HARASIL NC12 TBW

Seamless Flux Cored Brazing Wire for Aluminium Alloys

TECHNICAL DATA SHEET 409B

Specifications:

Alloy	Working Temperature (˚C)	NF EN ISO 17672	AWS A-5.8	DIN 8513	EN ISO 3677	AMS
Al-Si	590	Al 112	BAlSi-4	L-Al Si 12	B-Al88Si-575-585	-

Characteristics:

HARASIL NC 12 TBW Seamless tubular wire of AlSi12 with non-corrosive flux. This wire is adaptable for brazing of Aluminium and Low Aluminium alloys with solidus temperature ≥630˚C. Alloy used with torch, Induction and furnace brazing heat source. Fluid filler alloy with cored with non-corrosive flux (Flux to Alloy ratio is 18±2) gives very good capillary action, ductility and penetration with excellent corrosion resistance. Flux being non-corrosive nature, no need of post brazing cleaning. Gives very strong joints. No separate flux to apply need flux handling systems or corrosive flux to apply. Product does not fume.

Applications:

HARASIL NC 12 TBW can be used for braze piping connections of aluminium and aluminium alloys used for Heat exchangers, Air conditioners, Heat diffuser Discs, Condensers and Automotive refrigeration systems. Brazing of Sandwich bottoms utensils, Heating elements and Radiators. Also used for joining Copper to Aluminium alloy.

Typical Chemical Compositions of alloy (%):

Al	Si	Zn	Fe	Mn	Mg	Cd	Pb	Max. impurities
Rem.	12.00	<0.20	<0.80	<0.15	<0.10	<0.010	<0.025	<0.15

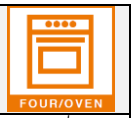
Typical Physical Properties:

Colour	Solidus (˚C)	Liquidus (˚C)	Density g/cm³	Elongation %	Tensile strength (MPa)	Electrical Conductivity (%IACS)	Electrical Resistivity (Micro-ohm-cm)
Silver Grey	575	585	2.65	20	140	-	-

Properties of Brazed Joint:

The properties of a brazed joint dependent upon numerous factors including base metal properties, joint design, metallurgical interactions between the base metal and the filler metal.

Standard Size, Types and Heat Source Recommendations:

Size (mm)	Type						
	Cut Length	Coil/ Spool	Preforms	OXY/ACETYLÈNE	INDUCTION	AÉRO-PROPANE	FOUR/OVEN
1.20 - 3.00	√	√	√	√	√	√	√

Customised sizes and other type other than above standard dimensions are solicited case to case basis

ZINAL 4

Solid Wire for Soldering

TECHNICAL DATA SHEET 407

Specifications:

Alloy	Working Temperature (˚C)	NF EN ISO 17672	AWS A-5.8	DIN 8513	EN ISO 3677	AMS
Zn-Al	420	-	-		-	-

Characteristics:

ZINAL 4, Filler wire with composition of Zn-Al (98:2).This wire is adaptable for joining of all solderable grades of Aluminium Alloy. Being low melting alloy. It reduces the possibility of overheating of the parts. It has to be used with **Alunox NCs flux**. This flux being non-corrosive nature, no need of post brazing cleaning. Gives very strong joints. Product does not fume.

Applications:

ZINAL 4 is used for joining aluminium alloys of 1000, 3000 and 6000 series. It can also be used for joining Aluminium to Copper, Aluminium to brass, and Aluminium to stainless steel joints. For dissimilar metal application the long term galvanic corrosion potential should be considered. Also its main usages are in the field of heat-exchangers, air-conditioners and condensers and automotive refrigeration systems

Typical Chemical Compositions (%):

Zn	Al	Si	Fe	Mn	Mg	Cd	Pb	Max. impurities
Rem.	2.00	0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.15

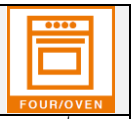
Typical Physical Properties:

Colour	Solidus (˚C)	Liquidus (˚C)	Density g/cm³	Elongation %	Tensile strength (MPa)	Electrical Conductivity (%IACS)	Electrical Resistivity (Micro-ohm-cm)	
Silver Gray	377	385	6.90	-	104	-	-	

Properties of Brazed Joint:

The properties of a brazed joint dependent upon numerous factors including base metal properties, joint design, metallurgical interactions between the base metal and the filler metal.

Standard Size, Types and Heat Source Recommendations:

Size (mm)	Type						
	Cut Length	Coil/ Spool	Preforms				
1.20 - 3.00	√	√	–	√	√	√	√

Customised sizes and other type other than above standard dimensions are solicited case to case basis

AL 12

Solid Aluminium Brazing Wire

TECHNICAL DATA SHEET 430

Specifications:

Alloy	Working Temperature (˚C)	NF EN ISO 17672	AWS A-5.8	DIN 8513	EN ISO 3677	AMS
-Al-Si	590	Al 112	BAlSi-4	L-Al Si 12	B Al88 Si 575-585	-

Characteristics:

AL 12 Solid wire of AlSi12 to be used with non-corrosive or corrosive flux. This wire is adaptable for brazing of Aluminium and Low Aluminium alloys. Alloy used with torch, Induction and furnace brazing heat source. This rods to be used with **ALUNOX NC** (Non-Corrosive) or **Flux ODAL**, Corrosive Flux). Give very good capillary action, ductility and penetration with excellent corrosion resistance. Gives very strong joints. For Non-corrosive flux, no need of post brazing cleaning. For Corrosive flux need post brazing cleaning.

Applications:

AL12 can be used for braze piping connections of aluminium and aluminium alloys used for Heat exchangers, Air conditioners, Heat diffuser Discs, Condensers and Automotive refrigeration systems. Brazing of Sandwich bottoms utensils, Heating elements and Radiators. Also used for joining Copper to Aluminium alloy.

Typical Chemical Compositions (%):

Al	Si	Zn	Fe	Mn	Mg	Cd	Pb	Max. impurities
Rem.	12.00	<0.20	<0.80	<0.15	<0.10	<0.01	<0.025	<0.15

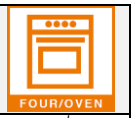
Typical Physical Properties:

Colour	Solidus (˚C)	Liquidus (˚C)	Density g/cm³	Elongation %	Tensile strength (MPa)	Electrical Conductivity (%IACS)	Electrical Resistivity (Micro-ohm-cm)
Metallic aluminium	575	585	2.65	20%	140	-	-

Properties of Brazed Joint:

The properties of a brazed joint dependent upon numerous factors including base metal properties, joint design, metallurgical interactions between the base metal and the filler metal.

Standard Size, Types and Heat Source Recommendations:

Size (mm)	Type						
	Cut Length	Coil/ Spool	Preforms	OXY/ACETYLÈNE	INDUCTION	AÉRO-PROPANE	FOUR/OVEN
1.20 - 3.00	√	√	√	√	√	√	√

Customised sizes and other type other than above standard dimensions are solicited case to case basis

TBM12 NCs 20

Brazing wire

for Aluminium Alloys

TECHNICAL DATA SHEET 408B

Specifications:

Alloy	Working Temperature (˚C)	DIN EN ISO 17672	AWS A-5.8	DIN 8513	EN ISO 3677	AMS
Al-Si	590	Al 112	BAlSi-4	L-Al Si 12	B- Al88Si-575-585	-

Characteristics:

TBM 12NCs 20 Composite rod consisting of a homogeneous mixture of aluminium alloy and a non-corrosive flux for high-strength brazing of sheet, forged or cast parts in aluminium alloys. non-corrosive flux. Alloy to Flux ratio is maintain at 86:14. This wire is adaptable for brazing of Aluminium and Low Aluminium alloys with solidus temperature ≥630˚C. Alloy used with torch, Induction and furnace razing heat source. High Fluid filler alloy with non-corrosive flux gives very good capillary action, No extra flux required. The higher %Cs containing flux is more aggressive than conventional non-corrosive flux. The ductility and penetration of the alloy with excellent corrosion resistance. No post-braze cleaning required being non-corrosive flux. Excellent electrical conductivity Good colour match on aluminium. No separate flux to apply, need flux handling systems or corrosive flux to apply. Product does not fume.

Applications:

TBM 12 NCs 20 Aluminium parts repair, Aluminium connectors, heat exchanger, air conditioning and refrigeration systems, connection of pipe Aluminium, radiators, automotive etc. **Strongly recommended for Magnesium bearing aluminium-alloy (Mg<1.20%).** Also used for joining Copper to Aluminium alloy.

Typical Chemical Compositions (%):

Al	Si	Zn	Fe	Mn	Mg	Cd	Pb	Max. impurities
Rem.	12.00	<0.20	<0.80	<0.15	<0.10	<0.01	<0.025	<0.15

Typical Physical Properties:

Colour	Solidus (˚C)	Liquidus (˚C)	Density g/cm³	Elongation %	Tensile strength (MPa)	Electrical Conductivity (%IACS)	Electrical Resistivity (Micro-ohom-cm)
Metallic aluminium	575	585	2.65	20	140	-	-

Properties of Brazed Joint:

The properties of a brazed joint dependent upon numerous factors including base metal properties, joint design, metallurgical interactions between the base metal and the filler metal.

Standard size and Types:

Size (mm)	Type			OXY/ACETYLÈNE	INDUCTION	AÉRO-PROPANE	FOUR/OVEN
	Cut Length	Coil	Preforms				
1.20 - 3.00	√	√	√	√	√	√	√

Customised sizes other than above standard dimensions are solicited case to case basis

TBM 12 NCs

Brazing Wire for Aluminium Alloys

TECHNICAL DATA SHEET 408

Specifications:

Alloy	Working Temperature (˚C)	NF EN ISO 17672	AWS A-5.8	DIN 8513	EN ISO 3677	AMS
Al-Si	590	Al 112	BAlSi-4	L-Al Si 12	B-Al88Si- 575-585	-

Characteristics:

TBM 12NCs Composite rod consisting of a homogeneous mixture of aluminium alloy and a non-corrosive flux for high-strength brazing of sheet, forged or cast parts in aluminium alloys. Non-corrosive flux. Alloy to Flux ratio is maintain at 86:14. Good Colour Match. Low bonding temperature. Excellent electrical conductivity. This wire is adaptable for brazing of Aluminium and Low Aluminium alloys. Alloy used with torch, Induction and furnace razing heat source. High Fluid filler alloy with non-corrosive flux, which gives very good capillary action and alloy flow, No extra flux required. The ductility and penetration of the alloy with excellent corrosion resistance. No post-braze cleaning required being non-corrosive flux. No separate flux to apply need flux handling systems or corrosive flux to apply. Product does not fume.

Applications:

TBM 12 NCs Aluminium parts repair, Aluminium connectors, heat exchanger, air conditioning and refrigeration systems, connection of pipe Aluminium, radiators, automotive etc. Also used for joining Copper to Aluminium alloy. **Not recommended for aluminium-magnesium alloy (Mg>0.60).**

Typical Chemical Compositions of alloy (%):

Al	Si	Zn	Fe	Mn	Mg	Cd	Pb	Max. impurities
Rem.	12.00	<0.20	<0.80	<0.15	<0.10	<0.01	<0.025	<0.15

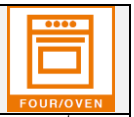
Typical Physical Properties:

Colour	Solidus (˚C)	Liquidus (˚C)	Density g/cm³	Elongation %	Tensile strength (MPa)	Electrical Conductivity	Electrical Resistivity (Micro-ohm-cm)
Grey	575	585	2.65	20	140	-	-

Properties of Brazed Joint:

The properties of a brazed joint dependent upon numerous factors including base metal properties, joint design, metallurgical interactions between the base metal and the filler metal.

Standard Size, Types and Heat Source Recommendations:

Size (mm)	Type						
	Cut Length	Coil	Preforms	OXY/ACETYLÈNE	INDUCTION	AÉRO-PROPANE	FOUR/OVEN
1.20 - 3.00	√	√	√	√	√	√	√

Customised sizes and other type other than above standard dimensions are solicited case to case basis

ZINAL 4 TBW

Seamless Flux Cored Soldering Wire

(Joining Cu-Al)

TECHNICAL DATA SHEET 411

Specifications:

Alloy	Working Temperature (˚C)	NF EN ISO 17672	AWS A-5.8	DIN 8513	EN ISO 3677	AMS
Zn-Al	420					-

Characteristics:

ZINAL 4 TBW Seamless tubular soldering wire of alloy of Zn-Al (98:2) with non-corrosive flux at the core of the wire. No External flux required.This wire is adaptable for joining of grades of Aluminium without magnesium Alloy. Being low melting alloy it reduce the possibility of overheating of the parts. Flux being non-corrosive nature, no need of post brazing cleaning. Give very strong joints. No separate flux to apply. No need flux handling systems or corrosive flux to apply. Product does not fume.

Applications:

ZINAL 4 TBW is used for joining aluminium alloys of 1000, 3000 and 6000 series. It can also be used for joining Aluminium to Copper, Aluminium to brass, and Aluminium to stainless steel joints. For dissimilar metal application the long term galvanic corrosion potential should be considered. Also its main usages are in the field of heat-exchangers, air-conditioners and condensers and automotive refrigeration systems.

Typical Chemical Compositions (%):

Zn	Al	Si	Fe	Mn	Mg	Cd	Pb	Max. impurities
Rem.	2.00	0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.15

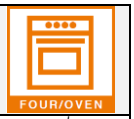
Typical Physical Properties:

Colour	Solidus (˚C)	Liquidus (˚C)	Density g/cm³	Elongation %	Tensile strength (MPa)	Electrical Conductivity (%IACS)	Electrical Resistivity (Micro-ohm-cm)
Silver Grey	385	420	6.90	-	104	-	-

Properties of Brazed Joint:

The properties of a brazed joint dependent upon numerous factors including base metal properties, joint design, metallurgical interactions between the base metal and the filler metal.

Standard Size, Types and Heat Source Recommendations:

Size (mm)	Type						
	Cut Length	Coil/ Spool	Preforms				
1.20 - 3.00	√	√	–	√	√	√	√

Customised sizes and other type other than above standard dimensions are solicited case to case basis