

argex

SILVER PRODUCTS



Argex Limited
130 Hockley Hill
Birmingham
B18 5AN

t: 0121 248 4344
f: 0121 248 4354

silver@argex.co.uk
www.argex.co.uk

Argex is the proud UK distributor of



Hilderbrand
Brazing Pastes

Ag-Q Flex
PREMIUM CASTING GRAIN





0121 248 4344



Located in Hockley, in the Birmingham precious metal quarter, Argex was established in 1994 and has quickly grown to become one of the leading suppliers of Silver products to the Silversmithing and Jewellery manufacturing trades in the UK and Ireland.

From our first day of trading the focus of the Company has been to provide a high quality range of Silver products supplied at competitive rates and short delivery times. We have managed to develop a wide customer base with customers as far a field as the Scottish Isles to Cornwall and most points in between. Most products are supplied from stock and the following pages list and detail the full ex-stock product range.



Argex is also the UK distributor of;
Hilderbrand – the Swiss manufacturer of precious metal soldering pastes. We hold extensive stocks of solder pastes in various tube sizes for supply direct to jewellery manufacturers, stockists and distributors.
Ag-Q Flex - the premium, bright White, fire-stain resistant silver casting grain manufactured by Legor Group.

Metal account

All clients can open a metal-account with us. Silver can be fixed at any time and the fine silver content of all kinds of silversmithing/jewellery scrap can be credited to the metal account.

Technical

For students and newcomers to the world of Silversmithing there is a small section in this catalogue devoted to Silver Workshop Practice which we hope will prove to be informative.

We will always try to help with any technical or metallurgical enquiries that you may have.

Delivery

From our stocks we ensure a prompt delivery service using Royal Mail Special Delivery for quantities up to 2kgs. For heavier orders we despatch using approved couriers.

Payments

Subject to satisfactory trade references we can offer a Monthly Credit Account for regular purchasers. Application Forms available. Payment can also be made by cheque made payable to Argex Ltd prior to despatch or by one of the major Debit or Credit Cards.



130 Hockley Hill, Birmingham, B18 5AN



0121 248 4344



0121 248 4354

e-mail

silver@argex.co.uk

web

www.argex.co.uk

Index

1. 925 Silver Sheet - Fully Annealed
925 Silver Sheet - Hard Rolled
925 Silver Strip
2. 958 Britannia Silver Sheet
Circles and Discs
3. 999 Fine Silver Sheet
999 Fine Silver Anodes
Sterling and Fine Silver Casting Grain
Silver Scrap Refining
4. 935 Silver Round Wire - Fully Annealed
935 Silver Round Wire - Hard Drawn
935 Silver Round Rod - Hard Drawn in Straight Lengths
5. 935 Silver Rectangular Wire - Annealed in Coils
935 Silver Rectangular Rod - Hard Drawn in Straight Lengths
935 Silver Square Wire - Annealed in Coils
935 Silver Square Rod - Hard Drawn in Straight Lengths
6. 935 Silver D - Shape Wire - Annealed in Coils
935 Silver Oval Wire - Annealed in Coils
958 Britannia Silver Wire
999 Fine Silver Wire
7. 935 Silver Small Diameter Round Tube
935 Silver Round Joint Tube
8. 935 Silver Large Diameter Round Tube
935 Silver Square Tube
9. 935 Silver Ring Tube
10. Hallmarking Quality Silver Solder
11. Silver Solder Paste and Solder Fluxes
12. Silver Products Workshop Practice
13. Precious Metal Gold and Silver Brazing Pastes
14. Ag-Q Flex Grain

925 Sterling Silver Sheet Annealed & Hard 925 Sterling Silver Strip

1

925 Silver Sheet Fully Annealed

925 Quality Silver Sheets are stocked in the fire-free annealed condition and are protected from damage by a low tack plastic laminate coating. Sheets are stocked in sizes of 1000mm x 500mm ready for cutting to size

Sheet Thickness			Weight per square inch gm
mm	BMG	inch	
0.25	3	0.010	1.66
0.30	4	0.012	1.99
0.35	5	0.014	2.33
0.40	6	0.016	2.66
0.45		0.018	2.99
0.50	7	0.020	3.32
0.55	8	0.022	3.65
0.60	9	0.024	3.99
0.70	10	0.028	4.65
0.80	11	0.032	5.32
0.90	12	0.035	5.98
1.00	13	0.040	6.65
1.10	14	0.043	7.31
1.20	15	0.047	7.97
1.30	16	0.051	8.64
1.40	17	0.055	9.30
1.50	18	0.059	9.97
1.60	19	0.063	10.63
1.70	20	0.067	11.30
1.90	22	0.075	12.63
2.00	24	0.080	13.96
2.30	25	0.090	15.28
2.50	26	0.100	16.61
3.00		0.120	19.93
3.20	28	0.126	21.27
3.80	30	0.150	25.25
4.00		0.160	26.58
5.00		0.197	33.22
6.00		0.212	39.87

SQUARES, RECTANGLES, STRIPS, SHAPES & DISCS

Can be accurately guillotine cut from the above gauges of sheet

925 Hard Rolled Silver Sheet

For some applications a useful option is a Silver Alloy which is in the Hard-Rolled condition. We stock Hard Rolled Silver in the following gauges

Sheet Thickness		
mm	BMG	inch
0.25	3	0.010
0.30	4	0.012
0.45		0.018
0.50	7	0.020
0.55	8	0.022
0.60	9	0.024
0.70	10	0.028
0.80	11	0.032
0.90	12	0.035
1.00	13	0.040
1.20	15	0.047

SQUARES, RECTANGLES, STRIPS, SHAPES & CIRCLES

Can be accurately guillotine cut from the above gauges of sheet

925 Silver Strip

Fully Annealed 925 Q Silver Strip is available ex-stock in the following sizes

Width	Thickness	
	mm	inch
100	0.18	0.007

Argex Limited
130 Hockley Hill
Birmingham
B18 5AN

silver@argex.co.uk
www.argex.co.uk

t: 0121 248 4344
f: 0121 248 4354

958 Britannia Silver Sheet
All Alloys/Gauge Circles & Discs

958 Britannia Silver Sheet

Britannia Quality Silver is slightly softer than 925 Silver and may be the preferred choice when spinning or raising deeper profiles.

Britannia Silver also qualifies for the 958 Britannia Hallmark.

We stock the following gauges in Britannia Silver Quality.

All of the sheet gauges are stocked in sheet sizes of

1000mm x 600mm ready for cutting to size.

Sheet Thickness			Weight per square inch gm
mm	BMG	inch	
0.40	6	0.016	2.68
0.50	7	0.020	3.39
0.60	9	0.024	4.03
0.70	10	0.028	4.74
0.80	11	0.032	5.42
0.90	12	0.035	6.10
1.00	13	0.040	6.77
1.10	14	0.043	7.45
1.20	15	0.047	8.13
1.30	16	0.051	8.81
1.50	18	0.059	10.16
1.70	20	0.067	11.52
2.00	24	0.080	13.55

SQUARES, RECTANGLES, STRIPS, SHAPES & DISCS

Can be accurately guillotine cut from the above gauges of sheet

958 Circles and Discs

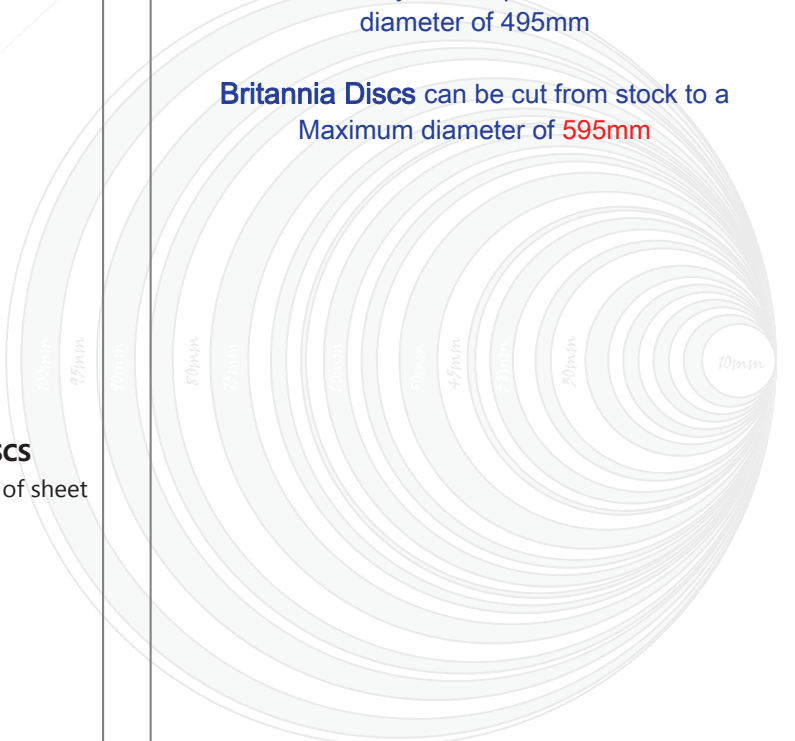
Circles & Discs can be machine cut to any size requested from any alloy/gauge stock to a maximum diameter of 495mm

For Discs < 102mm diameter we have a complete range of press tools to produce discs to the following diameters in mm

10	12	14	16	18	19	20
22	25	30	32	35	38	40
41	45	50	53	55	57	60
62	63	65	67	70	75	80
83	85	90	95	100	102	

For Disc sizes > 102mm diameter, these can be machine cut to any size requested to a maximum diameter of 495mm

Britannia Discs can be cut from stock to a Maximum diameter of 595mm



Fine Silver Sheet & Anodes .. Casting Grain & Scrap Refining

3

Fine Silver Sheet

Fine silver finds limited but specific applications in the hand raising of deep profiles and for use in industrial applications. It is also valued for the unique texture and colour obtainable in finished items.

Fine silver qualifies for the 999 Silver Hallmark. All gauges are stocked in fully-hard physical state and in sizes of 1000mm x 500mm ready for cutting to size

Sheet Thickness			Weight per square inch gm
mm	BMG	inch	
0.30	4	0.012	2.03
0.50	7	0.020	3.39
0.70	10	0.028	4.74
0.80	11	0.032	5.42
1.00	13	0.040	6.77
1.20	15	0.047	8.13
1.50	18	0.059	10.16
1.70	20	0.065	11.52
2.00	24	0.080	13.55
2.50	26	0.100	16.93
3.00		0.120	20.32

SQUARES, RECTANGLES, STRIPS, SHAPES & DISCS

Can be accurately guillotine cut from the above gauges of sheet

Fine Silver Anodes

Our Silver anode products are all manufactured from 99.9% pure silver and stocked in standard sizes ready for use in the electroplating industry

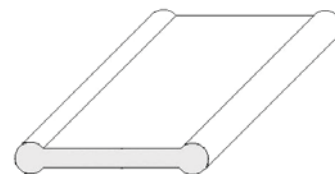
Sheet Standard Anode

250mm x 610mm x 1.50mm

The Dog Bone Anode

Cut to your desired length 1200mm max

Dog bone silver anodes are thickened at the high current density portions of the cross section and maintain a more consistent anode current density throughout the life of the anodes



Casting Grain and Silver Scrap Refining

Sterling and Fine Silver Casting Grain

The melting range of Standard Silver Casting Grain is between

800 - 890° C. The actual recommended casting temperature would be 950 -1100° C dependant upon conditions.

The nominal cast hardness is 75 Hv.

The Silver and Copper in the Grain is of a high purity and the casting materials conditions we employ are designed to minimise the presence of oxide.

Fine Silver Grain has a minimum fineness of 999

Silver Scrap Refining & Metal Account

We offer a service for the melting, assaying and refining of Silver scrap, lemel and sweeps.

The value of recovered scrap can be settled by cheque Payment, bank transfer or the fine silver content can be credited to the client's metal account.

Argex Limited
130 Hockley Hill
Birmingham
B18 5AN

silver@argex.co.uk
www.argex.co.uk

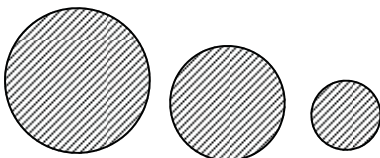
t: 0121 248 4344
f: 0121 248 4354

935 Sterling Silver
 Round Wire and Rod

4

 935 Silver Round Wire
 Fully Annealed

Wire Diameter		Weight per metre gm
mm	inch	
0.20	0.008	on 30gm reels 0.32
0.30	0.012	on 30gm reels 0.72
0.40	0.016	on 30gm reels 1.30
0.40	0.016	1.30
0.50	0.020	on 30gm reels 2.00
0.50	0.020	on 50gm reels 2.00
0.50	0.020	2.00
0.60	0.024	on 50gm reels 2.90
0.60	0.024	2.90
0.70	0.028	4.00
0.80	0.032	5.20
0.90	0.035	6.60
1.00	0.040	8.1
1.20	0.047	11.6
1.30	0.051	13.7
1.50	0.059	18.2
1.80	0.070	26.2
2.00	0.080	32.4
2.30	0.090	42.8
2.50	0.100	50.6
3.00	0.120	72
3.50	0.138	99
4.00	0.160	129
5.00	0.196	202
6.00	0.236	291


 935 Silver Round Wire
 Hard Drawn

Wire Diameter		Weight per metre gm
mm	inch	
0.50	0.020	on 50gm reels 2.00
0.60	0.024	on 50gm reels 2.90
0.70	0.028	on 50gm reels 4.00
0.80	0.032	on 50gm reels 5.20
0.90	0.035	on 50gm reels 6.60
0.90	0.035	6.60
1.00	0.040	on 50gm reels 8.10
1.00	0.040	8.10
1.50	0.059	18.20

 935 Silver Round Rod
 Hard Drawn in Straight Lengths

Rod Diameter			Weight per metre gm
mm	inch	nearest fraction	
2.00	0.080		32
3.00	0.118	1/8 "	73
4.00	0.157		129
5.00	0.197	3/16 "	202
6.50	0.256	1/4 "	342
8.00	0.315	5/16 "	518
9.50	0.375	3/8 "	731
11.00	0.433	7/16 "	978
13.00	0.511	1/2 "	1366
14.00	0.551	9/16 "	1586
16.00	0.630	5/8 "	2073
19.00	0.748	3/4 "	2920
25.00	0.985	1 "	5056

935 Sterling Silver Rectangular and Square, Wire and Rod

5

935 Silver Rectangular Wire Annealed in coils



Wire Dimensions mm	Weight per metre gm
3.20 x 1.60	53
4.00 x 2.00	82
4.80 x 1.60	79
4.80 x 3.20	158
6.40 x 1.60	106
6.00 x 2.00	124
6.40 x 3.20	211
8.00 x 1.60	132
8.00 x 3.20	264
9.50 x 1.60	157
9.50 x 3.20	313
13.00 x 1.60	214
10.00 x 5.00	515
15.00 x 5.70	881
13.50 x 5.30	737
18.00 x 7.60	1409
25.40 x 6.40	1674

935 Silver Rectangular Rod Hard Drawn in Straight Lengths



Wire Dimensions mm	Weight per metre gm
6.40 x 3.20	211
8.00 x 3.20	264
9.50 x 3.20	313
10.00 x 2.00	206
10.00 x 4.00	124
10.00 x 6.00 (Britannia Silver)	630
13.00 x 3.00	402
16.00 x 8.00	1318
17.00 x 4.00	700

935 Silver Square Wire Annealed in coils



Wire Dimensions mm	Weight per metre gm
1.00 x 1.00 1/4 hard	10
1.20 x 1.20 1/4 hard	15
1.50 x 1.50 1/4 hard	23
2.00 x 2.00 1/4 hard	41
2.50 x 2.50	65
3.20 x 3.20	102
4.00 x 4.00	164
5.00 x 5.00	258
6.40 x 6.40	422
8.00 x 8.00	659
9.50 x 9.50	930

935 Silver Square Rod Hard Drawn in Straight Lengths



Wire Dimensions mm	Weight per metre gm
4.00 x 4.00	165
5.00 x 5.00	258
6.40 x 6.40	422
8.00 x 8.00	659
9.50 x 9.50	929
13.00 x 13.00	1741

935 Sterling Silver
 D - Shape and Oval Wire

6

 935 Silver D - Shape Wire
 Annealed in coils


Wire Dimensions mm	Weight per metre gm
2.30 x 1.50	26
3.00 x 1.50	37
3.00 x 2.00	48
4.00 x 2.00	64
6.00 x 2.00	98
6.00 x 3.00	146
8.00 x 2.00	133
8.00 x 4.00	259
10.00 x 5.00	404
11.00 x 3.00	237
12.00 x 6.00	582

 935 Silver Oval Wire
 Annealed in coils


Wire Dimensions mm	Weight per metre gm
3.00 x 2.20	53
4.00 x 2.50	81
5.00 x 2.50	101
6.00 x 3.00	145
8.00 x 4.00	259
10.00 x 5.00	404

958 Britannia Silver Wire



In stock we keep 2 intermediate sizes of Britannia Quality round wire for drawing or rolling into an appropriate size for use with items manufactured in Britannia Silver

Wire Diameter mm	inch	Weight per metre gm
3.00	0.120	74
6.00	0.236	297

999 Fine Silver Wire



In stock we have a selection of round wires manufactured in Fine Silver for use in the growing market for knitted and woven Silver products

Wire Diameter mm	Weight per metre gm
0.30	supplied on 30gm reels 0.74
0.40	supplied on 30gm reels 1.32
0.50	supplied on 50gm reels 2.06
0.70	4.04
1.00	8.25

935 Sterling Silver Tube

7

 935 Silver Small Diameter Round Tube
 Stocked in 300mm Lengths. Only available in this size


Tube Dimensions			
Outside Diameter mm	Inside Diameter mm	Wall Thickness mm	Weight per 300mm gm
1.00	0.65	0.18	1.40
1.20	0.80	0.20	2.00
1.40	0.90	0.25	2.80
1.60	1.00	0.30	3.80
1.80	1.20	0.30	4.40
2.00	1.30	0.35	5.60
2.20	1.40	0.40	7.00
2.40	1.60	0.40	7.80
2.60	1.80	0.40	8.60
2.80	2.00	0.40	9.40
3.00	2.00	0.50	12.20
3.50	2.60	0.45	13.40
4.00	3.00	0.50	17.00
4.50	3.50	0.50	19.50
5.00	3.80	0.60	25.80
5.50	4.20	0.65	30.20
6.00	4.60	0.70	36.20

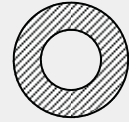
 935 Silver Round Joint Tube. Stocked in 300mm Lengths.
 Can be cut to required lengths, min. 25mm


Tube Dimensions			
Outside Diameter mm	Inside Diameter mm	Wall Thickness mm	Weight per 300mm gm
3.15	1.55	0.80	18.40
3.95	1.55	1.20	32.50
4.75	1.25	1.75	51.70
4.75	2.05	1.35	45.00
6.35	3.05	1.65	75.60
6.35	1.55	2.40	91.30

935 Sterling Silver Tube

8

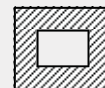
935 Silver Large Diameter Round Tube
 Stocked in 1 Metre Lengths and can be cut to required lengths, min. 25mm



Tube Dimensions			
Outside Diameter mm	Inside Diameter mm	Wall Thickness mm	Weight per metre gm
7.00	6.00	0.50	106
8.00	7.00	0.50	122
9.00	8.00	0.50	138
10.00	9.00	0.50	155
11.00	10.00	0.50	171
12.00	10.00	1.00	358
13.00	12.00	0.50	204
13.00	11.00	1.00	390
14.00	13.00	0.50	220
16.00	15.00	0.50	253
16.00	14.00	1.00	488
16.00	10.00	3.00	1268
17.00	16.00	0.50	268
19.00	18.00	0.50	301

Tube Dimensions			
Outside Diameter mm	Inside Diameter mm	Wall Thickness mm	Weight per metre gm
19.00	17.00	1.00	584
22.80	21.80	0.50	363
25.00	24.00	0.50	398
25.00	23.00	1.00	780
30.00	28.00	1.00	976
32.00	31.00	0.50	512
32.00	30.00	1.00	1008
38.00	36.80	0.60	730
38.00	36.00	1.00	1203
44.00	42.40	0.80	1124
44.00	42.00	1.00	1398
45.00	42.00	1.50	2122
50.00	48.00	1.00	1593

935 Silver Square Tube. Stocked in 300mm lengths and can be cut to required lengths, min. 25mm

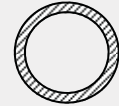


Tube Dimensions		Wall Thickness mm	Weight per 300mm gm
Outside Dimensions mm	mm		
3.00	SQUARE	0.60	18
6.00	SQUARE	0.70	44

935 Sterling Silver Ring Tube

9

935 Silver Ring Tube
Stocked in Finger Sizes that can be cut to required length, min. 25mm



Tube Dimensions

Finger Size	Outside Diameter mm	Inside Diameter mm	Wall Thickness mm	Weight per 1000mm gm
J	18.07	15.47	1.30	709
L	18.83	16.23	1.30	741
M	19.61	16.61	1.50	883
N	20.02	17.02	1.50	903
O	20.42	17.42	1.50	923
P	20.83	17.83	1.50	943
Q	21.24	18.24	1.50	963
R	22.04	18.64	1.70	1124
S	22.45	19.05	1.70	1147
T	22.86	19.46	1.70	1170
U	23.26	19.86	1.70	1192



Hallmarking Quality Silver Solder

10

The following grades of Hallmarking Quality Silver Solder are available from our stock. Each of the Solder types are produced in distinct rectangular rod sizes to aid in workshop recognition.

Extra Easy Silver Solder	The lowest melting point Hallmarking Quality Solder
Easy Silver Solder	The general purpose Silver Solder providing strong and ductile joints
Medium Silver Solder	A general purpose Solder with a higher silver content than Easy Solder
Hard Silver Solder	For use in 2 stage solder operations where a second joint is made using Easy Solder
Enamelling Silver Solder	For work that needs to be subsequently enamelled or for first stage soldering operations
Non-Hallmarking Solder	A general purpose low temperature Silver Solder Alloy containing 56% Silver for use

Solder Type	Form and Size mm	Length mm	Approx Weight gms per length	Silver Content %	Melting Range ° Centigrade
Extra Easy	2.00mm x 0.40mm Strip	600	5	67	667 - 709
Easy	1.00mm Round Rod	500	4	67	705 - 723
Easy	3.00mm x 0.50mm Strip	600	9	67	705 - 723
Medium	1.50mm x 0.70mm Strip	600	6	74	720 - 765
Hard	5.00mm x 0.60mm Strip	600	18	67	745 - 780
Enamelling	1.50mm x 1.00mm Strip	600	9	81	730 - 780
Non-Hallmarking	1.00mm Round Rod	500	4	56	630 - 660
Non-Hallmarking	1.50mm Round Rod	500	8	56	630 - 660

SILVER SOLDERING TECHNIQUE

For the majority of operations gas and compressed air mixtures are considered the most satisfactory for torch soldering as they enable fine adjustments of flame size and temperature to be made. The flame needs to be kept constantly on the move over the entire joint area, and when working with larger articles over the widest possible area that can be conveniently joined in one application of solder. The joint areas should be free from oil, grease and dirt, and preferably be cleaned with an emery paper or file so that the molten solder can wet the parent metal.

The appropriate flux should be applied to the joint area and solder before heating. If the duration of the heating and soldering process is extended or there is a large joint size then further additions of flux should be made during the soldering process. At first the torch should be held some distance from the work-piece to generally heat the work, but concentrating on the heavier section in cases where components of differing sizes or sections need to be joined. During heating the flux will bubble and melt into a clear liquid.

The solder can be applied to the joint either by feeding or by pre-placement. If feeding, the fluxed joint is heated to temperature and the tip of the solder rod is fed into the joint. The solder should melt on contact with the joint. For pre-placement, small solder pieces or solder paste deposits are placed on the joint seam prior to heating and the joint area is raised to temperature until the solder flows into the joint. For both techniques the part of the joint to which the molten solder needs to run should be heated more strongly than the remainder as the solder will flow towards the hottest section of the joint. Time at temperature should be kept to the minimum.

Silver Solder Paste and Solder Fluxes

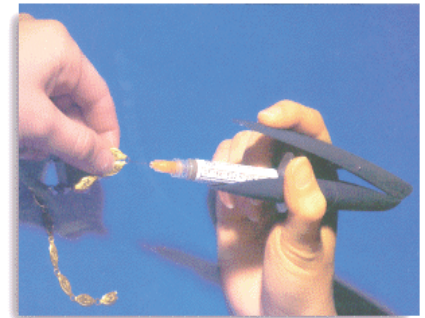
11

Silver Solder Paste

Silver Solders are also available in the form of a paste which is a pre-formulated mixture of finely dispersed Silver Solder powder, fluxes and binders. These Solders are pre-packed in Syringes and pre-fitted with a Plunger. For most Silver Soldering operations a Pink dispensing needle with a diameter to allow the slightly larger particle size of Silver Paste is recommended and these can be supplied from stock.

Illustrated opposite is our Brazpen Paste Dispenser which accommodates an 8gm size syringe allowing more precise control in pre-placing solder paste in the joint area.

Silver Easy	Ref CF67 H722E-2	8gm + 30gm Syringes
Silver Medium	Ref CF70 H722E-2	8gm + 30gm Syringes
Silver Hard	Ref CF75 H722E-2	8gm + 30gm Syringes



Fluxes



Easy-flo FLUX POWDER

Available from stock in 250 or 500 gm pots with a working range up to 800 °C this general purpose flux is suitable for most low temperature applications. Flux residues are removable in hot water.



Tenacity No 4A FLUX POWDER

Available from stock in 500gm pots. This Flux has a working range of between 600 -850 °C and can be used if Easy-flo Flux is liable to be exhausted by localised overheating or a prolonged heating process. Flux residues are largely insoluble and may need to be removed with sodium hydroxide solution or by mechanical means



Tenacity No 125 FLUX POWDER

Available from stock in 400gm pots. This is a high temperature flux with an active range of between 750 -1200 °C for use with high temperature solder alloys with melting ranges between 800 -1100 °C



Tenacity No 5 FLUX POWDER

Available from stock in 250gm pots. This Flux overlaps with Easy-flo Flux but does have some advantages where prolonged heating may exhaust Easy-flo flux. Flux residues are glassy in nature and need to be removed with sodium hydroxide or by mechanical means

FUNCTIONS OF THE FLUX

Soldering Fluxes are formulated to remove the oxide films that continually develop during the heating process. They are not designed to remove oil, grease and dirt and in any soldering operation it is imperative that the joint areas are cleaned to remove these before the heating process begins in order that the molten solder is able to wet the parent metal.

The recommendation is that the Flux is applied as a paste to the parts to be joined before the heating process commences. Flux powders can be made into a paste form by stirring in water and adding a few drops of liquid detergent to achieve a consistency of thick cream.

The performance of the Flux will depend upon the soldering time and temperature, the parent metals and the amount of flux used. To be effective the Flux must be molten and active before the solder alloy melts and it must remain active whilst the solder alloy flows through the joint and solidifies.

The actual volume of Flux needed will vary depending upon the type of application. Normally it is sufficient to coat the joint faces and surrounding surfaces with a layer of paste using a brush. Using excess Flux is not detrimental to the soldering process and in general terms it is preferable to use a small excess rather than too little.



Silver Products Workshop Practice

12

ALLOY COMPOSITION	STANDARD SILVER 92.50% SILVER + COPPER	BRITANNIA SILVER 95.80% SILVER + COPPER	FINE SILVER 999% SILVER
SPECIFIC GRAVITY	10.30	10.40	10.50
MELTING RANGE C	805—890	900—940	961
HARDNESS ANNEALED	70 Hv +/- 5	60 Hv +/- 5	45 Hv +/- 5
1/4 HARD	90 Hv	80 Hv	50 Hv
1/2 HARD	110 Hv	100 Hv	60 Hv
HARD	130 Hv	125 Hv	90 Hv
ANNEALING TEMPERATURE	650°C	650° C	

COLD WORKING AND ANNEALING : 925 Q SILVER

Although Silver is supplied in the fully annealed condition the subsequent fabrication by any cold forming processes will progressively harden the metal as the amount of deformation increases. The amount of deformation that Silver will tolerate before the material becomes too hard, and thinning and cracking occurs, is limited and it will be necessary during manufacturing to periodically re-soften the Silver by annealing i.e. heating the metal to a temperature at which the work hardened material reverts to a malleable condition. In general terms the advice is to anneal after approximately a 60% reduction in thickness.

Standard Silver can be readily softened by evenly heating to a temperature range of 600 - 650° C, a dull cherry red heat.

Time at the annealing temperature should be as short as possible - often just a few seconds for smaller pieces. The relationship between size of the piece, temperature during annealing and time at temperature is important and needs to be carefully controlled to ensure consistent results. The use of annealing temperatures in excess of 650° C or prolonged heating during annealing can cause excessive grain growth in the material with the subsequent appearance of an "orange peel" effect on the metal surface. It is also important not to anneal until the material has undergone some significant work and the material has become hard and springy. The metal can be quenched after annealing once it has cooled below 500° C (black heat). Quenching from a higher temperature may cause distortion or even cracking.

OXIDATION AND FIRESTAIN

During annealing in air or soldering the Silver surface will blacken due to the formation of copper oxide. If this fire stain is not removed after annealing then subsequent fabrication may force the oxide into the Silver creating a relatively hard and brittle surface. A pickle in dilute 10% sulphuric acid will remove copper oxide leaving a white silver rich surface layer. In the absence of a protective atmosphere it may be possible to reduce oxidation by avoiding prolonged heating and using a large bushy flame during annealing with the objective of completing the annealing process as quickly as possible with a slightly reducing atmosphere.

TARNISHING

A particular characteristic of Silver is the probability that it will develop a layer of black tarnish on the surface. This is actually a layer of Silver Sulphide and the cause is the presence of sulphurous compounds in the atmosphere and in human perspiration. The development rate and extent of the tarnish layer is unpredictable and varies with the ambient environment. Usually tarnishing is easily removed by polishing.

BRITANNIA SILVER : spinning alloy

Britannia Silver is less well known than 925 Standard Silver but with a Silver content at 95.8% and it's own Hallmark it does offer some specific properties. The higher Silver proportion means that Britannia is softer than 925, more easily fabricated and work hardens less quickly. A further benefit is that Britannia Silver is less prone to fire stain. Deeper spinning's and hand raising are areas where Britannia Silver finds use.

ENAMELLING

Both 925 and Britannia Silver can be readily enamelled although surface imperfections and oxides need to be removed prior to the application of the enamel.

Hilderbrand Precious Metal Gold and Silver Brazing Pastes

13

Precious Metal Solders are available in the form of a paste which is a pre-formulated mixture of finely dispersed metal solder powder, flux and an organic binder. These Solders are pre-packed in dispensing syringes with a pre-fitted plunger where applicable.

The Stock range of Gold and Silver Pastes shown below and should meet the majority of workshop requirements. However, it is possible to manufacture different formulations for specific operating conditions or applications in a wide variety of carat gold qualities and colours.



Carat Gold Solder Paste

Product Reference	Carat / Grade	Colour	Grade	Working Temperature ° Centigrade	Stock Size Tube : gm
CF 9KYES2 H722E-1	9 Extra Easy	Yellow	Air	680	3
CF 9KYS H722E-1	9 Easy	Yellow	Air	700	3 - 5 - 8 - 10 - 30
CF 9KYS LROOT-1	9 Easy	Yellow	Furnace	700	50
CF 9KYM H722E-1	9 Medium	Yellow	Air	720	3 - 5 - 30
CF 9KYH H722E-1	9 Hard	Yellow	Air	742	3 - 5 - 30
CF 9KPS H722E-1	9 Easy	Red	Air	770	3
CF 9KWES H722E-1	9 Easy	White	Air	650	3
CF 14KYS H722E-1	14 Easy	Yellow	Air	720	3
CF 18KYS H722E-1	18 Easy	Yellow	Air	735	3 - 5 - 30
CF 18KYM H722E-1	18 Medium	Yellow	Air	765	3
CF 18KYH H722E-1	18 Hard	Yellow	Air	840	3
CF 18KWS H722E-1	18 Easy	White	Air	770	3
CF 18KWM H722E-1	18 Medium	White	Air	820	3
CF 18KWH H722E-1	18 Hard	White	Air	870	3

Silver Solder Paste

CF 67 H722E-2	Silver Easy		Air	690	8 - 30
CF 70 H722E-2	Silver Medium		Air	730	8 - 30
CF 75 H722E-2	Silver Hard		Air	770	8 - 30

Ag-Q Flex



Cast on a whole new level with Argex and AG115MA Highly Dependable Ready-to-Use Silver

The increase in the demand for silver in recent years has led to the establishment of new quality standards and the study of a fresh performing composition designed to overcome the problems connected with the production process.

AG115MA designed by Legor Group and distributed exclusively through Argex, is a high quality ready-to-use silver dedicated to superiority in production with no stone left unturned.

Addressing all major issues faced by casters today, this innovative composition guarantees high productivity with an ease of use that is second to none.

- Lost wax casting with or without stones
- Good as-cast hardness and age-hardenableity
- Excellent white colour
- Excellent fluidity
- Very compact surface, low porosity
- Good resistance to tarnishing



Lost wax cast tree with AG115MA before pickling

Features

AG115MA

Liquid temperature	895 °C
As-cast hardness	55 HV
Hardness after age-hardening	135 HV
As-cast grain size	270 µm



130 Hockley Hill
Birmingham
B18 5AN

t: 0121 248 4344
f: 0121 248 4354

silver@argex.co.uk
www.argex.co.uk

Argex Limited
130 Hockley Hill
Birmingham
B18 5AN

silver@argex.co.uk
www.argex.co.uk

t: 0121 248 4344
f: 0121 248 4354