



MATERIAL APPLICATION & SAFETY DATASHEET



Omega Specification

Omega is rosin free and formulated without the use of halides and is supplied as a 3%, 2% and 1% flux content wire. Omega is manufactured to BS EN 29454 1994 Classification type 1.2.3

High Purity Solder Alloy

In 1994 a single European standard, EN 29453 (ISO 9453), superseded all other European national standards, BS 219, DIN 1707, NFC 90-550. Other equivalent international standards include QQS 571E, ASTM B32 and JIS-Z-3382.

Product Name:

Omega Rosin Free Cored Solder Wire

Manufactured By:

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Description

Omega Rosin Free Cored Solder Wire is a flux 'core' contained in Warton High Purity Cored Solder Wire. Omega contains no rosin (colophony), resin acids, pine oil or other naturally occurring derivatives from pine trees and has been specifically designed to reduce the number of world-wide cases of industrial asthma, related to rosin usage within a cored solder wire. Omega provides excellent wetting whilst leaving a minimal no clean, clear residue. Cleaning by batch or in-line processes is not suitable, however, if residues need to be removed use Warton Total Clean 130 cleaner.

Warton Part No:	EN 29453	QQS 571E	BS 219 *DIN 1707
63/37	1a	Sn63Pb37	AP
60/40	2a	Sn60Pb40	KP
50/50	3a	Sn50Pb50	F
45/55	4	-	R
40/60	5	Sn40Pb60	G
35/65	6	Sn35Pb65	H
30/70	7	Sn30Pb70	J
20/80	-	Sn20Pb80	V
15/85	-	-	W
99C	23	-	99C
97C	24	-	-
Alloy No 1	26	-	*Sn50PbCu
Alloy No 2	25	-	*Sn60PbCu2
HMP 5S	34	-	5S
LMP 62S	30	Sn62Pb36Ag2	62S
96S	28	Sn96Ag04	96S
95A	18	Sn95Sb5	95A
TLS/5	-	-	-
TIN	-	-	-
SAC3	-	-	-

The table above illustrates the equivalent **Warton High Purity Solder Alloy** in relationship to EN 29453, QQS-571E, BS-219 and DIN-1707.

Warton High Purity Solder Alloys are manufactured using only the 'Highest Purity Virgin Materials' this being part of Warton's simple philosophy that the best raw materials lead to the best finished products.

Typical batch analysis: High Purity Tin

Sn	Sb	Pb	Cu	Zn
99.95	0.009	0.002	0.0002	0.0001
Fe	As	Ag	Bi	In
0.002	0.002	0.0001	0.0001	0.0003

Typical batch analysis: High Purity Lead

Sn	Sb	Pb	Cu	Zn
0.001	0.002	99.99	0.003	0.0001
Fe	As	Ag	Bi	In
0.002	0.0005	0.002	0.005	0.0003

Typical batch analysis: Warton High Purity 63/37

Sn	Sb	Pb	Cu	Zn
63.0	0.0095	rem	0.0007	0.0002
Fe	As	Ag	Bi	In
0.002	0.001	0.0005	0.0003	0.0003

These consistent high standards apply to all **Warton High Purity Solder Alloys**.

Solder Alloys Containing Lead

Warton Part No	Sn % Tin	Pb % Lead	Cu % Copper	Ag % Silver	Sb % Antimony
63/37	62.5-63.5	Rem	-	-	-
60/40	59.5-60.5	Rem	-	-	-
50/50	49.5-50.5	Rem	-	-	-
45/55	44.5-45.5	Rem	-	-	-
40/60	39.5-40.5	Rem	-	-	-
35/65	34.5-35.5	Rem	-	-	-
30/70	29.5-30.5	Rem	-	-	-
20/80	19.0-20.0	Rem	-	-	-
15/85	14.0-15.0	Rem	-	-	-
Alloy No 1	49.5-50.5	Rem	1.2-1.6	-	-
Alloy No 2	59.5-60.5	Rem	1.6-2.0	-	-
HMP 5S	4.8 - 5.2	Rem	-	1.2-1.8	-
LMP 62S	61.5-62.5	Rem	-	1.8-2.2	-
TLS/5	4.8-5.2	Rem	-	0.8-1.2	-

Lead Free Solder Alloys

In response to increasing environmental awareness and the drive for new legislation (forcing greater end of product life responsibility), Warton Metals offer a complete range of 'lead free' alloys to suit all applications. See table below.

Warton Part No	Sn % Tin	Cu % Copper	Ag % Silver	Sb % Antimony
99C	Rem	.45-.9	-	-
97C	Rem	2.5-3.5	-	-
96S	Rem	-	3.5-4.0	-
95A	Rem	-	-	4.5-5.5
TIN	100	-	-	-
SAC3	Rem	0.5-0.7	2.8-3.2	-

The table above shows the elements included in each alloy.

Other important properties when selecting the correct alloy are the working temperatures and the ultimate strength of the soldered joint.

The following table shows both working temperatures and ultimate tensile strength of Warton material. The table indicates that a maximum in tensile strength exists in the eutectic composition. The ultimate tensile strengths listed below refer to the bulk solder. The values are only a guide to the relative strength of identical joints made with the solder alloys at room temperature. The table should not be used to calculate exact joint strengths, which depend on a number of factors.

Warton Part No	Melting range °C	Min junction temp °C	N/mm ²	Tons/l n ²
63/37	183	245	67	4.3
60/40	183-188	248	48	3.1
50/50	183-212	272	47	3.1
45/55	183-224	284	47	3.1
40/60	183-234	294	47	3.1
35/65	183-244	304	-	-
30/70	183-255	315	49	3.2
20/80	183-275	335	51	3.3
15/85	227-288	348	49	3.2
99C	227	287	-	-
97C	230-250	310	-	-
Alloy No. 1	183-215	275	55	3.5
Alloy No.2	183-190	250	-	-
HMP 5S	296-301	361	36	2.3
LMP 62S	179	239	92	5.9
96S	221	281	54	3.5
95A	236-243	303	31	2.0
TLS/5	296-301	361	-	-
TIN	232	-	-	-
SAC3	217-219	-	-	-

Wire gauge (Diameter)

The wire gauge (diameter) for **Warton Omega** is represented as SWG. (Standard wire gauge) The equivalent imperial and metric values are shown below.

Swg	10	11	12	13	14
mm	3.25	2.95	2.64	2.34	2.03
Inch	0.128	0.116	0.104	0.092	0.080

Swg	16	18	20	21	22
mm	1.63	1.22	0.914	0.813	0.711
Inch	0.064	0.04	0.036	0.032	0.028

Swg	24	26	28	30	32
mm	0.599	0.457	0.376	0.315	0.274
Inch	0.022	0.018	0.014	0.012	0.010

Packaging

Warton Omega Rosin Free Cored Solder Wire is supplied on 0.25Kg, 0.5Kg, 2.5Kg, 3Kg, 5Kg, 10Kg, 15Kg and 25Kg reels.