# SELECTARC ESSENTIALS

**FOR WELDING PROFESSIONALS** 

EXPORT



Electrodes: Un-alloyed, low alloyed, high-alloyed steel, cast iron, nickel alloys, TIG (GTAW) & MIG (GMAW) wires, brazing alloys and fluxes...

> and much more on www.fsh-welding.com



### SOLUTIONS PROVIDER OF WELDING AND BRAZING SPECIALTIES

French industrial group specialized in the manufacture and marketing of innovative welding and brazing consumables (brazing alloys, electrodes for arc welding, TIG & MIG wires, flux cored wires and fluxes).

With three production facilities in France, its own distribution network across all continents and with over two hundred years' experience, FSH Welding Group offers one of the broadest ranges of consumables and welding services for all types of applications (energy, transportation, petrochemicals, HVAC, M&R...) under the brand SELECTARC®.



# Innovation Quality Responsiveness Plexibility Customization





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www.fsh-welding.com

### CONTENT

### ARC WELDING ELECTRODES

	ТҮРЕ	MAIN APPLICATION	FAMILY	CLA:	AWS SSIFICATION		EN ISO FICATION	PAGE
teel	SELECTARC 51	Universal rutile		A5.1	E6013	ISO 2560-A	E 420 RC 11	5
alloyeds	SELECTARC B7016Sp	Basic, special for repairing		A5.1	E7016	-	-	6
- - -	SELECTARC B58	Universal basic		A5.1	E7018	ISO 2560-A	E 424 B 32 H5	6
	SELECTARC 20/10 BC	Stainless steel 308L		A5.4	E 308L-16	ISO 3581-A	E 19 9 LR 32	7
steel	SELECTARC 20/10 MBC	Stainless steel 316L		A5.4	E 316L-16	ISO 3581-A	E 19 9 LR 32	8
High-alloyed s	SELECTARC 24/12S	Stainless steel 309L Steel/Stainless steel		A5.4	E 309L-16	ISO 3581-A	E 23 12 LR 32	8
High-6	SELECTARC 29/9	High security, multi-use		A5.4	E 312-16	ISO 3581-A	E299R32	9
	SELECTARC 18/8Mn	Stainless for repairing & surfacing		A5.4	~E 307-26	ISO 3581-A	E 188 Mn R 73 X	9
Nickel alloys	SELECTARC B90	Inconel 600* special for repairing		A5.11	E NiCrFe-3	ISO 14172	E-Ni 6182 (NiCr15Fe6Mn)	10
Cast	SELECTARC Fonte Ni	Cast iron repairing		A5.15	E Ni-Cl	ISO 1071	ECNi-Cl3	11
చి.≌	SELECTARC Ferro Ni	Cast iron-steel		A5.15	E NiFe-Cl	ISO 1071	EC NiFe-Cl 3	11
Hardfacing	SELECTARC HB63	Anti-wear hardfacing		DIN 8555	E10-UM-60-GRPZ	EN 14700	E Fe14	12
Hardf	SELECTARC HB61B	Universal for hardfacing		DIN 8555	E6-UM-60-S	EN 14700	E Fe8	13

<sup>\*</sup> Note: "Inconel "" is a registered trade name of Inco Companies.

### TIG/MIG WELDING WIRES

		TYPE MAIN APPLICATION FAMILY CLASSIFICATION		NF EN ISO CLASSIFICATION		PAGE			
Alımi.	wire	SELECTARC ALG5	AlMg5 wire		A5.10	ER5356	ISO 18273	S AI 5356 (AIMg5Cr)	14
	<u> </u>	SELECTARC 20/10M (TIG)	lancy to an a 2101		A5.9	ER316L	ISO 14343-A	W 19 12 3 L	15
Steel	N N	SELECTARC 20/10MS (MIG)	Inox type 316L		A5.9	ER 316LSi	ISO 14343-A	G 19 12 3 L Si	15

### BRAZING FILLER METALS

	ТҮРЕ	MAIN APPLICATION		AWS SIFICATION		F EN ISO SIFICATION	PAGE
lloys	PHOSBRAZ M73	Copper brazing	-	-	ISO 17672	CuP 181	16
zing all	PHOSBRAZ AG60	Gas Systems	-	-	ISO 17672	CuP 283a	17
Braz	BRAZARGENT 5034	Silver Brazing alloy	-	-	ISO 17672	Ag 134	17

Alloys: Un-alloyed steel, High-alloyed steel, Nickel alloys, Cast iron, Hardfacing, Aluminium alloys, Copper-Phosphorus, Silver brazing alloys.



### ELECTRODES



WHICH APPLICATION?	WHICH ELECTRO	DE?	SPECIAL FEATURE
	51		Universal
CARBON STEEL WELDING	B7016Sp		Special for repairing
	B58		Enhanced mechanical properties
DIFFICULT-TO-WELD STEEL	29/9		Multi-purpose high security
WELDING	B90		Extreme cases
STAINLESS STEEL WELDING	20/10 BC		304L
STAINLESS STEEL WELDING	20/10 MBC		316L
	24/12S		Assembly cast iron/steel
DISSIMILAR WELDING	29/9		Repairing
	18/8Mn		Stainless for repairing & surfacing
	Fonte Ni		Lamellar cast iron
CAST IRON WELDING	Ferro Ni		Cast iron/stainless steel and nodu- lar cast iron
HARDFACING	HB63		Mineral abrasion - 63HRC
TIANUTAUNU	HB61B		Universal - 60HRC

BRAZING



WHICH APPLICATION?	WHICH BRAZING ALLO	Y?	SPECIAL FEATURE
COPPER BRAZING	PHOSBRAZ M73		Plumbing / Heating
GAS SYSTEMS	PHOSBRAZ AG60		Gas Systems
ALL METALS TO BE JOINED	BRAZARGENT 5034		All applications



### SELECTARC 51

- **★** Universal
- ★ Exceptional welder appeal

### SELECTARC B7016Sp

- ★ Double coated basic
- ★ Exceptional welder appeal

### SELECTARC B58

- ★ Universal basic high performance
- ★ Enhanced operator appeal

### SELECTARC 51

All position rutile electrode providing an exceptional welder appeal. Good weld bead appearance. Easy slag removal.

### ■ Weldable steel range:

General purpose construction steels.

### MAIN APPLICATIONS

★ Sheet metal, piping, metal works, tanks...

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
51022 S12	2.0	300	374	4	4
51003 S12	2.5	350	281	5	4
51033 S12	3.2	350	172	5	4
51043 S12	4.0	350	114	5	4

Product also available in PE cases: 1 kg and PR cases: ~ 300 gr.





- Universal all positions
- Exceptional operator appeal
- Smooth and stable arc
- Self-releasing slag









### ■ SELECTARC B7016Sp

Basic double coated electrode presenting exceptional welding characteristics. Enhanced mechanical properties.

### ■ Weldable steel range:

Construction steel for general use, ship steel, various steel for boiler and pressure vessels, high strength steel, heat resisting steel, cold tough steel...

### MAIN APPLICATIONS

★ Frames, heavy supports, shipbuilding, pressure vessels and all repair works...

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
80903 S12	2.5	350	250	5	4
80933 S12	3.2	350	152	5	4
80944 S12	4.0	450	92	6	4

Product also available in PE cases: 1 kg.

### BASIC, Special for Repairing



### PRODUCT ADVANTAGES:

- Excellent welder appeal
- · High resistance to cracking
- Easy slag removal









### SELECTARC B58

**Universal basic electrode** for welding highly stressed connections, for use at operational temperatures between -40°C and +400°C. Excellent resilience. Excellent operator appeal.

### ■ Weldable steel range:

Construction steel for general use, ship steel, steel for boiler and pressure vessels, high strength steel, heat resisting steel, cold tough steel...

#### MAIN APPLICATIONS

★ Pressure vessels, piping, ship building.

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
81403 S12	2.5	350	250	5	4
81433 S12	3.2	350	156	5	4
81444 S12	4.0	450	97	6.5	4





- Very good operator appeal
- · Easy striking and re-striking
- Easy slag removal
- Great mechanical properties and high resisitance to cracking









## **STAINLESS STEEL**ELECTRODES

### SELECTARC 20/10 BC

Rutile-basic 308L electrode for welding of 18/8 austenitic stainless steels. Ease of use. Excellent bead appearance. Easy slag removal.

### ■ Weldable steel range:

18/8 type stainless steels (304L).

### MAIN APPLICATIONS

 $\bigstar$  Tubes and tanks in the chemical and petrochemical industries...

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
13102 S12	2.5	300	215	4	4
13133 S12	3.2	350	143	5	4
13143 S12	4.0	350	94	5	4
	•	•	•	•	•





- Low carbon stainless steel
- Coating with very low moisture pick up
- Exceptional operator appeal
- Smooth welding and spatter-free









### SELECTARC 20/10 MBC

**Rutile-basic 316L electrode** used for welding of 18/8/3 austenitic stainless steels and cladded steels. Excellent corrosion resistance. Smooth welding. Easy slag removal.

### ■ Weldable steel range:

18/8/3 type stainless steels (316L) and similar grades.

### MAIN APPLICATIONS

★ Chemical and petrochemical industries, ship building, tanks, pipes, heat exchangers, food industry...

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
12003 S12	2.5	350	230	5	4
12033 S12	3.2	350	139	5	4
12043 S12	4.0	350	93	5	4

Product also available in PE cases: 1 kg and PR: ~ 300 gr.





### PRODUCT ADVANTAGES:

- Low carbon universal stainless steel
- Excellent corrosion resistance
- Exceptional operator appeal
- Coating with very low moisture pick up









### SELECTARC 24/12S

**309L type electrode** used for welding similar stainless steels grades and dissimilar assemblies. Great bead appearance. Self-releasing slag.

#### ■ Weldable steel range:

24/12 type stainless steels (309L), heat-resistant steel, dissimilar welding steel/stainless steel with difficult-to-weld steels.

#### MAIN APPLICATIONS

★ Chemical and petrochemical industries, ship building and all maintenance works...

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
13502 S12	2.5	300	217	4	4
13533 S12	3.2	350	143	5	4
13543 S12	4.0	350	96	5	4





- Weld dissimilar grades
- Difficult-to-weld steels
- Smooth welding spatter-free
- Self-releasing slag









### **SELECTARC 29/9**

Rutile-basic electrode with an enhanced mechanical characteristic stainless steel deposit. Highly resistant to cracking. Welding all low-alloyed and high alloyed steels. It is a multipurpose electrode for high security repairs.

### ■ Weldable steel range:

Carbon steel, galvanized steel, stainless steel, tool steel, manganese steel...

### MAIN APPLICATIONS

★ Repairing and maintenance on dissimilar, difficult-to-weld or unknown steels, suitable for buffer layers before hardfacing, building up piston rods, gears...

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
16122 S12	2.0	300	339	4	4
16103 S12	2.5	300	216	4	4
16133 S12	3.2	350	147	5	4
16143 S12	4.0	350	96	5	4

Product also available in PE cases: 1 kg and PR: ~ 300 gr.

### **UNIVERSAL FOR** MAINTENANCE AND REPAIRS



### PRODUCT ADVANTAGES:

- This product is ideally universal
- High resistance
- Stainless deposit
- Uniformed weld beads









### SELECTARC 18/8Mn

### Rutile-basic electrode with high recovery.

Fully austenitic stainless steel deposit with a high Mn-content. Welding dissimilar assemblies, difficult-to-weld materials and buffer layers before hardfacing.

### ■ Weldable steel range:

Repairing and maintenance on railways, on earth moving equipment: excavators buckets, jaw crusher, public works, cement, armour plates...

### MAIN APPLICATIONS

moving equipment, on quarries and on dissimilar, dif-ficult-to-weld or unknown steels, suitable for buffer layers before hardfacing, building up piston rods, gears.

	Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
107	03 S12	2.5	350	130	4.5	4
107	33 S12	3.2	350	100	5	4
107	44 S12	4.0	450	61	6.5	4





- Very good operator appeal
- Smooth welding low spatter
- Regular weld beads
- Self-releasing slag











# NICKEL ALLOYS / CAST IRON ELECTRODES

### SELECTARC B90

Inconel 600\* type basic electrode, used for repairing and joining high nickel percentage alloys and difficult-to-weld steels. Excellent resistance to cracking down to -196°C. Refractory deposit (1400°C). 140% recovery.

### ■ Weldable steel range:

Alloyed steel, hard-to-weld steel (high C.E.), tool steel, heat resistant steel, dissimilar assemblies, nickel alloyed steel...

### MAIN APPLICATIONS

★ Oven parts, burners, heat treatment tanks and equipment, cement works (kilns and balls coating), moulds, strip tanks, transport and storage of liquid gas. Chemical and petrochemical industries, glassworks, civil engineering, repair and maintenance workshops.

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
49003 S12	2.5	350	185	5	4
49033 S12	3.2	350	102	5	4
49043 S12	4.0	350	72	5	4
				•	

Product also available in PE cases: 1 kg.





### **PRODUCT**ADVANTAGES:

- Repairing all kind of steels (extreme cases)
- Exceptionally high mechanical properties (hot and cold)
- Insensitive to heat treatments
- All-position electrode









\*Note: "Inconel" is a registered trade name of Inco Companies.

### SELECTARC Fonte Ni

Graphite electrode with high percentage of nickel, for cold repairing of different grades of cast iron.

#### ■ Weldable steel range:

All grey lamellar cast irons.

N.B. Lamellar cast iron welding requires a maximum temperature of 70°C between runs \_ See Technical Data Sheet.

### MAIN APPLICATIONS

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
04003 S12	2.5	350	237	5	4
04033 S12	3.2	350	143	5	4
04043 S12	4.0	350	96	5	4

Product also available in PE cases: 1 kg.

### **GREY CAST IRON** REPARING



### PRODUCT ADVANTAGES:

- Excellent all-position weldability, without preheating
- Homogeneous and easy to machine deposit
- Great deposit extension for lamellar cast iron
- Ideal for repairing old cast iron









### SELECTARC Ferro Ni

Ferro-Nickel graphite electrode for joining nodular cast iron and dissimilar assemblies of grey cast iron on steel. Suitable for buffer layers before repairing of contaminated cast iron.

### ■ Weldable steel range:

Grey cast iron, dissimilar welds grey cast iron/steel.

### MAIN APPLICATIONS

 $\bigstar$  Defects in foundries, repairing of engine blocks, frames of tool machines, gearboxes, reducing gears, valve and pump bodies, cast parts...

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
05003 S12	2.5	350	248	5	4
05033 S12	3.2	350	156	5	4
05043 S12	4.0	350	100	5	4
		:	:	:	

Product available in PE cases: 1 kg and PR: ~ 300 gr.

WELDING NODULAR **CAST IRON AND** CAST IRON/STEEL



- Enhanced mechanical properties
- Dissimilar assemblies
- Graphite coating
- Excellent all-position weldability, without preheating









### HARDFACING ELECTRODES

### SELECTARC HB63

High recovery electrode 160% for hardfacing carbide deposit, resilient to abrasive wear by hard particles and impact. Enhanced hardness (63 HRC before dilution). Only machinable by grinding. Surfacing in 1-2 or eventual 3 layers.

### ■ Weldable steel range:

Low alloyed steel, high alloyed steel, wear plates.

### MAIN APPLICATIONS

★ For civil engineering, excavating and crashing equipment, pump bodies for abrasive materials, excavator teeth, concrete pumps, ores crushing, brick press, armour plates, agricultural equipment...

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
62103 S12	2.5	350	159	5	4
62133 S12	3.2	350	94	5	4
62144 S12	4.0	450	57	6	4
		•			-

Product available in PE cases: 1 kg.





- Very good abrasion-impact compromise
- High resistance to mineral abrasion
- High recovery 160%
- Very good bead appearance











### SELECTARC HB61B

Basic coated general purpose hardfacing electrode for applications subject to impact and abrasive wear (60HRC). Great resistance to cracking. Smooth welding spatter-free.

### ■ Weldable steel range:

Low alloyed steel, high alloyed steel, wear plates.

### MAIN APPLICATIONS

ment, pump bodies for abrasive materials, excavator teeth, concrete pumps, ores crushing, brick press, armour plates, agricultural equipment...

Ref.	Ø (mm)	Length (mm)	Items /case	Kg /case ST	Case /package
61133 S12	3.2	350	152	5	4
61144 S12	4.0	450	96	6.5	4





- Universal anti-wear hardfacing
- Very good resistance to impact and mineral wear
- High resistance to metal abrasion
- Crack resistant











### **ALUMINIUM ALLOYS**

### SELECTARC ALG5

Aluminium alloys welding wire with 5 % Magnesium. Excellent corrosion resistance. Good mechanical properties.

#### ■ Weldable steel range:

AlMg5 and similar grades (5000 series).

#### MAIN APPLICATIONS

\* Ship building, railway, road transport, aviation.





### **PRODUCT**ADVANTAGES:

- The wire cleanliness is suitable for radio requirements
- Good wire feeding (MIG)
- No sheath fouling (MIG)

MIG Ref.	Ø (mm)	Weight (kg) / Spool
73213 13712F	1.0	7 kg metal
73212 13712F	1.2	7 kg metal
73213 83612F	1.0	6 kg plastic
73212 83612F	1.2	6 kg plastic

Available in D200 and D100 spools.

TIG Ref.	Ø (mm)	Kg / Case
73216 50512F	1.6	5
73226 50512F	2.0	5
73206 50512F	2.4	5
73236 50512F	3.2	5

AWS 5.10 ER5356

ISO 18273 S AI 5356 (AIMg5Cr)

### STAINI ESS STEELS

SELECTARC 20/10M (TIG)
SELECTARC 20/10MS (MIG)





Solid welding wire for stabilised stainless steels type 316L. Excellent corrosion resistance.

### ■ Weldable steel range:

316L and similar grades type 304L.

### MAIN APPLICATIONS

 $\bigstar$  Any type of metal construction not exceeding 400 °C operational. Chemical, petrochemical, food industry...

### PRODUCT ADVANTAGES:

- Low carbon universal stainless steel
- Excellent corrosion resistance
- The wire cleanliness is suitable for radio requirements

### SELECTARC 20/10M (TIG)

AWS 5.9	ISO 14343-A
ER316L	W 19 12 3L

TIG Ref.	Ø (mm)	Kg / Case
71316 50512R	1.6	5
71326 50512R	2.0	5
71306 50512R	2.4	5
71336 50512R	3.2	5

### SELECTARC 20/10MS (MIG)

AWS 5.9	ISO 14343-A
ER316LSi	G 19 12 3LSi

MIG Ref.	Ø (mm)	Weight (kg) / Spool
71414 14512R	0.8	15 kg metal
71413 14512R	1.0	15 kg metal
71412 14512R	1.2	15 kg metal

Available in D200 and D100 spools.



### PHOSBRAZ M73

Copper-phosphorus alloy for hard brazing of red coppers without soldering flux. Excellent fluidity. Great comfort in use.

#### ■ Weldable grades:

Copper, Cuprous alloys (bronze, brass): necessity to use our Phosbraz flux.

### MAIN APPLICATIONS

★ Capillary brazing of tubes and connections, water heaters, cooling systems. Mainly used by plumbers, heating engineers and HVAC technicians

Ref.	Ø (mm)	Length (mm)	Kg / Case
M73B20500R T20FA	2.0	500	5
M73B30500R T20FA	3.0	500	5
	-	-	-





### PRODUCT ADVANTAGES:

- Excellent fluidity
- Self-fluxing on red coppers (without using flux)
- Non gassed alloy (do not sparkle)

EN ISO 3677 B Cu 93 P 710-785



NF EN ISO 17672 Cup 181

### PHOSBRAZ AG60\*

Copper-phosphorus alloy with 6% Ag for hard brazing of red coppers in gas systems. ATG Certified (French Gas Company). Enhanced mechanical properties.

#### ■ Weldable grades:

Copper, Cuprous alloys (bronze, brass) necessity to use our AG-FLUX.



\*Also available with ATG certification (French Gas company)

### MAIN APPLICATIONS

★ Fuel gas systems.

Ref.	Ø	Length	Kg
	(mm)	(mm)	/Case
P60B20500R/F T20F	2.0	500	1





### PRODUCT **ADVANTAGES:**

- Not sparkling alloy
- Excellent resistance to vibration and cold
- Low melting temperature
- ATG Certified in printed rods





### BRAZARGENT 5034

Versatile alloy with 34% silver, suitable for similar and dissimilar welds. Very good soldering properties. Efficient and economical.

#### ■ Weldable grades:

Ferrous alloys, cuprous alloys, nickel alloys, stainless steel and tool steel

### MAIN APPLICATIONS

★ Health and food industries, medical flux transport, equipment, plumbing, delicate works...

Ref.	Bare / Flux-coated	Ø (mm)	Length (mm)	Kg /Case
5034B15500N T18FA	Bare	1.5	500	1
5034B20500N T18FA	Bare	2.0	500	1
5034E15500F T19FA	Blue coating	1.5	500	1
5034E20500F T19FA	Blue coating	2.0	500	1

Product also available in 250 gr cases.





### PRODUCT PRODUCT **ADVANTAGES:**

- Good fluidity
- Very good wetting properties
- Great mechanical properties
- Excellent for small gap soldering

**EN ISO 3677** B Cu 36 Zn Ag Sn 630-730



NF EN ISO 17672

### NOTES

### NOTES









