The Brock Metal Company Limited

ZL-5

PRESSURE DIE CASTING ALLOY

ZL5 is a zinc base pressure die casting alloy which conforms to EN 1774 1997 Ingot Specification and is one of a family of versatile high grade zinc alloys manufactured by Brock Metal.

Application

ZL5 is generally used for castings produced on a hot chamber pressure die casting machine where a slightly stronger and harder alloy than ZL3 is required and dimensional stability in the as cast condition is not such an important criterion. ZL5 has slightly better castability than ZL3 and therefore tends to be used for small intricate castings or when surface preparation of a ZL3 casting is difficult, prior to electroplating. Due to its higher Copper content the alloy is more expensive than ZL3 therefore it's application should be restricted to it's correct use.

ZL5 is easily machined, buffed, polished, lacquered and electroplated for decorative or functional purposes

National Specifications

The composition of ZL5 conforms to the current EN 1774 Standard, which is now common to all EU countries.

When designing a stressed component using ZL5 further reference should be made to the alloys properties, at elevated temperatures, after natural or artificial ageing and the alloys creep properties.

Alloy Composition

	Min	Max
Aluminium	3.8%	4.2%
Copper	0.7%	1.1%
Magnesium	0.035%	0.06%
Zinc	Remainder	

Impurities

Iron	-	0.020%
Lead	-	0.003%
Cadmium	-	0.003%
Tin	-	0.001%
Nickel	-	0.001%
Silicon	-	0.02%

Typical as cast physical and mechanical properties

Casting Temperature	^{0}C	405-425
Freezing Range	^{0}C	379-388
Specific Heat	J/gk	0.4187
	-	(0.10)
Solidification	Cm/m	1.17
Shrinkage	(in/ft)	(0.14)
Casting Shrinkage	Mm/mm	0.006
	(in/in)	(0.006)
Thermal Conductivity	W/m^{0}C	108.9
at 18^{0}C	(C.G.S)	(0.26)
Thermal Expansion Linear per ^{0}C	-	28x10^6

Electrical conductivity at 20^{0}C	%age IACS	26
Specific Gravity	-	6.7
Density	Kg/m^3	6,700
	(lb/in^3)	(0.24)
Tensile Strength	N/mm^2	328-270
at 20^{0}C	(lbf/in^2)	(47,000)
Elongation at 20^{0}C	%in 2in	7-13
Impact strength at at 20^{0}C	J	54-65
(unnotched samples)	(ft.obf)	(43)
Hardness	BHN	92-80

Figures relate to material in casting form. Properties vary for different processes. Further data available in the technical resource area on brockmetal.com

MacDermid
Industrial Solutions

Du-Zinc 019LF

Chloride Zinc Plating System

#173835

Description

Du-Zinc 019 LF represents the latest development in acid chloride zinc plating. It's low organic formulation makes it ideal for use in both rack and barrel applications. It may be used with either all potassium, all ammonium or mixed potassium ammonium baths.

Special Features

- Tolerant to high temperature operation up to 40°C
- Low foam operation; permits higher air agitation resulting in brighter deposits
- No oil out tendencies
- Du-Zinc 019 LF components are free rinsing resulting in improved chromate receptivity
- Excellent ductility
- Free from any complexing agents
- Simple two component system for easy bath control and maintenance
- IMDS 213570

1. Solution Parameters

All Potassium Solution		
Parameters	**Rack**	**Barrel**
Temperature °C	20 – 40°C	20 - 40°C
pH	5.0 – 5.5	5.2 - 5.5
Zinc (g/l)	30 – 37	25 - 35
Chloride (g/l)	135 – 170	125 - 175
Boric acid (g/l)	23 - 34	23 - 34
Voltage	2 – 9V	2 – 9V
Current density amps dm^2	1.5 – 5.0	0.05 - 1.5

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Industrial Solutions

TriPass ELV TECBLUE

High Performance
Trivalent Blue Passivate

#187750

Description

TriPass ELV TECBLUE is a high corrosion performance blue passivate based upon trivalent chromium for use with electroplated zinc deposits.

It produces an blue colour passivate film of high visual appeal onto electroplated zinc deposits from and acid and alkaline electrolytes
It is easy to operate, control and waste water treat. It has high tolerance to metallic contamination and achieves a long solution life. It is highly suited for both rack and barrel application.

TriPass ELV TECBLUE offers an economical approach to improved performance whilst retaining its colour.

Features

- Solution free from hexavalent chromium
- Blue colour passivate
- Economical to operate
- Meets 'End of Life Vehicle' directive
- IMDS ID Number 900924
- Good corrosion Resistance