

# NASA 398: ALUMINUM ALLOY

EXCLUSIVE TO  
TWIN CITY FAN COMPANIES, LTD.



> The NASA Alloys have resulted in significant improvements in the performance of aluminum at temperatures between 302°F to 752°F (150°C and 400°C).

The higher strength capabilities allow fans to be run at higher speed during emergency operation at design temperatures of 482°F, 572°F and 752°F (250°C, 300°C and 400°C).

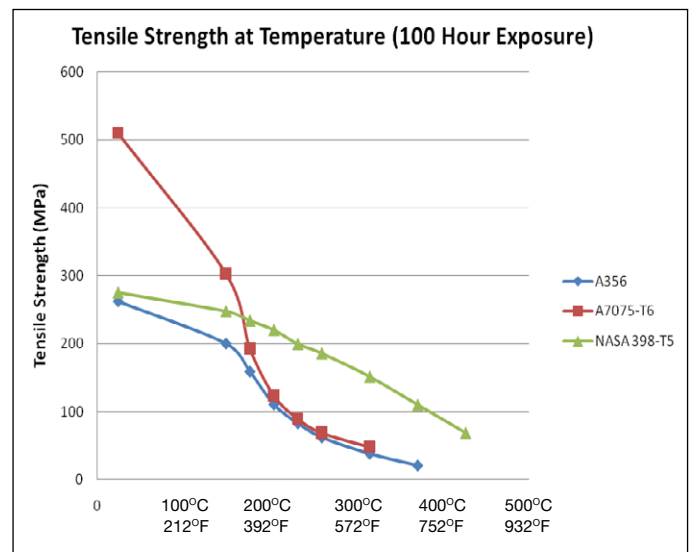
The performance increases will be available in both jet fans and central tunnel fans.

## > DEVELOPMENT HISTORY

Three alloys (NASA 398, NASA 388, NASA 358) were developed by NASA under a Public and Private Research Grant.

They have unique material properties between 500°F to 752°F (260°C to 400°C). An initial application for the alloys was engine components.

## HIGH TEMPERATURE MATERIALS EXTEND CAPABILITIES OF SMOKE MANAGEMENT FANS



## EXTENDED RANGE OF NASA 398

> 752°F (400°C) – 2 hr: Typically fans can be operated at limiting speeds equivalent to those for fans with traditional alloys operating at 482°F (250°C)

## CHARACTERISTICS OF NASA 398

- > Similar to 300 Series aluminums at ambient temp
- > Retains 78% at 482°F (250°C)
- > At 752°F (400°C) NASA 398 has higher tensile strength than A356, LN6, RR 50, A7075 have at 482°F (250°C)

Rotational Speed (RPM)	Fan Diameter (mm)									
	560	630	710	800	900	1000	1120	1250	1400	1600
3600	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
1800	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
1200	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

Blue Range with traditional high temperature aluminum

Green Extended Range with NASA 398 Alloy



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