

EUROPEAN AVIATION SAFETY AGENCY AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

Burner For Powerplant European status

Deletain Rémi Powerplant Installation & Fuel Systems EASA Certification Directorate

Serge Le Neve Fire Safety Department DGA Aeronautical Systems

> Your safety is our mission. easa.europa.eu

K Burner For PWP - European status

- ISO 2685 Revision Background
- End of 2008 launch of ISO 2685 revision
 - Review severity of gas burner vs fuel burner
 - Representativity of gas burner versus an engine fuel-fed fire
 - Informative vs formative status of Appendixes
 - Inconsistent application of vibrations by applicants
 - Clarification of fire resistance/fire proofness function intend of the part/component /structure to be performed.
 - Clarify relation between burner size vs specimen
 - Improve robustness of calibration to avoid test results variations

Burner For PWP - European status

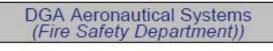
Status

- Preliminary cross-testing (Snecma / CEAT lab test) indicates room for variability in results despite same standard is followed
- ISO is a test standard and does not offer possibility to introduce certification fire requirements and compliance interpretation as an AMC.
- Electrical harness/connector suppliers are using "Benzen burner" : suspect size, temperature and heat flux of flame are not representative of engine fuel-fed fire

K Burner For PWP - European status

Standby

- Last group meeting end of 2010
- Dependent on progress on the fire test survey and associated comparative testing.



(A full analysis will be done when all the labs reply to the survey)





> 8 responses received

All the labs perform tests according to the FAA test methods and AC (AC20.135, AC33.17-1A, Handbook)

7 labs perform test according to the ISO 2685 standard :

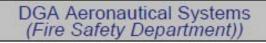
- 1 lab uses only a gas burner
- 1 lab uses only an oil burner



IASFPWG Oct. 2011 - Atlantic City







Main differences :

(the differences are not commented on or discussed here to avoid influencing the responses still expected)



Gas Burner :

- > The labs don't use the same way to set / or check the air-flow and gas-flow
- > All gas burners are homemade



Oil Burner :

- > Various Brands of burners
- > Various oils
- Various additional items used to enhance / stabilise the flame (discs, tabs, additional holes, ...)
- Various nozzles (brands and spray angles)



IASFPWG Oct. 2011 - Atlantic City



28/11/2011

IASFPWG – Atlantic City - November 2011



Main differences :

(the differences are not commented on or discussed here to avoid influencing the responses still expected)



Settings and calibrations :

➤ Same type of thermocouples but various configurations (diameters , grounded or not, exposed junction (weld) or not, aspirated or not, ...)

- > Heatflux calculation : various values are used for the exposed length of the tube
- > Various heatflux calibration methods are used (water-cooled thermogage or heat transfer device)

> Additional descriptions / explanations and/or pictures would be appreciated for a better understanding (see questions : 28, 36 (homemade modifications and variations), 68 (calibration system and procedure), heat transfer device, ...)

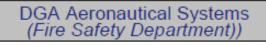


IASFPWG Oct. 2011 – Atlantic City

MINISTÈRE DE LA DÉFENSI



IASFPWG – Atlantic City - November 2011



Main differences :

(the differences are not commented on or discussed here to avoid influencing the responses still expected)

Test configurations and environmental conditions :

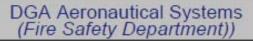
- The test enclosures vary from 20m³ to 3000m³
- > Test configuration (orientation of the burner) :
 - > only horizontal position : 4 labs
 - > only vertical position : 1 lab
 - > both positions or multi-angles : 3 labs
- 1 lab only sometimes performs tests using multiple burners





IASFPWG Oct. 2011 - Atlantic City







Round Robin test results on 600mm x 600mm 2024 aluminium sheet (3mm)

Test results currently received from only 1 lab :

(The test results will be presented and discussed when all expected results will be received)

REQUEST :

> To be sure that all labs performed the tests under the same conditions (or to be able to analyse and compare the results if the conditions were different) please mention/confirm :

- the type of burner used (oil / gas),
- the calibration parameters (HF, T),
- the test standard used,
- the HF device used (Watercooled calorimeter or Heat transfer device),
- the distance from the burner to the head of the screw,
- ... all additional point which could have an effect on the test results...



IASFPWG Oct. 2011 - Atlantic City



28/11/2011

IASFPWG – Atlantic City - November 2011



EUROPEAN AVIATION SAFETY AGENCY AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

> Your safety is our mission. easa.europa.eu