PowerCut™ 700/900/1600	**47, 48**
PEK	49	ESP 150	46
A2/A6 head	49, 50	ESP 150 Deuce Pack	**46**
CaB 2200	52		
MechTrac	52		
Beam welder	53		

Note: The equipment offer can differ in some regions. Please ask your local ESAB subsidiary for multi-voltage variants and regionally available equivalents.

Solid wires for mild steel

OK AristoRod 12.50

Classifications & approvals	Chemical composition wire/rod (%)			Typical mechanical properties (M21)			
	C	Si	Mn	$R_{p\,0.2}$ (MPa)	Rm (MPa)	A4/A5 (%)	CVN (°C/J)
SFA/AWS A5.18: ER70S-6 EN ISO 14341-A: G3Si1 Weld metal classification EN ISO 14341-A: G 38 2 C1 3Si1 EN ISO 14341-A: G 42 4 M21 3Si1	0.1	0.9	1.5	470	560	26	(+20/130) (-20/90) (-30/70)

Type
Non-copper coated

Polarity
DC+

Shielding gas
CO_2, Ar/CO_2 mixed gases

Size (mm)
0.8 to 1.6

ABS, BV, CE, CWB, DB, DNV, GL, LR, PRS, RS, VdTÜV, NAKS

OK AristoRod™ 12.50 is a non copper-coated Mn-Si-alloyed G3Si1/ER70S-6 solid wire for the GMAW of non-alloyed steels, as used in general construction, automotive components, pressure vessel fabrication and shipbuilding. It belongs to the unique OK AristoRod family of wires treated with ESAB's revolutionary Advanced Surface Characteristics (ASC) technology, taking MAG welding operations to new levels of performance and all-round efficiency, especially in robotic and mechanised welding. Characteristic features include excellent start properties, trouble-free feeding at high wire speeds and lengthy feed distances, a very stable arc at high welding currents, extremely low levels of spatter, low fume emission, reduced contact tip wear and improved protection against corrosion of the wire. Together with the environmentally-friendly Marathon Pac™ bulk packaging system, OK AristoRod wires provides trouble-free welding over long periods of time.

OK Autrod 12.51

Classifications & approvals	Chemical composition wire/rod (%)			Typical mechanical properties (M21)			
	C	Si	Mn	$R_{p\,0.2}$ (MPa)	Rm (MPa)	A4/A5 (%)	CVN (°C/J)
SFA/AWS A5.18: ER70S-6 EN ISO 14341-A: G3Si1 Weld metal classification EN ISO 14341-A: G 38 2 C1 3Si1 EN ISO 14341-A: G 42 4 M21 3Si1	0.1	0.9	1.5	470	560	26	(+20/130) (-20/90) (-30/70)

Type
Copper coated

Polarity
DC+

Shielding gas
CO_2, Ar/CO_2 mixed gases

Size (mm)
0.6 to 2.0

ABS, BV, CE, DB, DNV, GL, LR, PRS, RS, VdTÜV, NAKS

OK Autrod™ 12.51 is ESAB's premium quality copper-coated MAG welding wire. A carefully controlled wire surface condition and cleanliness, in combination with a continuous copper-layer with optimum thickness, results in reduced contamination of the feeding system with copper flakes, compared with low cost MAG wires. It guarantees longer periods of low force feeding, arc stability and low spatter between cleaning and maintenance intervals and provides an excellent weld quality.
The chemistry of the wire is carefully controlled for consistently high mechanical properties of the weld.

OK AristoRod 12.63

Classifications & approvals	Chemical composition wire/rod (%)			Typical mechanical properties (M21)			
	C	Si	Mn	$R_{p\,0.2}$ (MPa)	Rm (MPa)	A4/A5 (%)	CVN (°C/J)
SFA/AWS A5.18: ER70S-6 EN ISO 14341-A: G4Si1 Weld metal classification EN ISO 14341-A: G 42 2 C1 4Si1 EN ISO 14341-A: G 46 4 M21 4Si1	0.1	1	1.7	525	595	26	(+20/130) (-20/90) (-30/70)

Type
Non-copper coated

Polarity
DC+

Shielding gas
CO_2, Ar/CO_2 mixed gases

Size (mm)
0.8 to 1.6

ABS, BV, DB, DNV, CE, CWB , GL, LR, VdTÜV, NAKS

OK AristoRod™ 12.63 is a non copper-coated Mn-Si-alloyed G4Si1/ER70S-6 solid wire for the GMAW of non- alloyed steels, as used in general construction, automotive components, pressure vessel fabrication and shipbuilding. It has a slightly higher manganese and silicon content than OK AristoRod 12.50 to increase the weld metal strength. This also promotes a low sensitivity to surface impurities and contributes to smooth, sound welds. OK AristoRod 12.63 is treated with ESAB's unique Advanced Surface Characteristics (ASC) technology, taking MAG welding operations to new levels of performance and allround efficiency, especially in robotic and mechanised welding. Characteristic features include excellent start properties; trouble-free feeding at high wire speeds and lengthy feed distances, a very stable arc at high welding currents, extremely low levels of spatter, low fume emission, reduced contact tip wear and improved protection against corrosion of the wire.

OK Autrod 12.64

Classifications & approvals	Chemical composition wire/rod (%)			Typical mechanical properties (M21)			
	C	Si	Mn	$R_{p\,0.2}$ (MPa)	Rm (MPa)	A4/A5 (%)	CVN (°C/J)
SFA/AWS A5.18: ER70S-6 EN ISO 14341-A: G4Si1 Weld metal classification EN ISO 14341-A: G 42 2 C1 4Si1 EN ISO 14341-A: G 46 4 M21 4Si1	0.1	1	1.7	525	595	26	(+20/130) (-30/70)

Type
Non-copper coated

Polarity
DC+

Shielding gas
CO_2, Ar/CO_2 mixed gases

Size (mm)
0.8 to 1.6

ABS, BV, CE, DB, DNV, GL, LR, RS, VdTÜV, NAKS

OK Autrod 12.64 is a copper-coated, Mn-Si-alloyed G4Si1/ER70S-6 solid wire for the GMAW of non-alloyed steels, as used in general construction, automotive components, pressure vessel fabrication and shipbuilding. It has a slightly higher manganese and silicon content than OKAutrod 12.50 to increase the weld -metal strength. This also promotes low sensitivity to surface impurities and contributes to smooth, sound welds.

	Classifications & approvals	Chemical composition wire/rod (%)			Typical mechanical properties all weld metal (l1)			
OK Tigrod 12.60		**C**	**Si**	**Mn**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Size (mm) 1.6 to 3.2	SFA/AWS A5.18: ER70S-3 EN ISO 636-A: W2Si Weld metal classification EN ISO 636-A: W 38 3 2Si	0.1	0.6	1.1	420	515	26	(-30/90)
	VdTÜV							

OK Tigrod 12.60 is a copper-coated Mn-Si alloyed W2Si/ER70S-3 solid rod for the GTAW of non-alloyed steels, as used in general construction, pressure vessel fabrication and shipbuilding. Suited for repair and maintenance related to automotive and commercial vehicles.

	Classifications & approvals	Chemical composition wire/rod (%)			Typical mechanical properties all weld metal (l1)			
OK Tigrod 12.64		**C**	**Si**	**Mn**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Size (mm) 1.6 to 3.2	SFA/AWS A5.18: ER70S-6 EN 1668: W4Si1 Weld metal classification EN ISO 636-A: W 38 3 2Si	0.09	1	1.7	525	595	26	(-30/70)
	ABS, BV, CE, DNV, GL, LR, VdTÜV, NAKS							

OK Tigrod 12.64 is a copper-coated Mn-Si alloyedW4Si1/ER70S-6 solid rod for the GTAW of non-alloyed steels, as used in general construction,pressure vessel fabrication and shipbuilding. It has a slightly increased manganese and silicon content to increase the weld metal strength. This also promotes lowsensitivity to surface impurities and contributes to smooth, sound welds. Suited for repair and maintenance related to automotive and commercial vehicles

OK AristoRod™ & Marathon Pac™ An unbeatable combination in productive and trouble-free welding

Marathon Pac™ – octagonal bulk drums

For many ESAB customers, Marathon Pac™ is key in maximising production efficiency and quality. In fact, it can cut down time on spool changes and maintenance by almost 95%.

Bulk supply Marathon Pac™s are available packed with either 250 or 475 kg of AristoRod welding wire.

An 'Endless' version combines the contents of a series o Marathon Pac™s to form a continuous in-line supply source. As each drum empties, the subsequent drum takes over and a new drum is added to the line to form an uninterrupted supply. ESAB supplies a full range of accessories for efficient handling and installation of Marathon Pacs. Empty Marathon Pacs can be folded flat to save space and can be disposed environmentally-friendly.

ESAB OK AristoRod™ with Advanced Surface Characteristics has a number of unique features with advantages for manual, mechanised and robotic welding. These translate into clear benefits which, together, add up to increased productivity and lower welding costs.

Feature	Benefit
Consistent welding performance,	Consistent weld results
Stable arc with low feeding force	High weld quality. Reduced rework or post weld cleaning
Excellent arc ignition	Reduced post weld cleaning
High current operability	Higher productivity
Extremely low spatter level	Reduced post weld cleaning
Trouble-free feedability, even at high wire feed speeds and long feed distances	Higher productivity, reduced equipment downtime
Low fume emission	Cleaner working environment

New ASC wire surface technology!

OK AristoRod™ MAG welding wires with Advanced Surface Characteristics resist corrosion during storage, improves feedability and arc stability and also reduces contact tip wear to a level equal to the very best copper coated wires.

Cored wires for mild steel

	Classifications & approvals	Typical chemical composition all weld metal (%)			Typical mechanical properties all weld metal			
OK Tubrod 14.11		**C**	**Si**	**Mn**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Type Metal-cored **Polarity** DC+ **Shielding gas** Ar/8%CO_2 **Size (mm)** 1.2, 1.4	SFA/AWS A5.18: E70C-6MH4 EN ISO: 17632-A: T 42 4 M M 3 H5 ABS, BV, CE, DB, DNV, GL, LR, VdTÜV	0.06	0.6	1.4	470	560	28	-40/70

OK Tubrod 14.11 is a wire that has been specially designed for robotic applications, particularly in the area of thin plate welding. The welding characteristics of the wire permit the use of lower arc voltages in the spray transfer mode, which reduces arc power and thereby reduces the risk of blow-through in situations where the fit-up is variable. The wire exhibits excellent feedability and deposits weld metal of the highest quality with Ar/8%CO_2 shielding gas. Welding current DC+

	Classifications & approvals	Typical chemical composition all weld metal (%)			Typical mechanical properties all weld metal			
OK Tubrod 14.13		**C**	**Si**	**Mn**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Type Metal-cored **Polarity** DC+ **Shielding gas** Ar/20%CO_2 **Size (mm)** 1.2, 1.4, 1.6	SFA/AWS A5.18: E70C-6M EN ISO: 17632-A T 42 2 M M 2 H5 ABS, BV, CE, DB, DNV, GL, LR, VdTÜV, MoD(N)	0.06	0.6	1.4	503	580	28	-20/90

OK Tubrod 14.13 is a tubular wire particularly suited for the all positional welding of butt and fillet joints, e.g. in frames, chassis construction and repair and maintenance. The arc action is stable at all current levels, which results in an excellent weld appearance with the absence of undercut and spatter. Welding current DC+

	Classifications & approvals	Typical chemical composition all weld metal (%)			Typical mechanical properties all weld metal			
Coreweld 46LS		**C**	**Si**	**Mn**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Type Metal-cored **Polarity** DC+ **Shielding gas** Ar/8%CO_2 Ar/20%CO_2 **Size (mm)** 1.2 - 1.6	SFA/AWS A5.18: E70C-6M H4 EN ISO: 17632-A T46 4 M M 2 H5 ABS, BV, CE, DB, DNV, GL, VdTÜV (all 1.2mm)	0.04	0.65	1. 2	490	590	26	-40/72

Coreweld 46 LS is a new generation metal cored wire based on ESAB's revolutionary cored wire surface technology. It has been developed for the welding of plate thicknesses as from 1 mm and provides fabricators with a substantially faster and higher quality welding solution to solid MAG wire. The absence or very low levels of silica on the weld surface and minimal spatter result in reduced post weld cleaning before coating/painting.
Coreweld 46 LS is a unique product that markedly lowers the welding costs for mechanised and robotised fabrication. The many advantages relative to solid wire are associated with the extremely wide spray arc parameter envelope that starts as low as 160A. With solid wire spray arc starts at around 200A for diameter 1.0mm and 230A for diameter 1.2mm. Optimal results are obtained in 92%Ar/8%CO_2 mixtures.
Coreweld 46 LS operates with very low spatter levels compared with solid wire in the short or globular arc mode. The excellent re-striking characteristics of Coreweld 46 LS also promotes low spatter welding for components with many short welds. This results in a reduction or complete elimination of post weld cleaning. Coreweld 46 LS gives a high quality weld penetration profile. Ideal fit-up can not always be achieved in a production environment; the wide arc associated with Coreweld 46 LS results in larger gaps being able to be bridged than with conventional solid wires at the same parameters settings, resulting in less post weld repair work and less rejects.
The extremely low arc voltage combined with a very high travel speed results in a low heat input. Associated with this are fewer problems with workpiece deformation commonly found when welding with solid wires using the pulsed technique.

Solid wires for low alloyed steel

	Classifications & approvals	Chemical composition wire/rod (%)					Typical mechanical properties all weld metal (M21)			
OK AristoRod 13.12		**C**	**Si**	**Mn**	**Cr**	**Mo**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Type Non-copper coated **Polarity** DC+ **Shielding gas** Ar/CO_2 mixed gases **Size (mm)** 0.8 to 1.6	SFA/AWS A5.28: ER80S-G EN ISO 21952-A: G CrMo1Si GOST 2246: 08X CM A Weld metal classification EN ISO 21952-A: G CrMo1Si EN ISO 14341-B: G 55 M 1CM3	0.1	0.6	1	1.2	0.5	670	785	18	+20/40 0/30 -20/25
	VdTÜV, NAKS									
	OK AristoRod™ 13.12 is a 1.1Cr-0.5Mo-alloyed, non copper-coated , solid wire for the GMAW of creep-resistant steels of the same composition, like those used for pipes in pressure vessels and boilers with a service temperature of up to 450°C. In the transportation fabrication industry, the wire is used for welding suspensions. OK AristoRod 13.12 is treated with ESAB's unique Advanced Surface Characteristics (ASC) technology, taking MAG welding operations to new levels of performance and all-round efficiency, especially in robotic and mechanised welding. Characteristic features include excellent start properties; trouble-free feeding at high wire speeds and lengthy feed distances, a very stable arc at high welding currents, extremely low levels of spatter; low fume emission, reduced contact tip wear and improved protection against corrosion of the wire. Together with the environmentally-friendly Marathon Pac™ bulk packaging system, OK AristoRod wires provides trouble-free welding over long periods of time.									

	Classifications & approvals	Chemical composition wire/rod (%)						Typical mechanical properties all weld metal (M21)			
OK AristoRod 55		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Type Non-copper coated **Polarity** DC+ **Shielding gas** Ar/CO_2 mixed gases **Size (mm)** 0.8 to 1.6	SFA/AWS A5.28: ER100S-G EN ISO 16834-A: G Mn3NiCrMo Weld metal classification EN ISO 16834-A: G 55 4 Mn3NiCrMo	0.1	0.7	1.6	0.6	0.6	0.2	690	770	20	 -20/ 75 -40/60 60/50
	CE										
	OK AristoRod ™55 is a 0.5Cr-0.5Ni-0.2Mo alloyed,non copper-coated, solid wire for the GMAW of high strength steels. OK AristoRod 13.13 is treated with ESAB's unique Advanced Surface Characteristics (ASC) technology, taking MAG welding operations to new levels of performance and allround efficiency, especially in robotic and mechanised welding. Characteristic features include excellent start properties; trouble-free feeding at high wire speeds and lengthy feed distances, a very stable arc at high welding currents, extremely low levels of spatter. low fume emission, reduced contact tip wear and improved protection against corrosion of the wire. Together with the environmentally-friendly Marathon Pac™ bulk packaging system, OK AristoRod wires provides trouble-free welding over long periods of time.										

	Classifications & approvals	Chemical composition wire/rod (%)						Typical mechanical properties all weld metal (M21)			
OK AristoRod 69		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Type Non-copper coated **Polarity** DC+ **Shielding gas** Ar/CO_2 mixed gases **Size (mm)** 0.8 to 1.6	SFA/AWS A5.28: ER110S-G EN ISO 16834-A: G Mn3Ni1CrMo Weld metal classification EN ISO 16834-A: G 69 4 Mn3NiCrMo	<0.10	0.6	1.6	0.3	1.4	0.25	730 *690 * Annealed @ 620°C	800 *750	19 *20	+20/100 -20/70, -40/55
	CE, DB, VdTÜV, NAKS										
	OK AristoRod™ 69 is a 0.3Cr-1.4Ni-0.25Mo alloyed, non copper-coated, solid wire for the GMAW of high strength steels with low-temperature impact toughness requirements. AristoRod 69 is treated with ESAB's unique Advanced Surface Characteristics (ASC) technology, taking MAG welding operations to new levels of performance and all-round efficiency, especially in robotic and mechanised welding. Characteristic features include excellent start properties, trouble-free feeding at high wire speeds and lengthy feed distances, a very stable arc at high welding currents, extremely low levels of spatter, low fume emission; reduced contact tip wear and improved protection against corrosion of the wire. Together with the environmentally-friendly Marathon Pac™ bulk packaging system, OK AristoRod wires provides trouble-free welding over long periods of time.										

Solid wires for low alloyed steel

	Classifications & approvals	Chemical composition wire/rod (%)						Typical mechanical properties all weld metal (M21)			
OK AristoRod™ 79		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**$R_{p\ 0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Type Non-copper coated **Polarity** DC+	SFA/AWS A5.28: ER120S-G EN ISO 16834-A: G 79 3 M Mn4Ni2CrNo Weld metal classification EN ISO 16834-A: G 79 4 Mn4Ni2CrMo	0.1	0.8	1.9	0.4	2.1	0.6	850	890	900	0/70 -20/60 -40/55

Shielding gas
Ar/CO_2 mixed gases

Size (mm)
1.0, 1.2

OK AristoRod™ 79 is a 0.3Cr-1.9Ni-0.5 Mo alloyed, non copper-coated, solid wire for the GMAW of high strength steels, heat-treated steels and fine-grained structural steels with a yield strength of up to 850MPa, such as XABO90. OK AristoRod 79 is treated with ESAB's unique Advanced Surface Characteristics (ASC) technology, taking MAG welding operations to new levels of performance and all-round efficiency, especially in robotic and mechanised welding. Characteristic features include excellent start properties, trouble-free feeding at high wire speeds and lengthy feed distances, a very stable arc at high welding currents, extremely low levels of spatter, low fume emission, reduced contact tip wear and improved protection against corrosion of the wire. Together with the environmentally-friendly Marathon Pac™ bulk packaging system, OK AristoRod wires provides trouble-free welding over long periods of time.

	Classifications & approvals	Chemical composition wire/rod (%)						Typical mechanical properties all weld metal (M21)			
OK AristoRod™ 89		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**$R_{p\ 0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Type Non-copper coated **Polarity** DC+	Classification wire: SFA/AWS A5.28: ER120S-G EN ISO 16834- A G Mn4Ni2CrMo Classification weld metal: (as welded) EN ISO 16834-A G89 4 M Mn4Ni2CrMo	0.09	0.7	1.8	0.4	2.2	0.6	920	1000	17	-40/60

Shielding gas
Ar/CO_2 mixed gases

CE, DB, GL, VdTÜV

Size (mm)
0.8, 1.0, 1.2

OK AristoRod 89 is a non copper coated, low-alloyed, chromium-nickel-molybdenum alloyed, solid wire for GMAW of ultra high tensile strength steels requiring tough weld metal for critical applications. Also suitable when high impact strength at lower temperatures is required. The AristoRod wires are suitable for operating at high currents with maintained disturbance free wire feeding giving a stable arc with a low amount of spatter, due to its unique Advanced Surface Characteristics ASC) technology. OK AristoRod 89 is delivered on spools or in the unique ESAB Octagonal Marathon Pac, which is excellent in mechanised welding applications. Together with the environmentally-friendly Marathon Pac™ bulk packaging system, OK AristoRod wires provides trouble-free welding over long periods of time.

Coreweld 46 LS

Metal cored wire for high speed thin plate welding - beats solid wire in any aspect.

Overlap weld 2.0mm plate in Ar/8% CO_2 shielding gas. 20cm length.

Fillet weld 2.0mm plate in Ar/8% CO_2 shielding gas. 20cm length.

Cross section fillet weld 2.0mm plate in Ar/8% CO_2 shielding gas.

Compared to solid MAG wire, Coreweld 46 LS offers:

- **High welding speeds/increased productivity**
- **Absence of silica on weld surface/ no post weld cleaning**
- **Stable arc and excellent re-starting with minimal spatter/no disruptions, reduced post weld cleaning**
- **Low spray transition current/smooth consistent welding**
- **Parameters easy to optimise/no loss of production time**
- **Excellent feeding/no disruptions**
- **Excellent gap bridging/tolerant to non-ideal fit-up**

Cored wires for ferritic stainless steel

Arcaloy MC409Ti	Classifications & approvals	Typical chemical composition all weld metal (%)						
		C	Mn	Si	P	S	Cr	Ti
Type Metal-cored	AWS A5.9: EC409	0.015	0.72	0.27	0.007	0.007	11.8	1.0

Polarity
DC+

Shielding gas
Ar/ 2% O_2

Size (mm)
1.2

Arcaloy MC409Ti is a 12% Cr alloy metal cored wire stabilised with titanium (Ti) for arc stability and to improve corrosion resistance, increase strength at high temperatures, and promote the ferritic micro-structure. Arcaloy MC409Ti produces a smooth spray-type metal transfer with very minimal spatter. It is particularly suited for welding parts with poor fit up. It was designed for welding stainless steel catalytic converters, manifolds, mufflers and exhaust sysems.

Arcaloy MC409Nb	Classifications & approvals	Typical chemical composition all weld metal (%)				
		C	Mn	Si	Nb	Cr
Type Metal-cored	AWS A5.9: EC409Nb	0.019	0.50	0.53	0.52	11.5

Polarity
DC+

Shielding gas
Ar/ 2% O_2

Size (mm)
1.2

Arcaloy 409Cb is stabilised with niobium (Nb) for arc stability and to form carbides as a means to improve corrosion resistance and increase strength at high temperatures. Cr range is 10.50 to 13.50%. Designed for the welding of ferritic stainless steel exhaust system components, such as manifolds, catalitic converters and mufflers. Produces a smooth spray arc metal transfer with minimal spatter. Suited for welding parts with poor fit-up.

Arcaloy MC439 Ti	Classifications & approvals	Typical chemical composition all weld metal (%)				
		C	Mn	Si	Cr	Ti
Type Metal-cored	AWS A5.9: EC439	0.016	0.76	0.27	17.9	0.68

Polarity
DC+

Shielding gas
Ar/ 2% O_2

Size (mm)
1.2

Arcaloy MC439Ti is an 16-17% Cr alloy metal cored electrode stabilised with titanium (Ti). The high level of chromium provides additional oxidation and corrosion resistance when welding stainless steel converters, manifolds, mufflers, and exhaust systems. It is also suited for welding parts with poor fitup. Arcalloy MC439Ti produces a spray - type metal transfer with minimal spatter.

Arcaloy MC 18CrCb	Classifications & approvals	Typical chemical composition all weld metal (%)					
		C	Mn	Si	Nb	Cr	Ti
Type Metal-cored		0.21	0.70	0.51	0.50	18.6	0.25

Polarity
DC+

Shielding gas
Ar/ 2% O_2

Size (mm)
1.2

Arcaloy MC18CrCb is an 18% Cr Alloy metal cored wire stabilised with titanium (Ti) and niobium (Nb). It is designed for welding Armco 18Cr-Cb HP-10TM stainless steels used in catalytic converters, manifolds, mufflers and exhaust systems. It is also suited for welding parts with poor fit up. Arcaloy MC18CrCb produces a smooth spray-type metal transfer with very minimal spatter.

Solid wires for ferritic stainless steel

	Classifications & approvals	Typical chemical composition wire/rod (%)									Typical mechanical properties all weld metal		
OK Autrod 430 LNbTi		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**Nb**	**Ti**	**Cu**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Polarity DC+	EN ISO 14343-A , G Z 18 LNbTi W.Nr ~1.4509	0.025	0.65	0.5	18	0.3	0.3	0.55	0.25	0.3	275	420	26
Shielding gas Ar/2%CO_2 Ar/1-2%O_2	OK Autrod 430 LNB/Ti is a ferritic stainless solid wire with low carbon content and excellent welding properties and dual stabilised with Nb and Ti, for welding similar and matching steels. OKAutrod430LNbTi is developed and designed for the automotive industry and used for production of exhaust systems. The wires should be used when there is a need for very good resistance to corrosion and thermal fatigue. The wire provides a weld with finer grain size and hence better mechanical properties compared to other ferritic wires. The dual stabilisation gives improved wetting of the weld bead.												
Size (mm) 1.0, 1.2													

	Classifications & approvals	Typical chemical composition wire/rod (%)									Typical mechanical properties all weld metal		
OK Autrod 430LNb		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**N**	**Nb**	**Other**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Polarity DC+	EN ISO 14343-A: G 18 L Nb W.Nr 1.4511	0.015	0.5	0.5	18.5	0.2	0.06	0.01	0.45	Tot <0.5	275	420	26
Shielding gas Ar/2%CO_2 Ar/1-2%O_2	A ferritic, stainless, solid wire with a low carbon content, 18% Cr and stabilised with Nb, for welding similar and matching steels. OK Autrod 430 LNb has been developed and designed for the automotive industry and is used in the production of exhaust systems. The wire should be used when very good resistance to corrosion and thermal fatigue is required. Comments: Typical mechanical properties of weld assembly, base material AISI (EN 1.4512) 1.5mm.												
Size (mm) 0.8, 0.9, 1.0, 1.2, 1.6													

	Classifications & approvals	Typical chemical composition wire/rod (%)								Typical mechanical properties all weld metal		
OK Autrod 430Ti		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**Ti**	**Other**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Polarity DC+	EN ISO 14343-A: G Z 17Ti W.Nr: 1.4502	0.09	0.9	0.4	18	0.3	0.1	0.5	Tot <0.5	390	600	24
Shielding gas Ar/2%CO_2 Ar/1-2%O_2	A ferritic, stainless, solid wire with a content of 18% Cr and stabilised with 0.5% Ti for welding similar and matching steels. The alloy is also used for cladding on unalloyed and low-alloyed steels. OK Autrod 430Ti is also widely used in the automotive industry for the welding of manifolds, catalytic converters and exhaust pipes. Typical mechanical properties stress relieved at 780 degrees 0,5h welded with Ar/2%CO_2.											
Size (mm) 0.9, 1.0, 1.2												

	Classifications & approvals	Typical chemical composition wire/rod (%)								Typical mechanical properties all weld metal		
OK Tigrod 430Ti		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**Ti**	**Other**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Size(mm) 1.0 to 3.2	EN ISO 14343-A: W Z 17Ti W.Nr: 1.4502	0.09	0.7	0.4	17.5	0.3	0.1	0.5		>300	>450	>15
	A ferritic stainless solid rod with a content of 18% Cr and stabilised with 0,5% Ti for welding similar and matching steels. The alloy is also used for cladding on unalloyed and low-alloyed steels. OK Tigrod 430Ti is also widely used in the automotive industry for the welding of manifolds, catalytic coverters and exhaust pipes. Typical mechanical properties stress relieved at 780 degrees 0,5h.											

	Classifications & approvals	Typical chemical composition wire/rod (%)								Typical mechanical properties all weld metal		
OK Autrod 409Nb		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**Nb**	**Other**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Polarity DC+	ESFA/AWS 5.9: ER409Nb	0.02	0.7	0.7	11.7	0.4	<0.1	0.4	<0.50	>250	>450	>15
	A ferritic stabilised stainless solid welding wire of 12% Cr and 0,4% Nb type. OK Autrod 409Nb is used for the welding of equivalent steel grades in applications such as catalytic converters and mufflers.											
Size(mm) 0.9, 1.0, 1.2												

Solid wires for austenitic stainless steel

OK Autrod 16.95

	Classifications & approvals	Typical chemical composition wire/rod (%)								Typical mechanical properties all weld metal			
		C	Si	Mn	Cr	Ni	Mo	N	Other	$R_{p\,0.2}$ (MPa)	Rm (MPa)	A4/A5 (%)	CVN (°C/J)
Polarity DC+	EN ISO 14343-A: G 18 8 Mn W.Nr: 1.4307	0.1	1.0	6.5	18.5	8.5	0.1	<0.08	Tot <0.5	450	640	41	+20/130
Shielding gas Ar/2%CO_2 Ar/1-3%O_2	CE, DB, TÜV, NAKS												
Size (mm) 0.8 to 1.6	A solid, corrosion resistant chromium-nickel-manganese wire for welding austenitic stainless alloys of 18% Cr, 8% Ni, 7% Mn types. OK Autrod 16.95 has an overall corrosion resistance similar to that of the corresponding parent metal. The higher silicon content improves the welding properties, such as wetting. The product is a modified variant of ER307, basically with a higher Mn content to make the weld less sensitive to hot cracking. When used for joining dissimilar materials, the corrosion resistance is of secondary importance. The alloy is used in a wide range of applications across the industry, such as the joining of austenitic, manganese, work hardenable steels as well as armourplate and heat resistant steels.												

OK Autrod 308LSi

	Classifications & approvals	Typical chemical composition wire/rod (%)									Typical mechanical properties all weld metal			
		C	Si	Mn	Cr	Ni	Mo	N	Other	FN	$R_{p\,0.2}$ (MPa)	Rm (MPa)	A4/A5 (%)	CVN (°C/J)
Polarity DC+	EN ISO 14343-A: G 19 9 LSi AWS/SFA A5.9 ER308LSi W.Nr: ~1.4316 CE, CWB, DB, DNV, TÜV, NAKS	0.01	0.8	1.8	20	10	0.1	<0.08	Tot <0.5	8	370	620	36	+20/110 -60/90 -196/60
Shielding gas Ar/2%CO_2 Ar/1-3%O_2	A solid, corrosion resistant, chromium-nickel wire for welding austenitic chromium-nickel alloys of the 18 Cr-8% Ni type. OK Autrod 308LSi has good general corrosion resistance. The alloy has a low carbon content, making it particularly recommended when there is a risk of intergranular corrosion. The higher silicon content improves the welding properties such as wetting. The alloy is widely used in the chemical and food processing industries, as well as for pipes, tubes and boilers.													
Size (mm) 0.6 to 1.6														

OK Autrod 309LSi

	Classifications & approvals	Typical chemical composition wire/rod (%)									Typical mechanical properties all weld metal			
		C	Si	Mn	Cr	Ni	Mo	N	Other	FN	$R_{p\,0.2}$ (MPa)	Rm (MPa)	A4/A5 (%)	CVN (°C/J)
Polarity DC+	EN ISO 14343-A: G 23 12 LSi AWS/SFA 5.9 ER309LSi W.Nr: 1.4332 DB, CE, CWB, TÜV, NAKS	0.02	0.8	1.8	24	13	0.1	<0.09	Tot <0.5	8	440	600	41	+20/160 -60/130 -110/90
Shielding gas Ar/2%CO_2 Ar/1-3%O_2	A solid, corrosion resistant, chromium-nickel wire for welding steels with a similar composition, wrought and cast steels of the 23% Cr -12% Ni types. The alloy is also used for welding buffer layers on CMn steels and welding dissimilar joints. When using the wire for buffer layers and dissimilar joints, it is necessary to control the dilution of the weld. OK Autrod 309LSi has good general corrosion resistance. The higher silicon content improves the welding properties such as wetting.													
Size (mm) 0.8 to 1.6														

OK Autrod 316LSi

	Classifications & approvals	Typical chemical composition wire/rod (%)									Typical mechanical properties all weld metal			
		C	Si	Mn	Cr	Ni	Mo	N	Other	FN	$R_{p\,0.2}$ (MPa)	Rm (MPa)	A4/A5 (%)	CVN (°C/J)
Polarity DC+	EN ISO 14343-A: G 19 12 3 LSi AWS/SFA A5.9 ER316LSi W.Nr: 1.4430 CE, CWB, DB, DNV, TÜV, NAKS	0.02	0.8	1.8	18.5	12	2.7	<0.08	Tot <0.5	7	440	620	37	+20/120 -60/95 -196/55
Shielding gas Ar/2%CO_2 Ar/1-3%O_2	A continuous, solid , corrosion resistant, chromium-nickel-molybdenum wire for welding austenitic stainless alloys of the 18% Cr -8% Ni and 18% Cr -10% Ni -3% Mo type. OK Autrod 316LSi has good overall corrosion resistance; in particular, the alloy has very good resistance to corrosion in acid and chlorinated environments. The alloy has a low carbon content which makes it particularly recommended when there is a risk of intergranular corrosion. The higher silicon content improves the welding properties such as wetting. The alloy is widely used in the chemical and food.													
Size (mm) 0.6 to 1.6														

Solid wires for austenitic stainless steel

	Classifications & approvals	Typical chemical composition wire/rod (%))									Typical mechanical properties all weld metal			
OK Tigrod 308LSi		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**N**	**Other**	**FN**	**$R_{p\ 0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Size (mm) 1.0-4.0	EN 14343-A: W 19 9 LSi AWS/SFA A5.9 ER308LSi W.Nr: ~1.4316 CE, CWB, DB, DNV, TÜV , NAKS	0.01	0.8	1.8	20	10	0.1	<0.08	Tot. <0.5	8	480	625	37	+20/170 -60/150 -110/140 -196/100

Bare, corrosion resistant, chromium-nickel rods for welding austenitic chromium-nickel alloys of the18% Cr-8% Ni type. OK Tigrod 308LSi has good overall corrosion resistance. The alloy has a low carbon content which makes it particularly recommended when there is a risk of intergranular corrosion. The higher silicon content improves the welding properties such as wetting. The alloy is widely used in the chemical and food processing industries, as well as for pipes, tubes and boilers.

	Classifications & approvals	Typical chemical composition wire/rod (%)									Typical mechanical properties all weld metal			
OK Tigrod 316LSi		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**N**	**Other**	**FN**	**$R_{p\ 0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Size (mm) 1.0-4.0	EN 14343-A: W 19 12 3 LSi AWS/SFA A5.9 ER316LSi CE, DB, DNV, TÜV , NAKS	0.01 **Cu** 0.1	0.8	1.8	18	12	2.8	<0.08	Tot <0.5	7	480	630	33	+20/175 -110/150 -196/110

Bare, corrosion resistant, chromium-nickel-molybdenum rod for welding austenitic stainless alloys of the 18% Cr-8% Ni and 18% Cr-10% Ni-3% Mo type. OK Tigrod 316LSi has good overall corrosion resistance, particularly to corrosion in acid and chlorinated environments. The alloy has a low carbon content which makes it particularly recommended when there is a risk of intergranular corrosion. The higher silicon content improves welding properties, such as wetting. The alloy is widely used in the chemical and food-processing industries, as well as in shipbuilding and various architectural structures.

We made this wire matt – so your productivity can shine.

A cleaner wire for a cleaner finish
ESAB matt stainless steel solid wires are manufactured using an innovative drawing process. The matt surface is finished with a special feed-aid that does not accumulate within the feeding system or welding gun, and has no adverse effect on the quality of the finished weld. It gives the following advantages:

- the matt surface allows the feed rolls to gain a better grip on the wire and so eliminates troublesome slippage.
- the manufacturing process gives improved glide and stiffness thereby lowering the feed forces required to drive the wire to the welding torch or gun. This is especially important for high cycle intermittent welding operations.
- the manufacturing process permits a stricter control over the cast and the helix of the wire.These are two essential properties with spooled wires and need to be retained as constant as possible.

Taken together, all three add up to better welding performance with improved arc stability and weld quality together with higher production output.

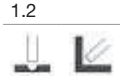
**Greater arc stability,
better weld quality
and higher production output.**

Cored wires for austenitic stainless steel

	Classifications & approvals	Typical chemical composition all weld metal (%)							Typical mechanical properties all weld metal		
OK Tubrod 15.30		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**Cu**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Type Metal cored	EN ISO 17633-A: T 19 9 L M M 2	0.02	0.7	1.3	18.8	9.8	0.1	0.10	340	550	45
Polarity DC+	DB, TÜV										
Shielding gas Ar/2%O_2	OK Tubrod 15.30 is a stainless 308L grade metal cored wire designed for high deposition welding of 301, 302 304 and 304L grades. The wire produces no slag - only small silica islands - and little spatter making it suitable for mechanised and robotic welding. For welding in the spray mode of arc transfer with Ar/2%O_2 shielding gas.										
Size (mm) 1.2											

	Classifications & approvals	Typical chemical composition all weld metal (%)							Typical mechanical properties all weld metal		
OK Tubrod 15.31		**C**	**Si**	**Mn**	**Cr**	**N**	**Mo**	**Cu**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Type Metal cored	EN ISO 17633-A: T 19 12 3 L M M 2	0.02	0.7	1.2	17.6	11.6	2.7	0.10	416	575	37
Polarity DC+	DB, DNV, LR, TÜV										
Shielding gas Ar/2%O_2	OK Tubrod 15.31 is a stainless 316L grade metal cored wire designed for high deposition welding. The wire produces no slag - only small silica islands - and little spatter making it suitable for mechanised and robotic welding. For welding in the spray mode of arc transfer with Ar/2%O_2 shielding gas.										
Size (mm) 1.2, 1.6											

	Classifications & approvals	Typical chemical composition all weld metal (%)							Typical mechanical properties all weld metal		
OK Tubrod 15.34		**C**	**Si**	**Mn**	**Cr**	**N**	**Mo**	**Cu**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Type Metal cored	EN ISO 17633-A: T 18 8 Mn M M 2	0.10	0.7	6.7	18.5	8.7	0.1	0.10	430	635	39
Polarity DC+	DB, TÜV										
Shielding gas Ar/2%O_2	OK Tubrod 15.34 is a stainless 307 grade metal cored wire designed for the high deposition welding of armour steel, austenitic-manganese steels and dissimilar steels. The wire produces no slag - only small silica islands - and little spatter making it suitable for mechanised and robotic welding. For welding in the spray mode of arc transfer with Ar/2%O_2 shielding gas.										
Size (mm) 1.2											



Solid wire for nickel based materials

	Classifications & approvals	Typical chemical composition wire/rod (%)							Typical mechanical properties all weld metal			
OK Autrod 19.82		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**Other**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Polarity DC+	EN ISO 18274: S Ni 6625 (NiCr22Mo9Nb) AWS/SFA 5.14: ERNiCrMo-3	0.01	0.1	0.1	22.0	bal	9	Tot <0.5	500	780	45	-105/120 -196/110
Shielding gas Ar Ar/He	TÜV, DNV	**Cu** <0.5	**Al** <0.4	**Fe** <2.0	**Ti** <0.4	**Nb+Ta** 3.65						
Size (mm) 0.8 to 1.6	A continuous, solid, corrosion and heat resistant, Ni-Cr electrode for welding high-alloyed, heat resistant and corrosion-resistant materials, 9% Ni steels and similar steels with high notch toughness at low temperatures. It is also suitable for joining dissimilar metals of the types mentioned above. The weld metal has very good mechanical properties at high and low temperatures. Good resistance to pitting and stress corrosion. Also suited for welding alloy EN-ISO 18274, S Ni 6625 (NiCr21Mo9Nb), Wnr. 2.4831 - used for exhaust systems.											

	Classifications & approvals	Typical chemical composition wire/rod (%)							Typical mechanical properties all weld metal			
OK Autrod 19.85		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**Other**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Polarity DC+	EN ISO 18274: S Ni 6082 (NiCr20Mn3Nb) AWS/SFA 5.14: ERNiCr-3	0.02	0.1	3.0	20.0	bal		Tot <0.5	420	680	40	-196/80
Shielding gas	TÜV	**Cu** <0.5	**Fe** <0.7	**Ti** <3	**Nb+Ta** 2.5							
Size (mm) 0.8 to 1.6	A nickel-based, corrosion and heat resistant, 20% Cr, 3% Mo, 2.5% Nb electrode for the GMAW of high-alloyed steel, heat resistant steel, corrosion resistant steel, 9% Ni and similar steels with high notch toughness at low temperatures. It is also suitable for joining dissimilar metals of the type mentioned above. OK Autrod 19.85 is usually welded with pure Ar as the shielding gas. Also suited for welding alloy EN-ISO 18274, S Ni 6625 (NiCr21Mo9Nb), Wnr. 2.4831 - used for exhaust systems.											

	Classifications & approvals	Typical chemical composition wire/rod (%)							Typical mechanical properties all weld metal			
OK Tigrod 19.82		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**Other**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Size (mm) 0.6 to 3.2	EN ISO 18274: S Ni 6625 (NiCr22Mo9Nb) AWS/SFA 5.14: ERNiCrMo-3	0.01	0.1	0.1	22.0	bal	9	Tot <0.5	500	780	40	-196/110
	TÜV, DNV	**Cu** <0.5	**Al** <0.4	**Fe** <2	**Ti** <0.4	**Nb+Ta** 3.65						
	A nickel-based, corrosion and heat resistant 22% Cr, 9% Mo, 3.5% Nb rod for the GTAW of high-alloyed steel, heat resistant steel, corrosion resistant steel, 9% Ni steels and similar steel with high notch toughness at low temperatures. It is also suitable for joining dissimilar metals of the types mentioned above. OK Tigrod 19.82 is normally welded with pure Ar as the shielding gas.											

	Classifications & approvals	Typical chemical composition wire/rod (%)							Typical mechanical properties all weld metal			
OK Tigrod 19.85		**C**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**Other**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Size (mm) 0.6 to 3.2	EN ISO 18274: S Ni 6082 (NiCr20Mn3Nb) AWS/SFA 5.14: ERNiCr-3	0.02	0.1	3	20	>67		Tot <0.5	440	670	40	+20/150 -196/100
	TÜV	**Cu** <0.5	**Ti** <0.7	**Fe** <3.0								
	A nickel-based, corrosion and heat resistant 20% Cr, 3% Mn, 2.5% Nb rod for the GTAW of high-alloyed steel, heat resistant steel, corrosion resistant steel, 9% Ni steels and similar steels with good notch toughness at low temperatures. It is also suitable for joining dissimilar metals of the types mentioned above. OK Tigrod 19.85 is usually welded with pure Ar as the shielding gas.											

Solid wires for aluminium alloys

	Classifications & approvals	Typical chemical composition wire/rod (%)								Typical mechanical properties all weld metal		
OK Autrod 4043		**Si**	**Mn**	**Cr**	**Cu**	**Ti**	**Zn**	**Fe**	**Other**	**$R_{p\ 0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Size (mm) 0.8 to 2.4	SFA/AWS A5.10: ER4043 EN ISO 18273S: Al 4043 (AlSi5) EN ISO 18273S: Al 4043A (AlSi5(A))	5.0	<0.05	<0.05	<0.05	<0.15	<0.1	<0.6	<0.05	55	165	18

CWB, DB, CE

OK Autrod 4043 is one of the most widely used welding and brazing alloys and can be classified as a general-purpose filler alloy. Used for welding radiators, fuel tanks, air conditioning, exhaust parts. The silicon addition results in improved fluidity (wetting action), making the alloy the preferred choice of welders. The alloy is not sensitive to weld cracking and produces bright, almost smut-free welds. Not recommended for anodising. Non-heat treatable. Welding current DC(+)

	Classifications & approvals	Typical chemical composition wire/rod (%)								Typical mechanical properties all weld metal		
OK Autrod 4047		**Si**	**Mn**	**Mg**	**Cu**	**Ti**	**Zn**	**Fe**	**Other**	**$R_{p\ 0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Size (mm) 0.9, 1.2, 1.6	SFA/AWS A5: 10ER4047 EN ISO 18273S: Al 4047 (AlSi12) EN ISO 18273S: Al 4047A (AlSi12(A))	12	0.15	<0.10	0.05	0.15	0.2	0.6	<0.15	80	170	12

CWB

OK Autrod 4047 was originally developed as a brazing alloy to take advantage of its low melting point and narrow freezing range. In addition, it has a higher silicon content than OK Autrod 4043, which provides increased fluidity and reduced shrinkage. The alloy produces bright, almost smut-free welds. Hot cracking is significantly reduced when using OK Autrod 4047 as a filler alloy. The alloy can be used in applications with sustained elevated temperatures. Non-heat treatable. Used for radiators, fuel tanks and cabins. Welding current DC(+)

	Classifications & approvals	Typical chemical composition wire/rod (%)									Typical mechanical properties all weld metal		
OK Autrod 5183		**Si**	**Mn**	**Cr**	**Mg**	**Cu**	**Ti**	**Zn**	**Fe**	**Other**	**$R_{p\ 0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Size (mm) 1.0 to 2.4	SFA/AWS A5.10: ER5183 EN ISO 18273S: Al 5183 (AlMg4.5Mn0.7(A)	0.25	0.8	0.15	4.8	0.1	0.15	0.25	0.4	4.8	140	290	25

ABS, CWB, DB, DNV, GL, LR, VdTÜV, Ü

OK Autrod 5183 is designed to provide the highest possible strength in the as-welded condition of alloy AA 5083 and similar high-magnesium alloys. The more common OK Autrod 5356 typically fails to meet the as-welded tensile requirements of AA 5083. The alloy is typically used in marine and structural applications where high strength, high fracture toughness for impact resistance and exposure to corrosive elements are important. The alloy is not recommended for elevated temperature applications due to its susceptibility to stress corrosion cracking. The alloy is non-heat treatable. Welding current DC(+)

	Classifications & approvals	Typical chemical composition wire/rod (%)									Typical mechanical properties all weld metal		
OK Autrod 5356		**Si**	**Mn**	**Mg**	**Cu**	**Ti**	**Zn**	**Fe**	**Cr**	**Other**	**$R_{p\ 0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Size (mm) **0.8 to 2.4**	SFA/AWS A5: 10ER5356 EN ISO 18273S: Al 5356 (AlMg5Cr(A))	<0.25	0.15	5.0	0.05	0.11	<0.10	<0.4	0.15	<0.15	120	265	26

ABS, CWB, DB, DNV, GL, LR, VdTÜV, Ü

OK Autrod 5356 is the most widely used welding alloy and can be classified as a general-purpose type filler alloy. OK Autrod 5356 is typically chosen because of its relatively high shear strength. The 5XXX alloy base material, welded with OK Autrod 5356, with a weld pool chemistry greater than 3% Mg and service temperatures in excess of 65°C, is susceptible to stress corrosion cracking. It is the most universal wire for aluminium components in the transportation fabrication industry. The alloy is non-heat treatable. Welding current DC(+)

Solid wires for aluminium alloys

	Classifications & approvals	Typical chemical composition wire/rod (%)									Typical mechanical properties all weld metal		
OK Autrod 5554		**Si**	**Mn**	**Cr**	**Mg**	**Cu**	**Ti**	**Zn**	**Fe**	**Other**	**$R_{p\,0.2}$ (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Size (mm) **1.2, 1.6**	SFA/AWS A5.10: ER5554 EN ISO 18273S: Al 5554 (AlMg2.7Mn)	0.25	0.75	0.15	2.7	<0.1	0.13	<0.25	<0.40	<0.15	110	230	17

CWB

OK Autrod 5554 is a solid aluminium wire with a content of 2.7% Mg. It is recommended for welding AlMg alloys like 5454. Typical applications include chemical storage tanks, automotive components like wheels and frame sections. The weld metal is not sensitive to stress corrosion cracking at elevated temperatures. Welding current DC +

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Solid wires for copper based materials

	Classifications	Typical chemical composition wire/rod (%)						Typical mechanical properties all weld metal			
OK Autrod 19.30		**Cu**	**Si**	**Mn**	**Sn**	**Zn**	**Fe**	**Rp 0.2 (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
	SFA/AWS A5.7: ERCuSi-A EN ISO 24373: S Cu 6560 (CuSi3Mn1)	>94.0	3.4	1,1	<0.2	<0.2	0.02	130	350	40	
Type Copper based											
Shielding gas Ar/He	VdTÜV										
Dimensions 0.8 - 1.6mm	OK Autrod 19.30 is a solid, copper wire for the GMA joining of copper-zinc alloys and low-alloyed copper and for the GMA brazing of zinc-coated steel sheets. OK Autrod 19.30 is alloyed with silicon and manganese and has good flow properties and wear resistance. The alloy is widely used in the joining of zinc-coated steel sheets in car body production, as well as for overlay welding on low- and non-alloyed steels and cast iron. Pulsed GMA is recommended. OK Autrod 19.30 is normally welded with pure Ar as the shielding gas; however, for GMA brazing, the addition of 1% O2 improves the brazing properties. Welding current DC(+)										

	Classifications	Typical chemical composition wire/rod (%)						Typical mechanical properties all weld metal			
OK Autrod 19.40		**Cu**	**Si**	**Mn**	**Al**	**Zn**	**Fe**	**Rp 0.2 (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Type Copper based	SFA/AWS A5.7: ERCuAl-A1 EN ISO 24373: S Cu 6100 (CuAl8)	bal.	0.05	<0.5	7.9	<0.1	<0.5	175	420	40	
Shielding gas He Ar/He Ar/1%O_2											
Dimensions 0.8 - 1.6mm	OK Autrod 19.40 is a solid, copper wire for the GMA joining of aluminium bronzes. OK Autrod 19.40 is alloyed with aluminium and is recognised for its high strength, good wear resistance and very good corrosion resistance, particularly in salt water. The alloy is widely used for joining corrosion-resistant pipes made of aluminium bronze or other special brass alloys. Other common applications include the overlay welding of bearings, ship's propellers and rails as well as Zinc coated materials in the automotive industry. OK Autrod 19.40 is normally welded with pure Ar as the shielding gas. Welding current DC(+)										

	Classifications	Typical chemical composition wire/rod (%)						Typical mechanical properties all weld metal			
OK Autrod 19.41		**Cu**	**Si**	**Mn**	**Al**	**Ni**	**Fe**	**Rp 0.2 (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Type Copper based	EN ISO 24373: S Cu 6327 (CuAl8Ni2)	bal.	0.2	1.8	8.5	2.4	2.0	N/A	N/A	N/A	N/A
Shielding gas Ar He Ar/He											
Dimensions 0.8 - 1.2mm	A continuous solid aluminium bronze electrode alloyed with Ni. OK Autrod 19.41 is used for overlay welding of steel and for welding of cast or wrought nickel-aluminium bronze materials as well as Zinc coated materials in the automotive industry. The alloy has very good resistance to seawater. Welding current DC(+)										

	Classifications	Typical chemical composition wire/rod (%)						Typical mechanical properties all weld metal		
OK Autrod CuSi Laser		**Cu**	**Si**	**Mn**	**Sn**	**Fe**	**Zn**	**Rp 0.2 (MPa)**	**Rm (MPa)**	**A4/A5 (%)**
Type Copper based	EN 14640: S Cu 6560 (CuSi3Mn1) SFA/AWS A5.7 ERCuSi-A	bal.	≤ 2.95	1.15	≤ 0.2	≤ 0.3	≤ 0.2	130	350	40
Shielding gas C1 (EN ISO 14175)										
Dimensions 1.0 -1.6mm	A solid copper wire intended for laser brazing of zinc coated steel sheets. OK Autrod CuSi Laser is especially developed for laser brazing of body-in-white applications within the automotive industry. Compared to a standard CuSi3Mn1 copper wire OK Autrod CuSi Laser provides a more stable brazing process as well as a superior surface finish.									

Fluxes for submerged arc welding

OK Flux 10.61

Basicity index
2.6

Density
~ 1.1 kg/dm³

Grain size
0.2 - 1.6 mm

Slag type
Fluoride-basic

Polarity
DC+

Alloy transfer
Slightly Si and no Mn alloying

Classifications	Typical chemical composition all weld metal (%)								
OK Flux 10.61	**C**	**Si**	**Mn**	**Cr**	**Mo**	**Rp 0.2 (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
EN ISO 14174: S A FB 1 65 DC									
With OK Autrod 12.24	0.06	0.25	1.0		0.5	480	570	26	+20/130 0/120 -20/80 -40/35
EN ISO 14171-A: S 42 2 FB S2Mo SFA/AWS A5.23: F7A4-EA2-A2									
With OK Autrod 12.22	0.08	0.35	1.0			440	520	30	-20/120 -30/85 -40/75 -62/35
EN ISO 14171-A: S 38 4 FB S2Si SFA/AWS A5.17: F7A8-EM12K									
With OK Autrod 12.32	0.09	0.3	1.4			475	560	28	-20/120 -40/100 -50/55 -62/40
EN ISO 14171-A: S 42 5 FB S3Si SFA/AWS A5.17 F7A6-EH12K									

OK Flux 10.61 is an agglomerated, high-basic flux for submerged arc welding. It is used for single and multi-run butt welding when demands on impact toughness values are high. This is a good alternative to other high basic fluxes when welding is done with single wire DC+.The flux alloys very little Si and Mn to the weld metal and thus it is well suited for welding of unlimited plate thicknesses. OK Flux 10.61 is used in general construction, pressure vessel construction, power generation and transport industries . Due to the non-alloying effect, OK Flux 10.61 is designed for use with a
suitable alloying wire. OK Flux 10.61 can be used on DC±.

OK Flux 10.71

Basicity index
1.5

Density
~ 1.2 kg/dm³

Grain size
0.2 - 1.6mm

Slag type
Aluminate-basic

Polarity
DC+/AC

Alloy transfer
Slightly Si and moderate Mn alloying

Hydrogen
≤ 5 HDM

Classifications	Typical chemical composition all weld metal (%)			Typical mechanical properties all weld metal				
OK Flux 10.71	**C**	**Si**	**Mn**	**Rp 0.2 (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**	**AW/ SR**
EN ISO 14174: SA AB 1 67 AC H5								
With OK Autrod 12.10	0.04	0.3	1.0	360	465	30	-20/95	AW
EN ISO 14171-A: S 35 4 AB S1 SFA/AWS A5.17: F6A4-EL12							-30/75 -40/65	
With OK Autrod 12.20	0.05	0.3	1.4	410	510	29	-20/80	AW
EN ISO 14171-A: S 38 4 AB S2 SFA/AWS A5.17: F7A4-EM12							-40/55	
With OK Autrod 12.22	0.05	0.5	1.4	425	520	29	-20/100	AW
EN ISO 14171-A: S 38 4 AB S2Si SFA/AWS A5.17: F7A5-EM12K							-40/60	
With OK Autrod 12.30	0.09	0.4	1.7	480	580	29	-20/90	AW
EN ISO 14171-A: S 46 3 AB S3							-30/60	
With OK Autrod 12.32	0.09	0.5	2.0	475	560	28	0/130 -20/95 -40/65 -46/40	AW
EN ISO 14171-A: S 46 4 AB S3Si SFA/AWS A5.17 F7A5-EH12K								

OK Flux 10.71 is a basic agglomerated, slightly Si- and Mn-alloying flux for submerged arc welding, specially designed for fillet welding and for the single- and multi-pass butt welding of mild, medium and high tensile steels. OK Flux 10.71 is of the aluminate basic type and, for this slag system, it has a very high current-carrying capacity on both AC and DC and very good operating characteristics. OK Flux 10.71 is ideally suited to narrow gap welding due to the excellent slag detachability and smooth side-wall blending.

	Classifications	Typical chemical composition all weld metal (%)						
OK Flux 10.76		**C**	**Si**	**Mn**	**Rp 0.2 (MPa)**	**Rm (MPa)**	**A4/A5 (%)**	**CVN (°C/J)**
Basicity index 1,5	EN ISO 14174: S A AB 1 89 AC							
	With OK Autrod 12.10							
Density 1.2 kg/dm³	EN ISO 14171-A: S 42 3 AB S1 SFA/AWS A5.17: F7A4-EL12	0.06	0.5	1.9	450	540	25	0/100 -20/70 -30/55 -40/45
Grain size 0.2 - 1.6 mm								
Slag type Aluminate-basic								
Polarity DC+ / A								
Alloy transfer High Si and very high Mn alloying								

OK Flux 10.76 is an agglomerated, basic flux for submerged arc welding. It is especially suited for welding joints with high dilution, such a I-joints with one run from each side and fillet welds. Due to its high alloying of mainly Mn, it creates a weld metal with outstanding toughness values in these joint types. It is used for single and multi-wire procedures and works equally well on DC and AC current. On multi-pass welding the number of passes is limited and the plate thickness should not exceed about 20mm. OK Flux 10.76 is recommended tobe used with OK Autrod 12.10. The main application area for OK Flux 10.76 is in shipbuilding where it is used preferably for two run double-sided welding. However, it is also utilised in other market segments where joints with high dilution or with only a few passes are welded, such as the production of pressure vessels,
in the transport industry and in general construction.

	Classifications	Typical chemical composition all weld metal (%)						
OK Flux 10.81		**C**	**Si**	**Mn**	**Rp 0.2 (MPa)**	**Rm (Mpa)**	**A4/A5 (%)**	**CVN (°C/J)**
Basicity index 0.6	EN ISO 14174: S A AR 1 97 AC							
	With OK Autrod 12.10							
Density 1.25 kg/dm³	EN ISO 14171-A: S 42 A AR S1 SFA/AWS A5.17: F7AZ-EL12	0.08	0.8	1.2	450	540	25	20/50 0/30
	With OK Autrod 12.20							
Grain size 0.2 - 1.6 mm	EN ISO 14171-A: S 46 0 AR S2 SFA/AWS A5.17: F7A0-EM12	0.07	0.8	1.5	510	610	25	20/80 0/60 -18/40
Slag type Aluminate-rutile								
	With OK Autrod 12.22							
Polarity DC+ / AC	EN ISO 14171-A: S 50 A AR S2Si SFA/AWS A5.17: F7AZ-EM12K	0.07	0.9	1.5	530	610	24	20/60
	With OK Autrod 12.30							
Alloy transfer Very high Si and moderate-ly Mn alloying	EN ISO 14171-A: S 50 0 AR S3	0.08	0.7	1.75	540	640	25	20/80 0/60

OK Flux 10.81 is an agglomerated, low-basicity flux. The benefits of this flux are the smooth surface finish and excellent slag detachability. It is intended for a limited number of passes and plate thickness up to approx. 25mm. It is used for single and multi-wire procedures such as tandem and twin-arc welding. Concave fillet welds with an excellent washing on the sidewalls are created with this flux as well as attractive butt and overlap welds. It works equally well on DC and AC current and the high alloying of Si makes it well suited for high speed welding. Due to its good weldability, OK Flux 10.81 is often used in the production of pressure vessels and spiral welded water pipes. The excellent sidewall wetting, which is preferred for dynamic loads in horizontal fillet welds is made use of in general construction, beam fabrication, the automotive industry and tube to fin welding in the production of membrane wall panels. In many applications where the appearance of the weld bead or the nice washing on the sidewalls in fillet welds are the main requirements, OK Flux 10.81 is chosen.

Fluxes for submerged arc welding

	Classifications	Typical chemical composition all weld metal (%)						
OK Flux 10.87		**C**	**Si**	**Mn**	**Rp 0.2 (MPa)**	**Rm (Mpa)**	**A4/A5 %)**	**CVN (°C/J)**
Basicity index 0.4	EN ISO 14174: S A AR 1 95 AC							
	With OK Autrod 12.10							
Density 1.2 kg/dm³	EN ISO 14171-A: S 35 A AR S1 SFA/AWS A5.17: F6AZ-EL12	0.05	0.8	0.6	370	470	25	0/25 +20/50
Grain size 0.2 - 1.6 mm	**With OK Autrod 12.20**							
Slag type Aluminate-rutile	EN ISO 14171-A: S 42 A AR S2 SFA/AWS A5.17: F7AZ-EM12	0.05	0.8	1.0	410	500	25	0/25 +20/50
	With OK Autrod 12.22							
Polarity DC+/AC	EN ISO 14171-A: S 42 A AR S2Si SFA/AWS A5.17: F7AZ-EM12K	0.05	0.9	1.0	420	510	25	0/25 +20/50
Alloy transfer Very high Si alloying, neutral on Mn								

OK Flux 10.87 is an agglomerated, low-basicity flux for submerged arc welding. It gives perfect wetting and excellent weld bead appearance in butt, overlap and fillet welds at high welding speeds.
OK Flux 10.87 is used for single and multi-wire procedures and works equally well on DC and AC current. It is intended for a limited number of passes and plate thickness up to 25mm.
The main application area for OK Flux 10.87 is in the production of air compressor tanks, LPG bottles and fire extinguishers. A flat weld bead and smooth, clean surface with excellent slag detachability is achieved, also when the second run has been pre-heated by the first run. Other industries with similar requirements also make use of OK Flux 10.87, including general construction and the automotive industry.

Solid/cored wires for hardfacing

	Classifications	Typical chemical composition all weld metal (%)			
OK Autrod 13.91		**C**	**Si**	**Mn**	**Cr**
Weld metal hardness 50-60HRC	EN 14700 SFe8.	0.45	3.0	<0.8	9.0
Shielding gas CO_2	OK Autrod 13.91 is a copper coated, low-alloyed solid GMAW wire used for hardfacing and building up highly wear-resistant layers on tools and machinery parts, driving rollers, digging tools and so on. The as welded hardness is between 50 to 60 HRC usually in the 3rd layer.				
Welding current DC(+)					
Size (mm) 0.8-1.6					

	Classifications	Typical chemical composition all weld metal (%)					
OK Tubrodur 14.70		**C**	**Si**	**Mn**	**Cr**	**Mo**	**V**
Comments: Hv 30 500 - 700	EN 14700 T Z Fe14	3.5	0.5	0.9	21	3.5	0.4
Welding current DC +	OK Tubrodur 14.70 is a self shielded Cr carbide type flux-cored wire. The weld metal is extremely resistant to abrasive wear by gritty fine grain materials sush as earth, ore, clay, etc. Typical applications are the hardfacing of bucket lips, sugar points, mining and earth moving equipment, scraper blades etc. A maximum of 2-3 layers should be deposited.						

	Classifications	Typical chemical composition all weld metal (%)				
OK Tubrodur 14.71		**C**	**Si**	**Mn**	**Ni**	**Cr**
Yield stress 400MPa	EN 14700: TFe10	0.15	0.6	5.5	8.7	19.1
Tensile strenght 600MPa	A stainless, 18.8.6Mn, self shielded, tubular wire for cladding and joining 13% Mn steels and steels with limited weldability. It is also useful for buffer layers prior to hardfacing.					
Elongation 35%						
Welding current DC +						

	Classifications	Typical chemical composition all weld metal (%)			
OK Tubrodur 15.40		**C**	**Si**	**Mn**	**Cr**
Weld metal hardness 32 - 40 HRC	EN 14700: TFe1	0.2	1.0	1.4	1.4
Shielding gas CO_2	OK Tubrodur 15.40 is a CO_2 shielded, flux-cored wire for the hardfacing deposit of a manganese-chromium- molybdenum-alloyed weld metal. It is used for surfacing of wheel runners, wheels and rollers for conveyor belts, wheels for mine trucks, rolls and shafts.				
Welding current DC +					
Size (mm) 1.6 - 4.0					

Solid/cored wires for hardfacing

	Classifications	Typical chemical composition all weld metal (%)					
OK Tubrodur 15.52		**C**	**Si**	**Mn**	**Cr**	**Mo**	**Al**
Weld metal hardness 50-60HRC	EN 14700: TFe6 Sepros: UNA 485184	0.4	0.3	1.2	5.0	1.2	0.6
Shielding gas Self-shielded	OK Tubrodur is a self-shielded, flux cored wire for hardfacing with a hardness of 55 - 60 HRC. It is designed for hardfacing feed screws, mixer blades and vessels and ring grooves on diesel engine pistons.						
Welding current DC +							
Size (mm) 1.6, 4.0							

	Classifications	Typical chemical composition all weld metal (%)				
OK Tubrodur 15.60		**C**	**Si**	**Mn**	**Ni**	**Al**
Weld metal hardness aw 200 - 250 HRC wh 400 - 500 HRC	EN 14700: TFe9	0.8	0.6	11.7	3.0	0.6
Shielding gas Self-shielded	OK Tubrodur 15.60 is a self-shielded, flux cored wire of the austenitic-manganese type. The workhardening characteristics and extremely though crack-resistant weld metal ensure that OK Tubrodur 15.60 is the ideal solution for rebuilding 13Mn steels, normally found in crusher jaws, swing hammers and numerous parts of earth moving, mining and quarring equipment.					
Welding current DC +						
Size (mm) 1.6						

	Classifications	Typical chemical composition all weld metal (%)					
OK Tubrodur 15.65		**C**	**Si**	**Mn**	**Ni**	**Cr**	**Mo**
Weld metal hardness, aw 200 - 250 HRC wh 400 - 500 HRC	EN 14700: TFe9	0.3	0.6	13.5	1.8	15.5	0.8
Welding current DC +	OK Tubrodur 15.65 is a flux-cored wire for self- or CO_2 shielding, depositing a martensitic-austenitic, work-hardening deposit. It can be used for rebuilding of mild, low-alloy and 13Mn steels. The weld metal combines excellent abrasion and impact resistance and is suitable for applications such as crusher jaws and hammers, railway point frogs, ripper teeth and wear plates.						
Size (mm) 1.6							

	Classifications	Typical chemical composition all weld metal (%)							
OK Tubrodur 15.84		**C**	**Si**	**Mn**	**Cr**	**Mo**	**W**	**Co**	**V**
Weld metal hardness 500 - 600 Hv 49 - 55 Rc	EN 14700 T Fe3 DIN 8555 MF3-50T	0.04	1.1	1.1	1.8	0.4	8.0	2.0	0.4
Shielding gas CO_2	OK Tubrodur 15.84 is a metal cored wire for new manufacture and repair of tools for cold and hot work up to 550°C operating temperature, such as shredders, forging dies, rollers, spikes, hotshear blades, etc. High temperature hardness of alloy with cobalt and tungsten. Apply to multiple layers carbon steels, alloy buffer layers with otherwise present group Fe10 to FE12. Preheat according to base material: 350 - 600°C heat treatment - hardening (Oil) 1100 - 1150°C - 550°C annealing / 1 - 2 h - annealing 850°C / 2 - 3h.								
Welding current DC +									
Size (mm) 1.6									

400A CC/CV construction model multi-process inverter

SMAW, GMAW, GTAW, self- and gas shielded FCAW

Origo™ Mig 4004i/ A44

OrigoMig 4004i is an ideal partner when it comes to efficient production indoor or outdoor, installation on site or all type of repair & maintenance welding.The power source is compact and sturdy with a chassis made of galvanised steel. This is a robust material that withstands rough treatment. Delivery includes 5 m mains cable incl plug.

A44

- MMA, MIG/ MAG (CV-mode) or TIG (LiveTIG start)
- Electrode type
- Quick setting of electrode characteristics
- Current
- Digital V/ A meter
- Hot start MMA
- Arc Force
- Stepless inductance (CV-mode)
- Two memories
- Panel or remote operation
- VRD indicator

	Origo™ Mig 4004i/A44
Mains supply, V/ Hz	3x380-440 +/- 10%, 50/60
Fuse, slow, A	25
Mains cable, Ø mm^2	4x4
Max output at 60% duty cycle, A	400/36
Max output at 100% duty cycle, A	300/32
Current range MIG, A	20-400
Current range MMA DC, A	16-400
Current range TIG DC, A	4-400
Open circuit voltage (VDR off/ on), V	55/<35
Power factor at max current	0.94
Weight, kg	46

MIG/MAG equipment
Power sources and wire feeders

Mig4002c

A sturdy and robust switching converter (chopper) power source intended for heavy duty applications. MIG/MAG and MMA are the main processes – process selection being related to the choice of control panel, Origo™ MA23, Origo™ MA24, Aristo® U6 or even the flagship Aristo® $U8_2$. Well proven technology together with ESAB developed software provides high reliability and outstanding welding performance. IP 23 – designed for outdoor use making it safe on all work sites

	Mig 4002c	Mig 5002c	Mig 6502c
Fuse, slow, A	25	35	50/60
Mains supply V/Hz	3x400	415	50/60
	3x230/400	415/500	50
	3x230440	460	60
Mains cable, Ø mm^2	4X4	4X6	4X10
Max output at 60% duty cycle, A/V	400/34	500/39	650/44
Max output at 100% duty cycle, A/V	310/30	400/34	500/39
Open circuit voltage, V	62 MIG/ MAG,68 MMA	62 MIG/ MAG,68 MMA	62 MIG/ MAG,68 MMA
Weight, kg	149	185	222

Aristo® Feed 3004/4804, U6/$U8_2$

- Suitable for Mig 3001i/4001i/U4000i/5000i/ U5000i/4002c/5002c and 6502c.
- 2/4 stroke, simplifies handling of the welding torch.
- Creep start, gas pre-flow and hot start provide a soft, more direct start with less spatter.
- Crater filling, adjustable burn-back time and post gas provides a smooth finish, extend the service life of the contact tip and guarantee no cracks at the end.
- Pre-programmed synergic lines, to ensure optimal settings.
- Possibility to create synergic lines (Aristo® $U8_2$).
- Memory for 10 (U6) or 255 ($U8_2$) parameter sets
- Quick connectors – shortest possible set-up times.
- ESAB LogicPump ELP, secures the automatic start of the water pump by connecting a water-cooled welding torch.
- TrueArcVoltage System™, measures the correct arc voltage value, independent of the length of the connection cable, return cable or welding torch.

	Aristo® Feed 3004	Aristo® Feed 4804
Power supply, V/Hz	42/50-60	42/50-60
Wire feed, m/min	0.8-25.0	0.8-25.0
Max spool dimension/weight, Ø mm/kg	300/18	300/18
Wire Ø, unall. solid	0.6-1.6	0.6-2.4
Wire Ø, SS	0.6-1.6	0.6-2.4
Wire Ø, Al	1.0-1.6	1.0-2.4
Wire Ø, CW	0.8-1.6	0.8-2.4
Weight, kg	15	19

MIG/MAG equipment
Compact inverters

Caddy® Mig C200i

Portable MIG/MAG welding unit with built-in wire feeder for Ø200 mm spools. For repair, maintenance and assembly welding of mild steels, aluminium and stainless steels as well as brazing. This easy to use, intelligent and powerful unit offers excellent welding properties and is easy to take along to the job at hand. Great if you are welding in the workshop or on the move. Equipped with QSet™ – intelligent setting of short arc welding parameters giving a perfect arc for all material and gas combi-nations. Single-knob control for consistent and optimal weld quality for all plate thicknesses. IP 23 – designed for outdoor use making it safe on all work sites

Origo™ Mig C3000i MA24
Aristo® Mig C3000i U6

A compact machine with integrated wire feeder for professional use in general applications up to 300 A. QSet™ is an integrated function in the MA24 panel which provides a unique way of setting welding parameters for short arc. QSet™ is smart - give it a few seconds of test welding and watch how the short arc stabilizes automatically. The optimised setting is maintained regardless of the wire feed speed setting. IP 23 – designed for outdoor use making it safe on all work sites

	Caddy® Mig C200i
Mains supply, V/Hz	1x230 / 50/60
Fuse, slow, A	16
Mains cable, Ø mm^2	3x1.5
Setting range, A	30-200
Max output at 25% duty cycle, A/V	180/23
Max output at 100% duty cycle, A/V	100/19
Wire feed, m/min	2-12
Open circuit voltage, V	60
Power factor at max. current	0.99
Weight, kg	11.5

	Origo™ Mig C3000i
Mains supply, V/Hz	3x400 / 50/60
Max output at 35% duty cycle, A/V	300/29V
Max output at 60% duty cycle, A/V	240/24V
Max output at 100% duty cycle, A/V	200/24V
Wire feed, m/min	0.8-25.0
Wire Ø, unall. solid	0.6-1.2
Wire Ø, SS	0.6-1.2
Wire Ø, Al	1.0-1.2
Wire Ø, CW	0.8-1.2
Open circuit voltage (VRD off/on), V	60/<35
Weight, kg	38

TIG equipment
DC Inverters and AC/DC Inverters

Caddy® Tig 1500i/2200i, TA34

Compact and portable inverter for advanced TIG welding, with HF or Lift-Arc™ start, and MMA.

- Durable and impact resistant design with OKC 50 cable connectors.
- Easy to operate. Graphical parameter setting for advanced TIG welding.
- Digital display for settings.
- Remote control possibility.
- Pulsed TIG giving increased control of heat input and weld pool.
- Two memories for storing of settings.
- Micro Pulse minimising heat affected zone especially on thin material.
- Adjustable slope up/down and gas post-flow.
- ArcPlus™ II regulator for better MMA welding characteristics and higher weld quality with less after treatment.
- Caddy® Tig 1500i welds most electrodes from Ø 1.6 - 3.2 mm and some 4 mm electrodes.
- Caddy® Tig 2200i welds most electrodes from Ø 1.6 - 4 mm.
- Can operate with extra long mains cables, 100 m.
- IP 23 – designed for outdoor use making it safe on all work sites

Caddy® Tig 2200i AC/DC

Compact and portable inverter for AC/DC TIG welding, with HF or LiftArc™ start, and MMA.

- Durable and impact resistant design with OKC 50 cable connectors.
- Easy to operate.
- Digital display for settings.
- Plate thickness setting for TIG (TA33 AC/DC). Set the plate thickness and the machine will control the parameters.
- Adjustable slope down and gas post-flow (TA33 AC/DC).
- DC pulsed TIG (TA34 AC/DC) giving increased control of heat input and weld pool.
- Two memories (TA34 AC/DC) for storing of settings.
- Micro Pulse (TA34 AC/DC) minimising heat affected zone especially on thin material.
- Adjustable slope up/down and gas post-flow (TA34 AC/DC).• Remote control possibility.
- ArcPlus II regulator for better MMA welding characteristics and higher weld quality with less after treatment.
- All types of material, including aluminium, and thickness up to 5 mm
- Can operate with extra long mains cables, up to 100 m, thanks to the built-in PFC circuit.
- IP 23 – designed for outdoor use making it safe on all work sites.

	Caddy ® Tig 1500i, TA34	Caddy ® Tig 2200i, TA33
Mains supply, V/Hz	1x230 / 50/60	1x230 / 50/60
Fuse, slow, A	16	16
Mains cable, Ø mm²	3x2.5	3x2.5
Max output at 25% duty cycle, TIG, A/V	150/16	220/18.8
Max output at 60% duty cycle, TIG, A/V	120/14.8	150/16.0
Max output at 100% duty cycle, TIG, A/V	110/14.4	140/15.6
Current range TIG DC, A	3 - 150	3 - 220
Current range MMA DC, A	4 - 150	4 - 170
Open circuit voltage (VRD off/on), V	46-60/<35	46-60/<35
Power factor at max current	0.98	0.99
Weight, kg	9.2	9.4

	Caddy ® Tig 2200i AC/DC, TA34 AC/DC	Caddy ® Tig 2200i AC/DC, TA33 AC/DC
Mains supply, V/Hz	1x230 / 50/60	1x230 / 50/60
Fuse, slow, A	16	16
Mains cable, Ø mm²	3x2.5	3x2.5
Max output at 20% duty cycle, TIG, A/V	220/18.8	220/18.8
Max output at 60% duty cycle, TIG, A/V	150/16.0	150/16.0
Max output at 100% duty cycle, TIG, A/V	140/15.6	140/15.6
Open circuit voltage VRD (off/on), V	46-60/<35	46-60/<35
Setting range TIG AC/DC	3-220	3-220
Setting range MMA	4-160	4-160
Power factor at max. current	0.99	0.99
Weight, kg	15	15

MIG/MAG equipment
Inverters and choppers

Origo™ Mig 3001i A24
Mig 3001i/3001iw

Mig 3001i is an ideal partner when it comes to efficient production or prefabrication of high alloyed materials with a very high demand on welding performance.The power source is compact and sturdy with a chassis made of galvanised steel. This is a robust material that withstands rough treatment.The power source is optimised to operate together with the wire feeders Origo™ Feed 3004/4804, Aristo® Feed 3004/4804. Connection cables up to 50 m provides a working radius of up to 54.5 meter to suit all your individual welding needs. Origo™ Mig 3001i A24 can be operated as an MMA power source. When a wire feed unit is connected it turns into a MIG/MAG unit.
IP 23 – designed for outdoor use making it safe on all work sites

	Origo™ Mig 3001i, A24 – Mig 3001i/3001iw
Mains supply, V/Hz	3x400 / 50/60
Fuse, slow, A	16
Mains cable, Ø mm^2	4x4
Max output at 35% duty cycle, A/V	300/29.0
Max output at 60% duty cycle, A/V	240/26.0
Max output at 100% duty cycle, A/V	200/24.0
Current range MIG, A	16-300
Current range MMA DC, A	16-300
Current range TIG DC, A	4-300

Mig 4002c/5002c/6502c

Mig 4002c, 5002c, and 6502c are sturdy and robust switching converter (chopper) power sources intended for heavy duty applications. MIG/MAG and MMA are the main processes. The power sources operate with the wire feeders Origo™ Feed 3004/4804 and Aristo® Feed 3004/4804 which can be equipped with control panels Origo™ MA23, Origo™ MA24 or Aristo® U6. Aristo® $U8_2$ can be used for very advanced requirements. Well proven technology together with ESAB developed software provides high reliability and outstanding welding performance.
IP 23 – designed for outdoor use making it safe on all work sites

	Origo™ Mig 4002c	Origo™ Mig 5002c	Origo™ Mig 6502c
Mains supply, V/Hz	3x400-415, 50/60	3x230/400-415/500, 50	3x230/440-460, 60
Fuse, slow, A	25	35	50
Mains cable, Ø mm^2	4X4	4X6	4X10
Max output at 60% duty cycle, A/V	400/34	500/39	650/44
Max output at 100% duty cycle, A/V	310/30	400/34	500/39
Open circuit voltage V	62 MIG/MAG,68 MMA	62 MIG/MAG,68 MMA	62 MIG/MAG,68 MMA
Weight, kg	149	185	222

MIG/MAG equipment
Semi-automats, inverters

Aristo® Mig 5000i

- Multi-process power source combining MIG/MAG, pulse MIG, MMA and carbon arc gouging
- Reliable, smooth starts and ends, supported by efficient hot-start and crater-fill functions.
- Efficient man-machine communication by the user-friendly control panels, U6 or Aristo® $U8_2$
- Wide range of pre-programmed syneric lines for any material or gas combination.
- Memory for 10 (U6) or 255 (Aristo® $U8_2$) welding parameters.
- ESAB LogicPump, ELP, secures the automatic start of the water pump by connecting a water-cooled welding torch.
- TrueArcVoltage System™, measures the correct arc voltage value, independent of the length of the connection cable, return cable or welding torch
- Dust filter to handle tough, dirty environments and avoid grinding dust and metal particles inside the chassis.
- Operates with the separate wire feeders Aristo® Feed 3004/4804, U6 and Aristo® $U8_2$, Aristo® RoboFeed 3004w and Aristo® YardFeed 2000.

	Aristo® Mig 5000i
Mains supply, V/Hz	3x400 / 50/60
Fuse, slow, A	35
Mains cable, Ø mm^2	4x6
Max output at 60% duty cycle, MMA, A/V	500/40
Max output at 100% duty cycle, MMA, A/V	400/36
Current range MIG, A	16-500
Current range MMA DC, A	16-500
Open circuit voltage (VRD off/on), V	59/<35
Weight, kg	68

Aristo® Mig U4000i/U5000i

- Multi-process power source combining MIG/MAG, pulse MIG, MMA and carbon arc gouging plus DC-TIG, pulse DC-TIG with HF-Start in the U-version
- Efficient man-machine communication by the user-friendly control panel U6 or Aristo® $U8_2$
- Wide range of pre-programmed synergic lines.
- Memory for 10 (U6) or 255 (Aristo® $U8_2$) welding parameters
- ESAB LogicPump, ELP, secures the automatic start of the water pump by connecting a water-cooled welding torch to the wire feeder or a water-cooled TIG torch
- TrueArcVoltage System™, measures the correct arc voltage value, independent of the length of the connection cable, return cable or welding torch
- Dust filter to handle tough and dirty environments and avoid grinding dust and metal particles inside the chassis
- The Aristo® Mig U4000i/U5000i operate with the separate wire feeders Aristo® Feed 3004/4804 U6 and Aristo® $U8_2$.

	Aristo® Mig U4000i	Aristo® Mig U5000i
Mains supply, V/Hz	3x400 / 50/60	3x400 / 50/60
Fuse, slow, A	25	35
Mains cable, Ø mm^2	4x4	4x6
Max output at 35% duty cycle, MMA, A/V	400/36	-
Max output at 60% duty cycle, MMA, A/V	320/33	500/40
Max output at 100% duty cycle, MMA, A/V	250/30	400/36
Current range MIG, A	20-400	16-500
Current range MMA DC, A	16-400	16-500
Current range MMA DC, A	4-400	4-500
Current range TIG DC, A	0.98	0.99
Open circuit voltage (VRD off/on), V	58/<35	959/<35
Weight, kg	63.5	71

MIG/MAG equipment
Aristo® RoboFeed 3004HW

Small feeder for hollow wrist robots

Aristo® RoboFeed 3004HW is especially designed for the use with hollow wrist robots that have the torch package inside the robot arm. Low weight and small size are needed to allow those robots to use their high accelerations and perform all motions. Aristo® RoboFeed 3004HW is a completely enclosed feeding unit providing operational functions for gas purge and wire inching. The PCB is separated from the feeder housing in order to provide a small unit with low weight. It sits inside the Aristo® FeedControl box that is easier to reach for maintenance.

Technical data RoboFeed 3004 HW	
Power supply, V, Hz	60 DC (PWM),
Max load @ 60% dc	500 A
Max load @ 100% dc	280 A
Drive mechanism	4 WD
Drive rollers, mm	30
Wire feed speed, m/min	0.8 - 30.0
Dimensions lxwxh, mm	251 x 182 x 221
Weight, kg	5.4
Speed control	Pulse encoder
Wire dimensions:	
steel	0.6-1.6
stainless steel	0.6-1.6
aluminium	1.0-1.6
cored wire	0.8-1.6
Enclosure class	IP 2x
Standards	IEC 60974-5, IEC 60974-10

Aristo® $U8_2$/$W8_2$

Aristo® $U8_2$ creates a whole new universe of possibilities; maximum functionality, minimum complexity. Five function buttons, single menu and “Enter” button and three setting wheels cover every option. Large bright easy-view LED display and knurled setting wheels for simple gloves-on, visor-down operation. Aristo® $U8_2$ or Aristo® $U8_2$ Plus, the all-new $U8_2$ control unit is the key to a fully integrated welding system. Full USB connectivity and a broad choice of advanced add-on modules Aristo® $W8_2$ (DeviceNet, Profibus, CANopen and Ethernet) for comprehensive Fieldbus and LAN communication. Optional synergic line packs for special materials can be offered on request.

Aristo® FeedControl HW is equipped with a box to connect welding cable and water hoses outside the electronics compartment.

MIG/MAG equipment
Analogue choppers and wire feeders

Origo™ Mig 402c/502c/652c

Origo™ Mig 402c/502c/652c are sturdy and robust switching converter (chopper) power sources intended for heavy duty MIG/MAG welding, MMA welding and air arc gouging. The power sources operate with the wire feeders Origo™ Feed 304/484 which are equipped with the control panel Origo™ M13. Origo™ Mig 502c / 652c are fitted with the control panel A13 that allows MMA welding and arc-air gouging without a wire feeder. Well proven technology together with ESAB developed software provides high reliability and outstanding welding performance. IP 23 – designed for outdoor use making it safe on all work sites

	Origo™ Mig 402c	Origo™ Mig 502c	Origo™ Mig 652c
Mains supply, V/Hz	3x400-415, 50/60	3x230/400-415/500, 50	3x230/440-460, 60
Fuse, slow, A	25	35	50
Mains cable, Ø mm^2	4X4	4X6	4X10
Max output at 60% duty cycle, A/V	400/34	500/39	650/44
Max output at 100% duty cycle, A/V	310/30	400/34	500/39
Open circuit voltage V	53-70	53-70	53-70
Weight, kg	158	194	228

Origo™ Feed 304/484, M13 -19 pole

- Suitable for Mig 402c/502c and 652c.
- 2/4 stroke and creep start, simplifies start/stop and the gradual feed of the wire helps to optimise the starts.
- Crater filling, eliminates cracks and gives high quality welds.
- Adjustable burn-back time to correct stick-out and reduce wear of contact tips.
- Digital V/A meters.
- Quick connectors- shortest possible set-up times.
- ESAB LogicPump, ELP, secures automatic start of water pump by connection of a water cooled welding torch.
- TrueArcVoltage™ system, measures the correct arc voltage value independent of the length of the interconnection cable, return cable or welding torch.

	Origo™ Feed 304	Origo™ Feed 484
Power supply, V/Hz	42, 50/60	42, 50/60
Wire feed, m/min	1.9-25.0	1.9-25.0
Max spool dimension/weight, Ø mm/kg	300/18	300/18
Wire Ø, unall. solid	0.6-1.6	0.6-2.4
Wire Ø, SS	0.6-1.6	0.6-2.4
Wire Ø, Al	1.0-1.6	1.0-2.4
Wire Ø, CW	0.8-1.6	0.8-2.4
Weight, kg	15	19

MIG/MAG equipment
Digital choppers and wire feeders

Mig 4002c/5002c/6502c

Mig 4002c, 5002c, and 6502c are sturdy and robust switching converter (chopper) power sources intended for heavy duty applications. MIG/MAG and MMA are the main processes. The power sources operate with the wire feeders Origo™ Feed 3004/4804 and Aristo® Feed 3004/4804 which can be equipped with control panels Origo™ MA23, Origo™ MA24 or Aristo® U6. Aristo® U82 can be used for very advanced requirements. Well proven technology together with ESAB developed software provides high reliability and outstanding welding performance.
IP 23 – designed for outdoor use making it safe on all work sites

Origo™ Feed 3004/4804, MA23/MA24

The sturdy design of the ESAB Origo™ Feed 3004 and 4804, with their galvanised metal casing, makes these units ideal for use in tough environments. Suitable for Mig 3001i/4001i/5000i/4002c/5002c/6502c. Electronically controlled feeding gives an accurate and stable arc and the 4-wheel feeder mechanism with grooves in both the feed roll and pressure roll gives a stable feed with low wear on the wire, all of which helps to avoid operational disturbances.

	Mig 4002c	Mig 5002c	Mig 6502c
Mains supply, V/Hz	3x400-415, 50/60	3x230/400-415/500, 50	3x230/440-460, 60
Fuse, slow, A	25	35	50
Mains cable, Ø mm^2	4X4	4X6	4X10
Max output at 60% duty cycle, A/V	400/34	500/39	650/44
Max output at 100% duty cycle, A/V	310/30	400/34	500/39
Open circuit voltage V	62 MIG/MAG,68 MMA	62 MIG/MAG,68 MMA	62 MIG/MAG,68 MMA
Weight, kg	149	185	222

	Origo™ Feed 3004	Origo™ Feed 4804
Power supply, V/Hz	42, 50/60	42, 50/60
Wire feed, m/min	0.8-25.0	0.8-25.0
Max spool dimension/weight, Ø mm/kg	300/18	300/18
Wire Ø, unall. solid	0.6-1.6	0.6-2.4
Wire Ø, SS	0.6-1.6	0.6-2.4
Wire Ø, Al	1.0-1.6	1.0-2.4
Wire Ø, CW	0.8-1.6	0.8-2.4
Weight, kg	15	19

MIG/MAG equipment
MIG torches

PSF™ self-cooled

There are four different types of self-cooled PSF™ welding torches and they can be ordered with two different hose lengths. The handles are ergonomically curved. A range of different angled swan necks provides easy access to all the different welding positions and a comfortable working position. PSF™ 405 is available with a built-in, three-step, remote-control switch (RS3).

PSF™ water-cooled

The water-cooled PSF™ torches are probably the coolest welding torches on the market. The excellent cooling allows for a smaller swan neck with no reduction in current capacity, plus reduced wear part consumption. A swivel at the back of the handle reduces strain on the welder's wrist. Together with the opportunity to use different angled swan necks, this provides easy access to all welding positions and a comfortable working position. Both torches are available with a built-in, three-step, remotecontrol switch (RS3).

Technical data				
	PSF™ 250	PSF™ 305	PSF™ 405/ 405 RS3	PSF™ 505
Max load at 60% duty cycle, A	250	315	380	475
Wire Ø, unall. solid	0.6-1.0	0.8-1.2	0.8-1.6	1.0-2.4
Wire Ø, SS	0.6-1.0	0.8-1.2	0.8-1.2	1.0-1.6
Wire Ø, Al	1.0	1.0-1.2	1.0-1.6	1.0-2.4
Wire Ø, CW	1.0	1.0-1.2	1.0-1.6	1.2-2.4

Technical data		
	PSF™ 410w/ 410w RS3	PSF™ 510w/ 510w RS3
Max load at 100% duty cycle, A	400	500
Wire Ø, unall. solid	0.8-1.6	1.0-2.4
Wire Ø, SS	0.8-1.6	1.0-1.6
Wire Ø, Al	1.0-1.6	1.2-2.4
Wire Ø, CW	0.9-1.6	0.9-2.0

TXH™ TIG Torches

Standard packages for common applications

TXH™ torches are made with the welder in mind…
The major characteristics of the TXH™ torch program is its quality. The torches are designed to provide the utmost in convenience, versatility and ergonomics to the user.
You can choose between air-cooled and water cooled, with or without gas-valve and with or without a flexible neck to suit your individual application.

- TXH™ Air cooled from 120A to 200A at 60% duty cycle argon.
- TXH™ Water cooled in 250A to 400A at 100% duty cycle argon.
- Models will be available with rigid, valve, flexible head and remote control.
- Cable connections will be available in 4m and 8m lengths.
- Torch heads - lightweight and durable.
- Manufactured with high temperature resistant silicone rubber insulation.
- All copper components ensure cooler running temperatures and maximum current capacity.
- Ergonomic handle system with Integrated dual soft grips ensure the handle remains in place with minimal grip pressure.
- Knuckle joint – improved manoeuvrability as positioning of the torch is made easier by the combination of knuckle joints and a flexible leather section covering the first 800mm of the torch immediately behind the handle.
- Effective cooling.
- Trigger switch is located in a neutral finger position.
- Adjustment of the welding current with two buttons in the handle marked '+' and '-' on the TXH™ remote series.

Technical data						
	TXH™ 121	TXH™ 151	TXH™ 201	TXH™ 251w	TXH™ 401w	TXH™ 401w HD
Permitted load at						
35% duty cycle		150 A	200 A		400 A	430A
60% duty cycle	120 A	120 A	150 A	250 A	350 A	400A
100% duty cycle	100 A	100 A	140 A	200 A	300 A	
Ø mm	1.0-3.2	1.0-3.2	1.0-4.0	1.0-3.2	1.0-4.8	1.0-4.8

Manual plasma cutting equipment
Plasma cutting packages

ESP 150

This heavy-duty, water-cooled plasma cutting and gouging system provides the perfect solution for production cutting and plasma gouging. The ESP 150 can cut up to 51 mm manually and can sever 63 mm, using either an Ar/H_2 mixture or compressed air. Gas options for higher quality cuts, especially on aluminium and stainless, resulting in lower total operating costs – the PT 26 torch cuts with nitrogen or argon-hydrogen mixtures; choice of carbon dioxide, air, nitrogen or oxygen for torch cooling.

	ESP 150
Mains supply, V/Hz	3x380/400-415, 50/60 3x230/460/575, 60
Fuse, slow, A	70
Mains cable, Ø mm^2	4x25
Max output at 1000% duty cycle, A/V	140/120
Setting range, A	50-150
Open circuit voltage, V	370
Air, l/min	113/95/95
Pressure, bar	7/7/7
Cutting capacity, Fe mm	40/50
Cutting capacity, SS mm	25/38
Cutting capacity, Al mm	40/50
Weight, kg	308

DEUCE PACK 150 Plasmarc™ System

With 300 amps of plasma cutting and gouging power, this heavy duty system is the ideal choice for foundries, mining, logging equipment repair, wind tower production and other industrial applications.

DEUCE PACK 150 Plasmarc™ handles even the heaviest materials with the capacity to cut up to 4 in. (101.6 mm) manually. Eliminates carbon arc fumes with excellent plasma gouging capacity—removes up to 77 lbs. (35 kg) of metal an hour.

For exceptional versatility, it separates into two 150 amp consoles for smaller scale applications. Its adjustable output down to 30 amps facilitates cutting of thinner metals.

Equipped with the compact, water-cooled PT-26 torch that is smaller than torches used with comparable systems) to ensure operator comfort. The PT-19XLS Torch can be mounted for mechanized applications.

	DEUCE PACK 150 Plasmarc™ System
Mains supply, V/Hz	33x380/400-415, 50/60 3x230/460/575, 60
Cutting capacity, mm	101.6
Gouging removal rate, Fe, kg/h	25.4
Gouging removal rate, SS, kg/h	35
Max output at 90% duty cycle, A/V	300/120
Max output at 100% duty cycle, A/V	280/120
Open Circuit Voltage, V	370
Weight, kg	600

Manual plasma cutting equipment PowerCut™ 400/700

Easy to use

PowerCut™ 400/700 are made for all types of cutting within production, repair, maintenance and assembly. They are portable and easy to carry to job site to job site or around the shop. The robust design and clear display makes it well adapted to the work day of the operator. They are compatible to work with Engine pypgDriven Generators/Welders when power is not accessible in the field. This together with the compact and lightweight torch gives a user friendly and versatile plasma cutting package that makes the cutting job easier.

Performance

You can use PowerCut™ 400/700 on all electrically conductive materials eg mild steels stainless steel and conductive materials, e.g. mild steels, stainless steel and aluminium. PowerCut™ 700 can also be adapted for mechanization cutting.

The piercing function allows you to start cutting in the middle of the work piece instead of starting at the edge. Doing stand off cutting will give you more arc power while the drag cutting capability is great when doingtemplatecuttingandstraightedgecutting,when doing template cutting and straight edge cutting, especially if you are a first time user.

The PowerCut™ 700 Grate Cutting Mode maximizes productivity when cutting grate or mesh material. Quick torch connection together with the CNC Interface allows you switch directly from manual into a cutting table for maximum flexibility.

The torch

The PT-39 is a lightweight torch with an ergonomic handle that provides maximum comfort when tackling the tough jobs. The compact torch design, with a shorter front end, allows maximum arc visibility even in the hard to reach places.

- **Voltage Booster –clean thick cuts**
- **Drag Cutting –makes template cutting & straight edge cutting easier**
- **PowerCut™ 700 CNC Interface –manual and cutting table mode**
- **PowerCut™ 400 Dynamic Arc Control –helpful when cutting grate or mesh material**
- **PowerCut™ 400 Adaptable to mains Voltages 90-280V**
- **PowerCut™ 400 Automatic Air Pressure**
- **Runs off Engine Driven Generator/Welder**
- **Compact and lightweight torch**

Manual plasma cutting equipment
Plasma cutting packages

PowerCut™ 900

PowerCut™ 900 is made for all types of cutting within production, repair, maintenance and assembly. Use on all electrically conductive materials, e.g. mild steels, aluminium and stainless steels. This rugged, easy to use, power efficient unit offers excellent cutting, piercing and gouging properties. It can also be adapted for mechanisation.

	PowerCut™ 900
Mains supply, V/Hz	3x230, 50/60 3x400, 50/60 1/3x208-230, 60 3x460, 60 3x575, 60
Fuse, slow, A	30, 20
Mains cable, Ø mm^2	6
Max output at 60% duty cycle, A/V	60/120
Max output at 100% duty cycle, A/V	50/120
Open circuit voltage, V	290
Air, l/min	165
Pressure, bar	5
Cutting capacity, Fe mm	22
Cutting capacity, SS mm	22
Cutting capacity, Al mm	18
Weight, kg	32

PowerCut™ 1600

Powerful plasma cutting package for cutting up to 38 mm material thicknesses. For all types of heavy duty cutting and gouging within production, repair, maintenance and assembly. Use on all electrically conductive materials, e.g. mild steels, aluminium and stainless steels. This rugged, easy to use, power efficient unit offers excellent cutting, piercing and gouging properties. It can also be adapted for mechanisation. Runs off your mains supply together with compressed air or nitrogen.

	PowerCut™ 1600
Mains supply, V/Hz	3x400, 50/60 1/3x208-230/460, 60 3x230/460, 60 3x575, 60
Fuse, slow, A	35
Mains cable, Ø mm^2	6
Max output at 60% duty cycle, A/V	90/115
Max output at 100% duty cycle, A/V	70/115
Open circuit voltage, V	280
Air, l/min	236
Pressure, bar	6.2
Cutting capacity, Fe mm	38
Cutting capacity, SS mm	30
Cutting capacity, Al mm	38
Weight, kg	41

Welding automation
Components and modules

A2-A6 Process controller PEK

A2-A6 Process controller PEK can be used with CAN controlled ESAB's power sources and motors. It is prepared for submerged arc welding, gas metal arc welding and arc gouging.

- Clear text menus for user friendliness.
- CAN Bus controlled- Selectable welding process.
- Pre-setting of all welding parameters.
- Memory for 255 parameter sets.
- Constant current (CA) or constant wire speed (CW).
- Heat input visible on display.
- Encoder controlled motors for top performance motion control.
- USB slot for data backup and transfer.
- Used welding parameters can be stored directly on a USB memory stick.
- Data transfer to and from PC/LAN- Documentation of used welding parameters on PC or through LAN with WeldPoint™.

A2 S Mini Master

The A2 S Mini Master represents an automatic welding system designed with the emphasis on low weight, compactness and flexible use. The system is built around basic units. The degree of automation and process orientation of the basic unit you choose can be expanded or modified as required, depending on the application. Appropriate welding heads can be combined with suitable manipulators, which results in a total solution to a specific welding problem.

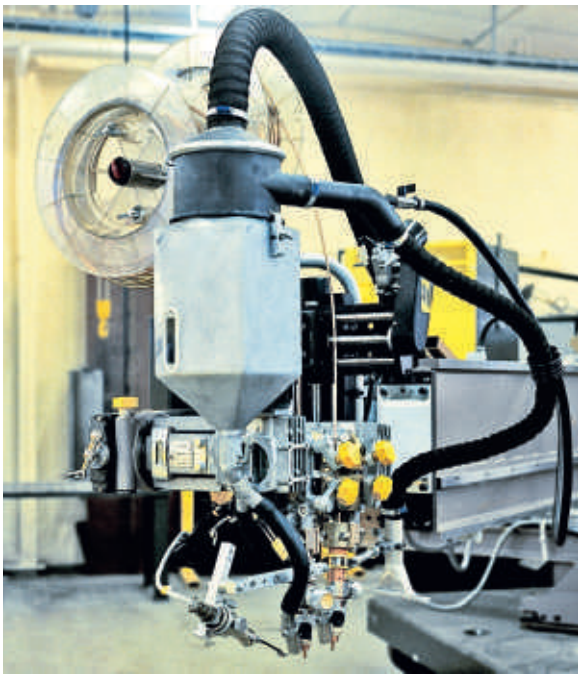
	Single SAW	Twin SAW	Single GMAW
Max load at 100% duty cycle, A	800	800	600
Wire feed, m/min	0.2-9	0.2-9	0.2-16

Welding automation
Components and modules

A6 S Arc Master

The A6S Arc Master is the complete system for heavy production welding offering flexibility, operational reliability and durability. It constitutes the base of ESAB's automatic welding program with an extensive modular and component system. It is available in a number of standard models and can be adapted to suit the customer's specific demands. From an existing model, the A6 S can be rebuilt and extended to the required automation level, by means of positioning, joint tracking, flux handling and so on, as the requirements change.

	Single SAW, 156:1	Twin SAW, 156:1	Single SAW, 74:1	Twin SAW, 74:1	Single GMAW, 74:1
Max load at 100% duty cycle, A	1500	1500	1500	1500	600
Wire diameter, mm	3.0-6.0	2x2.0-3.0	1.6-4.0	2x1.6-2.0	0.8-3.2
Wire feed, m/min	0.2-4.0	0.2-4.0	0.4-8.0	0.4-8.0	0.8-16.6



A6 S Tandem Master

The A6 S Tandem Master is a highly versatile welding automat equipped with two A6 heads – for either DC/DC or DC/AC welding. Direct current provides good penetration, whereas alternating current secures a high deposition rate. The A6 S Tandem Master is available in a number of models to match the customer's safety, quality and productivity requirements.

	A6 S Tandem Master
Max load at 100% duty cycle, A	2x1500
Wire diameter, mm	2x3.0-6.0
Wire feed, m/min	0.2-4.0

Welding automation
Power sources

LAF 631, 1001, 1251 and 1601

The LAF series are three phase, fan-cooled DC welding power sources designed for high productivity mechanised submerged or high productivity MIG/MAG arc welding.They are used in combination with ESAB's A2-A6 equipment range and the A2-A6 Process Controllers (PEK or PEI).

	LAF 631	LAF 1001	LAF 1251	LAF 1601
Mains supply, 3 ph 50 Hz, V	400/415	400/415/500	400/415/500	400/415/500
Mains supply, 3 ph 60 Hz, V	440	400/440/550	400/440/550	400/440/550
Max output at 60% duty cycle, A/V	800/44	1000/44	-	-
Max output at 100% duty cycle, A/V	630/44	800/44	1250/44	1600/44
Setting range, A/V, MIG/MAG	50/17-630/44	50/17-1000/45	60/17-1250/44	-
Setting range, A/V, SAW	30/21-800/44	40/22-1000/45	40/22-1250/44	40/22-1600/46
Open circuit voltage, V	54	52	51	54
No load power, W	150	145	220	220
Efficiency at max current	0.84	0.84	0.87	0.86
Power factor at max current	0.90	0.95	0.92	0.87
Enclosure class, protection	IP23	IP23	IP23	IP23
External dimensions, LxWxH, mm	670x490x930	646x552x1090	774x598x1428	774x598x1428
Weight, kg	260	330	490	585

Welding automation
Column and boom / gantries

CaB 2200

- The Column & Boom CaB 2200 is purposely designed for light duty.
- A smooth 360-degree lockable rotation.
- Linear guidings on column and boom for smooth movement which makes it ideal for the MIG, TIG and SAW welding processes.
- Cable chain on column and boom.
- Movable carriage or fixed stand
- IP 55 pendant control station using low voltage on the generous 10 metre cable.
- A standard safety feature including anti-fall device and limit switches for all motions.
- Pay load of 70 kg.

	CaB 2200
Mains supply, V/Hz	3x230/380/400/440 / 50/60
Vertical speed, mm/min	600
Boom Speed, mm/min	0-2050
Electrical Panel	IP 55
Rotation	Manual
Boom height max (a), mm	2500
Boom height min (a), mm	450
Boom height max (b), mm	2700
Boom extension max (c), mm	2500
Boom extension min (c), mm	490
Boom extension max (d), mm	2500
Boom extension min (d), mm	490
Wheel centre distance (e), mm	1600
Axle centre distance (f), mm	1500
Height of column (g), mm	3200

MechTrac 1730, 2100, 2500 and 3000

MechTrac might very well be the most flexible and fastest way to increase your productivity. The MechTrac is built as a gantry and can be equipped with an A2 welding equipment for SAW or MIG/MAG to create a complete welding station. If the workpiece rotates, other welding methods such as TIG and Plasma can be used, depending on the application and handling equipment. The MechTrac unit is suitable for different types of workpieces that can be covered by a gantry. The gantry offers the possibility to weld profiles such as I-, T-, or L-beams, columns or tapered beams. The MechTrac is available in four versions, depending on the size of the workpiece. The difference is the width of the gantry – 1730 mm, 2100 mm, 2500 mm or 3000 mm between the legs. The length of the legs is the same for all types, 1500 mm from the top of the rail to the inside of the overhead beam. The gantry can support a maximum weight of 220 kg, corresponding to a maximum of two A2 welding heads (single or twin wire) complete with automatic joint tracking GMH and an OPC flux recovery unit. The picture shows MechTrac equipped with A2 welding heads, Process Controller PEK and Power sources LAF 631.

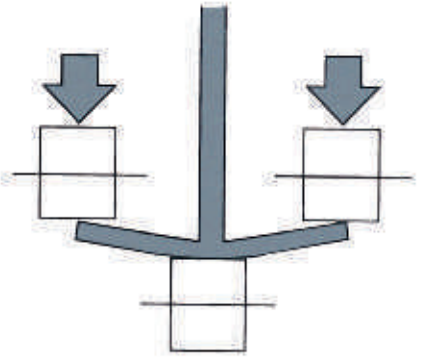
	MechTrac 1730, 2100, 2500 and 3000
Travel speed, m/min	0.2-1.9
Rail length, m	3
Max load, kg	220

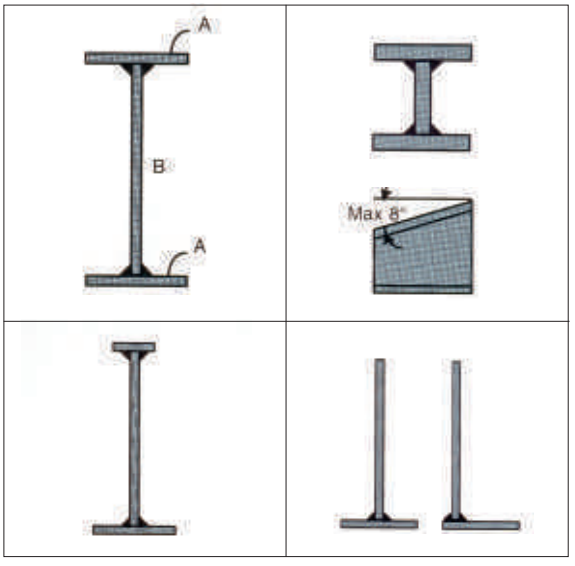
Welding automation Engineering

Beam welding

ESAB has more than 30 years' experience in the field of beam and profile welding. ESAB's beam and profile machines are equipped with the well-known and well-proven ESAB A6 system welding equipment. ESAB offers you a complete and effective way of welding beams and profiles. Whether you weld I-, T- or L-beams, wide flange beams, columns, tapered beams or non-symmetrical beams, ESAB has the know-how and the welding equipment to match your efficiency, quality, precision, versatility, productivity and overall welding economy requirements. The machines are of two types: IT-machines, where the beams are welded with the web unit in the vertical position, and I-machines, where the beams are produced in the horizontal position.

The main advantage of both machine types, apart from their high production capacity, is that the welding operation takes place when the flange and the web are pressed together under pressure in order completely to eliminate the gap between the surfaces. This ensures perfect weld quality. The IT-machines have a built-in straightening device which compensates for the pull-back of the flanges (see picture). ESAB's beam-welding machine program gives you the opportunity to choose the right type of equipment for your particular type of production.Total range of beam sizes that can be welded:





Machine type	Web	Flange
IT-258	200-2500 mm	100-800 mm
IT-158	200-1500 mm	100-800 mm

Aristo® Mig robot packages

ESAB Aristo® Mig robot packages, provide robot suppliers and integrators with superior welding technology that is easy to install and use, both for new welding robots and for retrofitting.

The ESAB Aristo® Mig process package is available through robot suppliers and integrators and can be used for almost all robotic applications. It can be connected to different type of robots for new installations as well as for retrofitting existing installations.

High tech welding equipment
The Aristo® Mig process package (with ESAB Canbus technology) offers a choice of Aristo® Mig inverter-based power sources, encapsulated and non-encapsulated, robot-mounted wire feeders, interfaces and the AristoPendant U8$_2$ control box. The interface with the robot controller can be achieved with analogue/digital I/O communication or via DeviceNet, Profibus or CANopen. The package includes high quality welding wires supplied in ESAB MarathonPac™ bulk drums.

The different ESAB robot packages are described on the following pages.

Aristo® packages for hollow wrist robots

Standard Packages are available in different configurations for ABB, Motoman, Fanuc and Kuka.

Example 1

Package for IRB 1520ID Air-cooled.

- Mig 5000i & $W8_2$ Integrated & Safety and interlock set.
- Control cable 7.5 m (ESAB-ABB).
- Aristo® RoboFeed 3004 HW.
- Aristo® FeedControl HW.
- Feeder and cable routing installation kit cpl. for ABB IRB 1520ID.
- Interconnection cable PS - drive unit 5 m.
- Cable PAL 3 / $W8_2$.
- Aristo® RT Infiniturn torch with torch neck 22°, torch mount and adapter.*

Example 2

Package for IRB 1520ID Water-cooled.

- Mig 5000iw(400V) & $W8_2$ & safety and interlock cable.
- Control cable 7.5 m (ESAB-ABB).
- Aristo® RoboFeed 3004 HW.
- Aristo® FeedControl HW.
- Feeder and cable routing installation kit cpl. for ABB IRB 1520ID.
- Interconnection cable PS - drive unit 5 m w.
- Cable PAL 3 / $W8_2$.
- RTw Infiniturn torch with torchneck 22°, torch mount and adapter.*

Option:

Stand alone bobbin holder complete with 4.5 m Marathon™ Pac hose.

* Other type of torch neck on demand.

Aristo® packages for non hollow wrist robots

Standard packages are available in different configurations for ABB, Motoman, Fanuc and Kuka.

Example 3

Air-cooled Mig 4002c Devicenet for IRB 2600.

- Mig 4002c.
- Aristo® $U8_2$.
- Extension cable 7.5 m.
- Aristo® $W8_2$ Devicenet.
- Interconnection cable $W8_2$ to choppers.
- Connection cable 10 m $W8_2$/robotcabinet.
- Aristo® RoboFeed 3004w 12p ELP.
- Aristo® RT torch with torch neck 22° and torch mount and adapter.
- Assembly bracket for IRB 2600.
- Cable set power source - wire feeder, 'high end version' 10m, incl. clamp & Reiku.
- Mounting bracket for the 'high end' cable set with the Raiku hose for IRB 2600.

Example 4

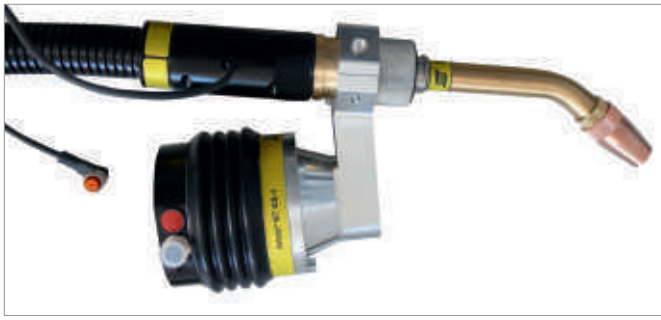
Water-cooled Mig 4002cw Devicenet for IRB 2600.

- Mig 4002cw.
- Water flowguard chopper.
- Aristo® $U8_2$.
- Extension cable 7,5 m.
- Aristo® $W8_2$ Devicenet.
- Interconnection cable $W8_2$ to choppers.
- Connection cable 10 m $W8_2$/robotcabinet.
- Aristo® RoboFeed 3004w 12p ELP.
- Aristo® RTw torch with torch neck 22° and torch mount and adapter.
- Assembly bracket for IRB 2600.
- Cable set power source - wire feeder, 'high end version' 10 m, incl. clamp & Reiku.
- Mounting bracket for the 'high end' cable set with the Raiku hose for IRB 2600.

Option:

Stand alone bobbin holder complete with 4.5 m Marathon™ Pac hose.

Aristo® RT robotic torches and accessories



Characteristics

- Robust and powerful
- Precision torch interface
- torch exchange
- use for all applications
- Modular system: choose from different geometries and torch types

Aristo® RT air-cooled

Aristo® RT 42G
60% (10 min.)
Mix : 8.8 kW (250 - 280 A)
Ø 0.8 - 1.2 mm
Gas flow: from 8 l/min
1 channel for protective or blow-out gas

Aristo® RT 52G
60% (10 min.)
Mix : 10.5 kW (300 - 320 A)
Ø 0.8 - 1.6 mm
Gas flow: from 8 l/min
1 channel for protective or blow-out gas

Aristo® RT 62G
80% (10 min.)
Mix : 15.0 kW (350 - 400 A)
Ø 0.8 - 1.6 mm
Gas flow: from 6 l/min
2 channels for protective or blow-out gas

Engineering the details

As with all ESAB products, also for our robot torches the following holds true: The detail solution determines the functionality and quality of the whole product.
With the development of our robot torches, we have set ourselves a high goal. After a lot of testing, we succeeded in creating a product with extraordinary lifetime, good cooling and mechanical durability, finally reaching our design goals. Of course, while maintaining the excellent price / performance ratio that our clients are accustomed to.

Aristo® RT water-cooled

Aristo® RT 42W
100% (10 min.)
Mix : 9.5 kW (270 - 300 A)
Ø 0.8 - 1.2 mm
Gas flow: from 8 l/min
1 channel for protective or blow-out gas

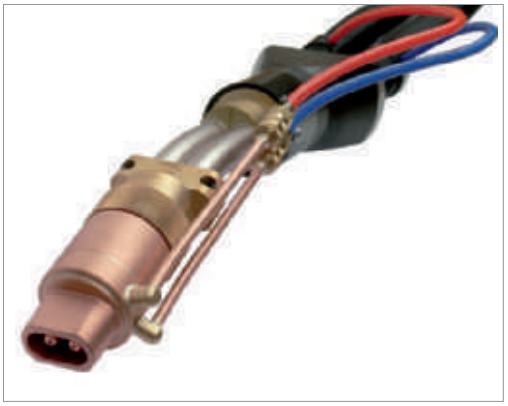
Aristo® RT 52W
100% (10 min.)
Mix : 13.0 kW (350 - 370 A)
Ø 0.8 - 1.6 mm
Gas flow: from 8 l/min
1 channel for protective or blow-out gas
2-circuit water cooling

Aristo® RT 62W
100% (10 min.)
Mix : 17.5 kW (370 - 500 A)
Ø 0.8 - 1.6 mm
Gas flow: from 6 l/min
2 channels for protective
or blow-out gas
2-circuit water cooling

Range of cable assemblies to suite your robot.

Robotic torches

Aristo® RT tandem torch, cleaning devices and safety switches



Technical data Aristo® RT tandem torch

Rating at 100% duty cycle (10 min. cycle)	
Mixed gas	2 x 550 A
Cooling method	3-circuit water cooling
Wire diameter	1.0 – 3.2 mm
Distance between wire electrodes	10 mm with a stick-out of 20 mm (standard). Other distances are possible on request.
Gas flow	max. 30 l /min
Blow-out function	max. 10 bar, protective gas channel separated by check valve
Weight (without cables)	approx. 2.8 kg
Technical specification	according to IEC 60974-7
Options	- wire run-in button on the torch - Push-pull system

Torch rating will be reduced when using pulsed-arc power sources. For heavy-duty use of the torch, it is highly recommended to use 3 separate water coolers, or a refrigerator unit.

JetStream RT cleaning station

Torch cleaning station. The particle stream cleans the whole torch head, even the parts which are normally hard to reach! The therewith resulting increase in productivity of the robot cell guarantees a quick amortization of the system.

RG 2000 Automatic torch cleaning station.

Safety switches

Range of safety switches and brackets to mount the torch on ABB Motoman Kuka Fanuc robots.

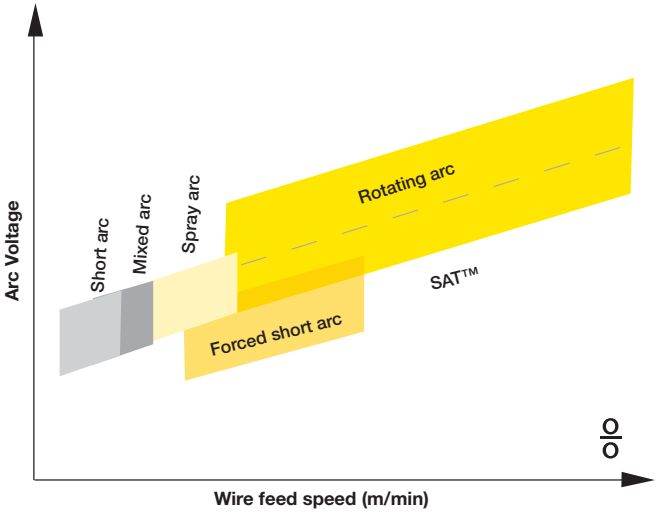
ESAB special welding processes

SAT™ - MAG welding at very high travel speed

ESAB Swift Arc Transfer (SAT™) is a high productivity MAG process that utilises AristoRod™ non-copper coated wires at travel speeds well beyond the limits of normal spray arc welding.

SAT™ produces flat welds with a good penetration and without undercut. An additional advantage is the low heat input, resulting in less deformation. SAT™ is developed for robotic, automated and mechanised welding. It is suited for fillet and overlap welds in thin to thick plate, in downhand positions.

SAT™ is based on the use of ESAB OK AristoRod™ non-copper coated MAG wire with Advanced Surface Characteristics - the benchmark product in the European transportation industry. The absence of contamination of the feed system with copper particles and the special surface finish results in dependable feeding properties and a stable arc at high welding currents/wire feed speeds.



ESAB SAT™ brings following user benefits:

- **A stable process at very high welding speed.**
- **Excellent weld appearance.**
- **A good weld penetration.**
- **Low heat input and low deformation.**
- **Excellent spatter-free arc ignition due to the use of ESAB SoftStart.**
- **Less post weld labour, due to limited spatter and deformation.**
- **Suited for thin up to thick materials with a single parameter setting.**
- **Easy to implement – common torch positions, normal stickout length.**
- **Very low amount of silicates.**

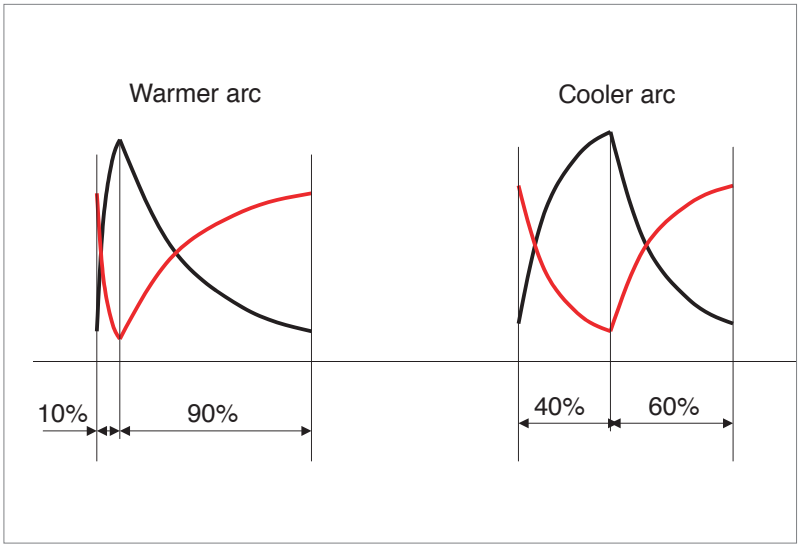
Table 1. SAT™ parameters for different wire sizes and four deposition rate levels. The yellow area shows the welding current limits. Fillet welds in PB position.

Ø (mm)	0.8	0.9	1.0	1.2	Deposition rate (kg/h)
Wfs (m/min.)	25	20	16	11	5.9
I (A)	220	230	240	230	
Wfs (m/min.)	32	25	20	14	7.4
I (A)	260	270	300	400	
Wfs (m/min.)	35	27	22	15.5	8.1
I (A)	255	285	330	460	
Wfs (m/min.)		30	25	17.5	9.2
I (A)		348	375	500	

ESAB special welding processes
QSet™ - short arc welding with a single button

QSet™ is an innovation set to change short arc welding - forever. A push on the QSet™ button, and a few seconds of test welding, is all it takes to find optimal short arc parameter settings - automatically! Benefits include savings in time and improved weld quality.

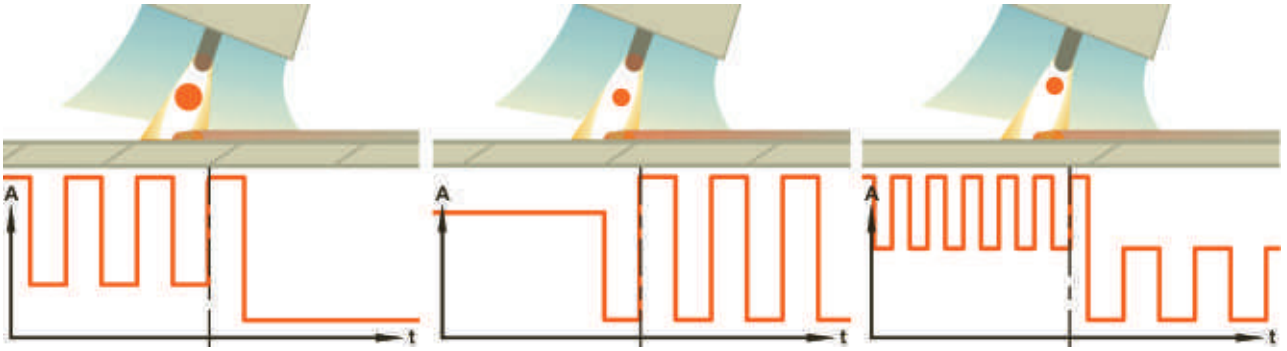
With QSet™, by pushing one single button, the machine automatically selects the optimal short circuit frequency for the gas/ wire combination installed, which is maintained when the welder adapts the wire feed speed to the level required for the application. It just needs a few seconds of test welding. The same procedure is repeated when changing wire type or diameter and/or shielding gas and the machine will, again, find the optimal arc setting. It couldn't be easier! Welders will save valuable time in arc setting and can concentrate energy and skills on producing the perfect weld. Time will also be saved on weld cleaning - the curse of even the best welders! - because the ideal arc setting will reduce spatter to an absolute minimum. ESAB has introduced QSet™ installed on a 300 A inverter in a compact version, the Mig C3000i with MA23A panel. It is now also available for Mig 3001i, 4001i, 4002c, 5002c and 6502c, Aristo® Mig U4000i, 5000i and U5000i power sources with OrigoFeed™ 3004 and MA24 panel or Aristo® Feed and U6 or U8$_2$ panel. QSet™ artificial intelligence in welding can be used with our complete bus controlled inverter and chopper range.

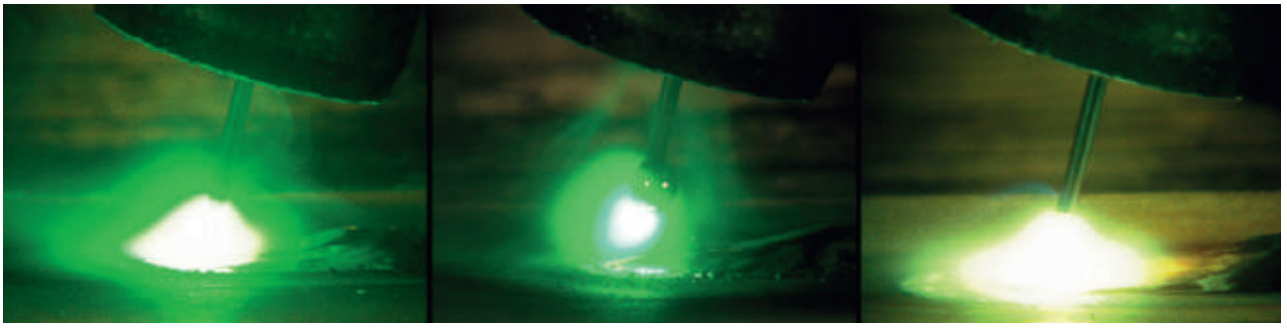


With QSet™, the ratio of arc time and short circuit time can be adjusted to obtain a warmer arc, while the short circuit frequency remains the same.

ESAB special welding processes

Full control over heat input with Aristo® SuperPulse™





Aristo® SuperPulse is a further development of the pulse/pulse concept, giving full control over the heat input and thereby expanding the scope of application of the MIG process. In addition to pulse/pulse, the following arc mode combinations and applications are possible:

- Pulse/short arc. Enables the welding of very thin sheet metal. Productive welding of root passes replacing the TIG process.
- Spray arc/pulse. A very efficient arc mode for positional welding of thick materials. Aluminium can be welded straight upwards, without weaving.
- MIG brazing of very thin sheet material.

Aristo® SuperPulse brings the following general benefits:

- Easier positional welding.
- Uniform penetration.
- Less sensitive for root gap variations.
- Less sensitive for unequal heat transfer.
- TIG weld appearance with the MIG process.
- Suitable for mechanisation, e.g. with Railtrac and Miggytrac.
- Extends the working range for larger wire sizes.
- With its precisely adjustable heat input and depth of penetration Superpulse can solve difficultest welding tasks and increase productivity.

ESAB special welding processes
Hybrio™ laser hybrid technology

The introduction of ESAB's fifth generation Hybrio™ technology launches a new era in advanced welding.

Combining the key benefits of laser and gas metal arc welding (GMAW), hybrid laser welding delivers multiple gains, such as radically higher welding speeds, a dramatic reduction in consumable consumption, enhanced mechanical properties, reduced joint volumes and heat input and greatly reduced part distortion.

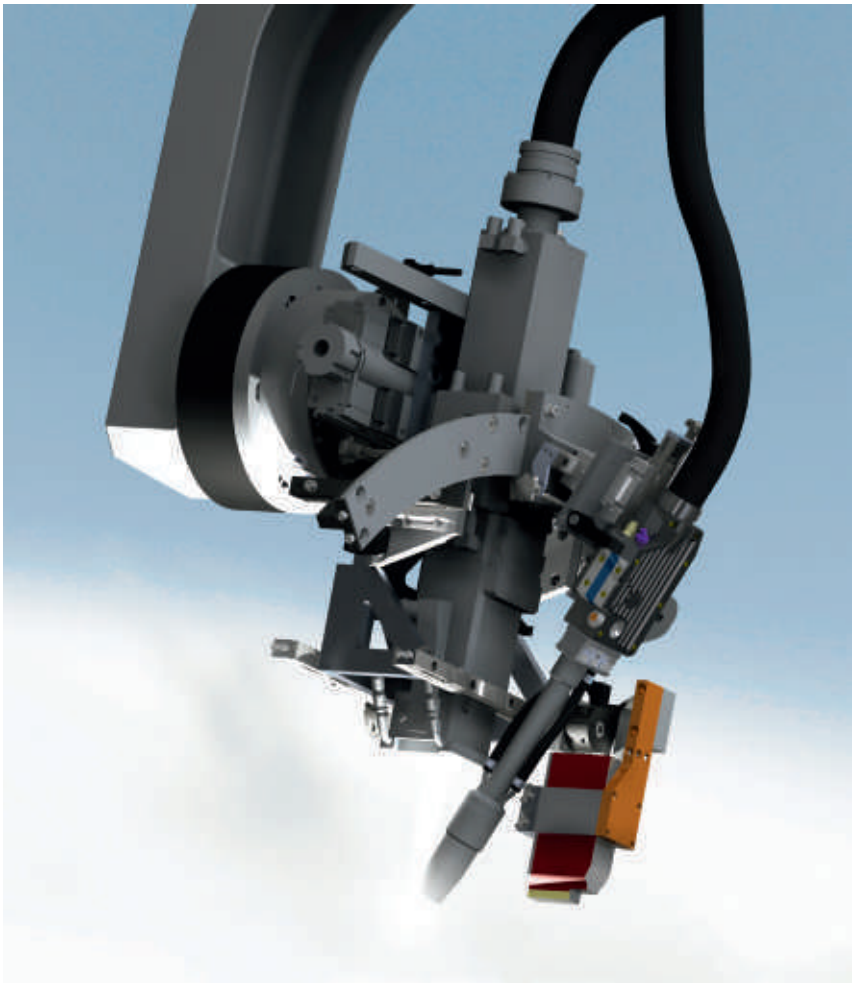
Transportation vehicles of all types, from rail to autos to ships, can use hybrid welding in combination with high performance materials, to reduce weight and distortion while enhancing vehicle performance.

Hybrid welding is not for everyone. It may mean adjusting cutting/machining operations and require changes to down-stream operations, to fully benefit from the substantial productivity, quality and cost-efficiency gains.

Successful implementation assumes access to qualified engineering and technical staff. And introducing such a game-changing new process demands serious investment, not only in terms of resources, but in total commitment from senior management. For those with the right industrial and product profile, though, the potential gains are huge.

Because ESAB is so much more than 'just' an equipment supplier. A respected R&D powerhouse in its own right, ESAB works intimately with end-customers, OEMs and system integrators to achieve optimal welding solutions. This goes beyond the practical and technical challenges, to embrace life-cycle cost and environmental sustainability. As an ESAB customer, you acquire a powerful industrial consultant and partner.

And Why Hybrio™?
ESAB's Hybrio™ technology leads the industry in ease of use and process reliability. The technology can be supplied as a fully-integrated turnkey ESAB welding system, or made available to machine tool OEMs and system integrators as a process package. Customers always have access to the company's comprehensive hybrid welding expertise, with the full support of ESAB Laser Process Centers in North America and Europe.



ESAB special welding processes

2D and 3D friction stir welding machines and robots

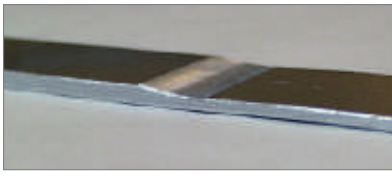
Friction Stir Welding (FSW) has been used for the high quality joining of aluminium since its invention in the early 1990's. The superior joint quality results from a solid-state procedure, where no filler material or shielding gas is used. The joint is the result of a rotating tool being forced into the material and traversed along the joint line. The material, suppressed by the tool's shoulder, becomes plastic and reforms homogenously leaving a solid bond between the two pieces.

The technique was developed at TWI (The Welding Institute) in the early 1990's, when ESAB joined a group-sponsored project aiming to develop the process. Commercialisation of the process started a few years later with successful use of ESAB installations at Marine Aluminium (Haugesund, Norway), in 1996, and at Boeing (Wichita, Kansas, USA), in 1998. FSW has gained a sound reputation within the welding community as an easy-to-use, defect-free process, although limited to 2D welds as in ship panels.

Figure 1. Welding tests on Rosio™ Friction Stir Welding robot.

The joining of multidimensional joints remained a challenge for friction stir welding (FSW). This is because machines are predominantly built to manage process requirements rather than enabling motion flexibility. ESAB's research and development lead to the succesful launch of the latest member of the ESAB FSW family: Rosio™ - robotic friction stir welder for 3D weldments.

One of the early users of robotic FSW is the automotive industry, where relatively soft aluminium alloys - AA5000 and AA6000-series - are used in thicknesses under 3mm.



Applications for Rosio™: Tailor-welded blanks, FSW processing, joining of cooling blocks.

Your complete cutting solution from the same supplier

- Cutting machines from 2 to 36m machine width.
- Filter systems.
- Cutting tables.
- Plasma system solutions from 1 to 120mm cutting thickness.
- Specialised cutting software and easy to operate CNC controllers.
- High duty oxy fuel cutting equipment.
- Tools for automated weld-edge preparation.

Cutting systems

More than 70 years' experience of cutting and responding to customers needs have resulted in an extensive range of products. The traditional thermal cutting technologies such as plasma, oxy-fuel and laser cutting have been joined by the newer waterjet cutting technology. Marking, signing, lettering, punching, shot blasting, surface cleaning, drilling and powerful software tools completes the cutting product family.

Personal protective equipment

The Aristo® Tech

The Aristo® Tech helmet has been designed for the professional welder who wants the best in protection and performance. The light weight shell and ergonomically designed headgear offers maximum comfort even when welding for long periods of time. The Aristo® Tech offers the latest in digital lens technology, with internal LCD display, providing the welder full control to adjust shade level, sensitivity and delay settings with precision for any welding application.Three high gloss colours available – yellow, black & white.

Aristo® Tech helmets prepared for fresh air

The Aristo® Tech helmet can be used in combination with the Aristo® Air PAPR unit and compressed air. The helmets are delivered fully assembled, incl. flame resistant head and face seal and air duct.

Globe-Arc

The Globe-Arc is a unique design in flip front welding and grinding helmets. The visor provides effective protection from UV and IR radiation when the visor is both open and closed, and is available in different shade levels. The helmet is equipped with a strong and comfortable head gear.

ESAB Filtair Pro 8020CV

This mask provide P2 protection and is equipped with a valve to reduce heat and moisture build up inside the respirator. The carbon layer takes out bad odours. Suitable to wear during welding, brazing, soldering, painting (brush applied), gluing (brush applied) and polyester resins (hand mix).

ESAB Pro Clear

The clear lens is suitable when working indoors, providing general eye protection.

Welding Jackets

The ESAB Proban/leather jackets are designed for maximum comfort and safety. The sleeves and shoulders are made in durable grade A leather to withstand the exposure to welding spatter. The front and back is made from flame retardant Proban material. The garment feature concealed inner pockets, adjustable sleeves and a stand up collar. Kevlar stitched.

ESAB Curved MIG Glove

These superior new welding gloves from ESAB offer a whole new approach to fit, form and function. Ergonomicaly designed to fit the natural curve of the hand, offering increased quality & comfort to the wearer. The MIG glove is made from heavy & fine cut leather, and is lined from hand to cuff. With the curved design the glove fits the hand perfectly, and also has a flexible wrist area which reduces friction. With welted seams, kevlar stitching & reinforced thumb, the glove is very strong and offers a very high level of protection to the wearer.

Welding Blanket 5180

A carbon fibre felt welding blanket for heavy duty applications. This blanket offers extreme heat resistance of 1650°C. The 5180 is extremely light and simple to clean and it's been designed for the automotive industry. Maximum temp. = 1300°C, Weight = 425 g, Colour = Black.

Special Marathon Pac and wire feedability accessories

Direct pull kit with ceramic inlet prevents wire shaving.

Quick disconnect insulator.

Marathon Pac drum cover

- Constructed of tough polyethylene for long shop life.
- Dual windows provide easy access and viewing.
- Built-in anchors to secure drum hood to Marathon Pac.
- Lifetime guarantee against breakage.

Resistance butt welders

Various butt welder types available for endless Marathon Pac; docking station, stand alone version and portable version.

Extra flexible conduit

- Elliptical, smooth-coated wire liners reduce friction and wire shaving.
- Spatter resistant outer jacket.
- Ideal for robotic applications.
- Available in four standard lengths & three diameters.
- Standard conduit sizes available in color-coded cut lengths with attached bayonets.

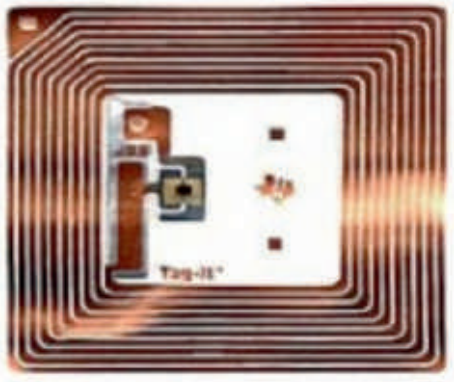
Roller module features

- Eliminates friction on the wire in areas where bends/ corners are necessary throughout the wire dispensing system.
- Each module contains a series of rollers with bearings, allowing the wire to easily feed around turns.
- Allows long distance conduit runs.
- 45° modules may be connected together to form a 90° turn, 135° turn, 180° turn or S-shape.
- Mounts to the drum hood, on the weld cell or in-line.
- Compatible with both ferrous & non-ferrous wire.
- Two sizes available (standard wire / large wire version).

Wire guide module accessories

Guide module swivel kit, allows 360° rotation.

Get smarter with SMART labels

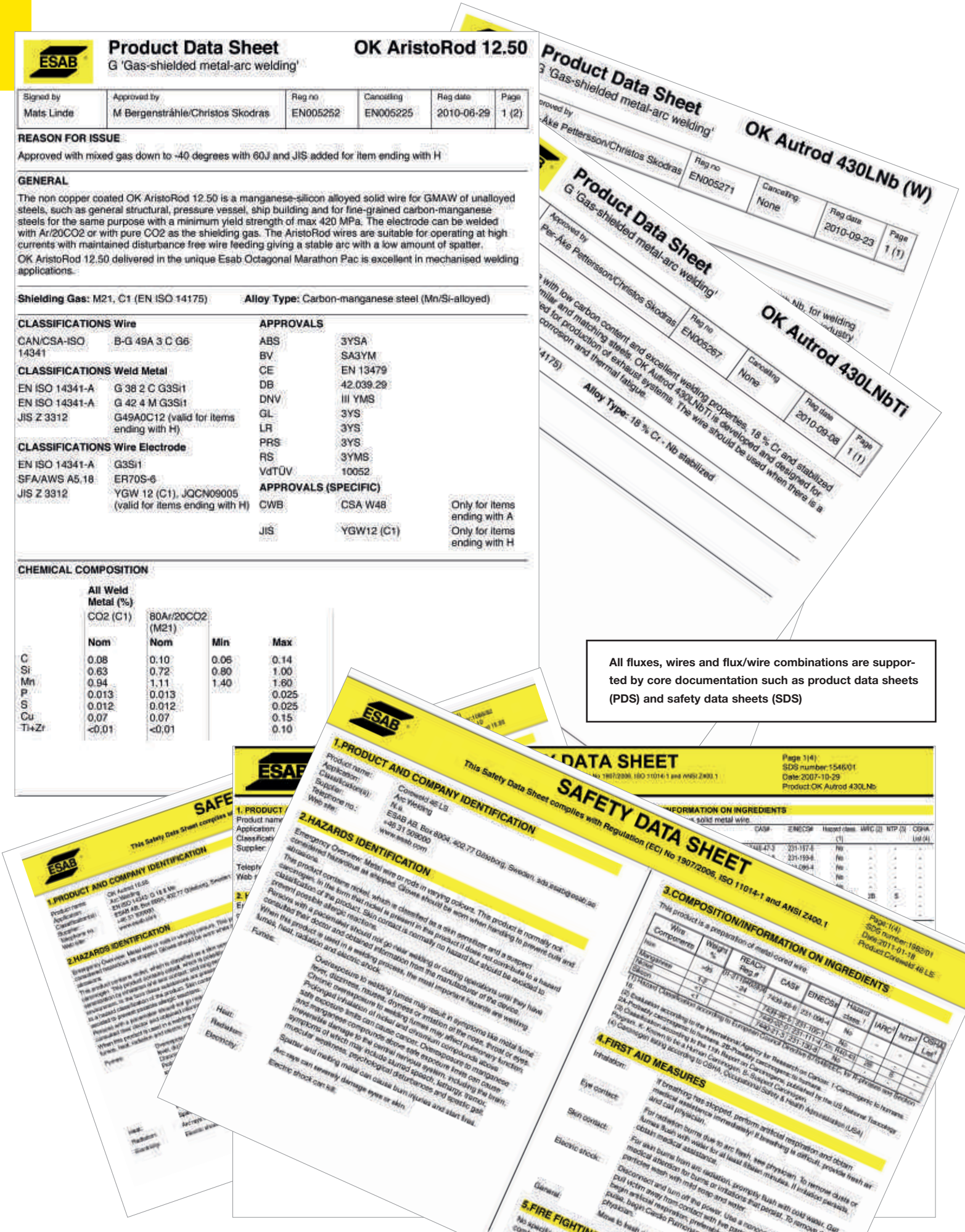


No more human errors with RFID – labels

RFID (Radio Frequency Identification) is a suitable technology to automatically acquire information. The new RFID will be integrated in the standard packaging label to allow standard bar-code reading and/or RFID scanning with a relevant device. RFID labels have the following features:

- Contains information related to the filler metal grade, quantity in the package and diameter of the wire – according to the ISO 15693 common functionalities.
- Will send a Go/No Go signal to the robotic cell.
- Will be launched with all 16.95 and 16.76 OMP.
- Can be used for active monitoring of the wire consumption.
- Once integrated with the customers ERP system, it can be used to automatically re-order products from the supplier.
- Can send a signal to the stores/warehouse and request an internal delivery of a new drum for the station avoiding unnecessary stoppage.

Product documents



Product Data Sheet
G 'Gas-shielded metal-arc welding'

OK AristoRod 12.50

Signed by	Approved by	Reg no	Cancelling	Reg date	Page
Mats Linde	M Bergenstråhle/Christos Skodras	EN005252	EN005225	2010-06-29	1 (2)

REASON FOR ISSUE

Approved with mixed gas down to -40 degrees with 60J and JIS added for item ending with H

GENERAL

The non copper coated OK AristoRod 12.50 is a manganese-silicon alloyed solid wire for GMAW of unalloyed steels, such as general structural, pressure vessel, ship building and for fine-grained carbon-manganese steels for the same purpose with a minimum yield strength of max 420 MPa. The electrode can be welded with Ar/20CO2 or with pure CO2 as the shielding gas. The AristoRod wires are suitable for operating at high currents with maintained disturbance free wire feeding giving a stable arc with a low amount of spatter.

OK AristoRod 12.50 delivered in the unique Esab Octagonal Marathon Pac is excellent in mechanised welding applications.

Shielding Gas: M21, C1 (EN ISO 14175) **Alloy Type:** Carbon-manganese steel (Mn/Si-alloyed)

CLASSIFICATIONS Wire

CAN/CSA-ISO 14341	B-G 49A 3 C G6

CLASSIFICATIONS Weld Metal

EN ISO 14341-A	G 38 2 C G3Si1
EN ISO 14341-A	G 42 4 M G3Si1
JIS Z 3312	G49A0C12 (valid for items ending with H)

CLASSIFICATIONS Wire Electrode

EN ISO 14341-A	G3Si1
SFA/AWS A5.18	ER70S-6
JIS Z 3312	YGW 12 (C1), JQCN09005 (valid for items ending with H)

APPROVALS

ABS	3YSA	
BV	SA3YM	
CE	EN 13479	
DB	42.039.29	
DNV	III YMS	
GL	3YS	
LR	3YS	
PRS	3YS	
RS	3YMS	
VdTÜV	10052	

APPROVALS (SPECIFIC)

CWB	CSA W48	Only for items ending with A
JIS	YGW12 (C1)	Only for items ending with H

CHEMICAL COMPOSITION

	All Weld Metal (%) CO2 (C1) Nom	80Ar/20CO2 (M21) Nom	Min	Max
C	0.08	0.10	0.06	0.14
Si	0.63	0.72	0.80	1.00
Mn	0.94	1.11	1.40	1.60
P	0.013	0.013		0.025
S	0.012	0.012		0.025
Cu	0,07	0.07		0.15
Ti+Zr	<0,01	<0,01		0.10

Product Data Sheet
G 'Gas-shielded metal-arc welding'

OK Autrod 430LNb (W)

Approved by	Reg no	Cancelling	Reg date	Page
Åke Pettersson/Christos Skodras	EN005271	None	2010-09-23	1 (1)

Product Data Sheet
G 'Gas-shielded metal-arc welding'

OK Autrod 430LNbTi

Approved by	Reg no	Cancelling	Reg date	Page
Per-Åke Pettersson/Christos Skodras	EN005267	None	2010-09-08	1 (1)

with low carbon content and excellent welding properties. 18 % Cr and stabilized
milar and matching sheets. OK Autrod 430LNbTi is developed and designed for
ed for production of exhaust systems. The wire should be used when there is a
corrosion and thermal fatigue.

4175)

Alloy Type: 18 % Cr - Nb stabilized

All fluxes, wires and flux/wire combinations are supported by core documentation such as product data sheets (PDS) and safety data sheets (SDS)

SAFETY DATA SHEET
This Safety Data Sheet complies with Regulation (EC) No 1907/2006, ISO 11014-1 and ANSI Z400.1

1.PRODUCT AND COMPANY IDENTIFICATION

2.HAZARDS IDENTIFICATION

3.COMPOSITION/INFORMATION ON INGREDIENTS

4.FIRST AID MEASURES

5.FIRE FIGHTIN

Find out what's below the waterline of your welding costs

Would you like to add value to your business and thus improve your profitability? With our value added services we can deliver enhanced opportunities to our customers by helping them to improve their business performance, competitiveness and productivity. Our "expert eyes" can help you review your current production, welding or cutting operation in search for the most optimum solution. A profitability survey is a key milestone in the design of our value added service offer. We use a total economy approach which allows us to identify both the visible and hidden costs in your production. By applying the profitability survey directly in your production we can identify cost reduction opportunities and develop exceptional value added welding and cutting solutions designed to meet your individual needs.

Total results - differences	2011	2012	2013	2014	2015	Sum
Increased profits due to increased sales	120 000	120 000	120 000	120 000	120 000	600 000
Change - Consumables and medias costs	-3 401	-3 401	-3 401	-3 401	-3 401	-17 006
Change - Personnel costs	61 685	61 685	61 685	61 685	61 685	308 424
Change - Other costs production	0	0	0	0	0	0
Change - Repair, maintenance and logistics costs	0	0	0	0	0	0
Change - Administration, environment and various cos	0	0	0	0	0	0
Change - Investment costs	-51 538	-49 231	-46 923	-44 615	-42 308	-234 615
Total results	126 745	129 053	131 361	133 668	135 976	656 803
Difference in welding capacity	898	898	898	898	898	4 489
Extra welding capacity	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
Freed time per year (h)	3 289	3 289	3 289	3 289	3 289	16 446

Key ratios - Total	
Total result	656 803
Average result per year	131 361
Extra welding capacity/year	898
Extra welding capacity in %	9.0%
Pay off	1 years 1 months
Total net present value	555 724
IRR	85.0%

Average cost savings per year

Pay off time

Our expert technical team is at your disposal to perform the profitability survey adding value to your business by identifying the following:

The true source of cost reductions with:

- Improved productivity
- Better total economy
- Improved quality

New opportunities to increase revenues with:

- Increased capacity
- Extra product sales
- The growth of your employees productivity

New areas for reduced working capital with:

- Optimized product mix
- Higher stock turn over
- Optimized material stock level

R&D, Central Laboratory and Process Centres

ESAB Central Laboratories
The ESAB Central laboratories in Gothenburg, Sweden, together with the Process Centre, form the technical heart of ESAB worldwide. Equipped with modern facilities, they provide research services to the development departments, to production sites and to end customers.

The several laboratories are:
- Metallographic laboratory
- Mechanical testing
- Chemical laboratory
- Welding laboratory
- Heat treatment laboratory

Principal activities are:
- Customer support:
  Defects, properties, welding procedures, failure analysis.
- Development support:
  Microstructure and properties for development and improvement of products.
- Research:
  Internal and external (universities, institutes) research projects.
- Production support:
  Verification of product quality and production processes.

ESAB worldwide organisation of Welding Process Centres consists of fully equipped, multifaceted training and development facilities, specifically designed for advanced process and welding application support to customers.

Our focus is to help our clients become more competitive by optimising the quality and efficiency of their welding applications and processes – for best possible welding economy – through application research, expert advice and training.

Production facility certificates

World leader in welding and cutting technology and systems

XA00155920 2014/07

ESAB operates at the forefront of welding and cutting technology. Over one hundred years of continuous improvement in products and processes enables us to meet the challenges of technological advance in every sector in which ESAB operates.

Quality and environment standards

Quality, the environment and safety are three key areas of focus. ESAB is one of few international companies to have obtained the ISO 14001 and OHSAS 18001 standards in Environmental, Health & Safety Management Systems across all our global manufacturing facilities.

At ESAB, quality is an ongoing process that is at the heart of all our production processes and facilities worldwide. Multinational manufacturing, local representation and an international network of independent distributors brings the benefits of ESAB quality and unrivalled expertise in materials and processes within reach of all our customers, wherever they are located.

ESAB Sales and Support offices worldwide

** Includes manufacturing facilities of ESAB North America. A wholly owned subsidiary of Anderson Group Inc.*

ESAB reserves the right to alter specifications without prior notice

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