





IRONN is a specialized organization Aproducing axial smoke exhaust fans, jet fans, subway and tunnel fans, axial and radial escalator and elevator pressurization fans, and cellular fans with 100% domestic capital. At the AIRONN Fan Engineering Production and R&D Center, there is a Fan Test Laboratory that conforms to AMCA standards and has national and international accreditation. Maintaining its R&D investments systematically, AIRONN, conducts its R&D and CFD works with the most common licensed softwares used internationally, such as ANSYS CFX, CF-DESIGN, ANSYS STATIC STRUCTURE, SOLID WORKS. AIRONN completes all tunnel ventilation calculations according to PIARC, which determines air quality and tunnel safety standards. Fire resistance of axial and radial jet fans for 2 hours to 400 degrees is certified by international certification body, Applus. Cabling and installation costs are reduced by around 60% with the "Smart Jet Fan Automation System" J-Smart, which is optimized with frequency

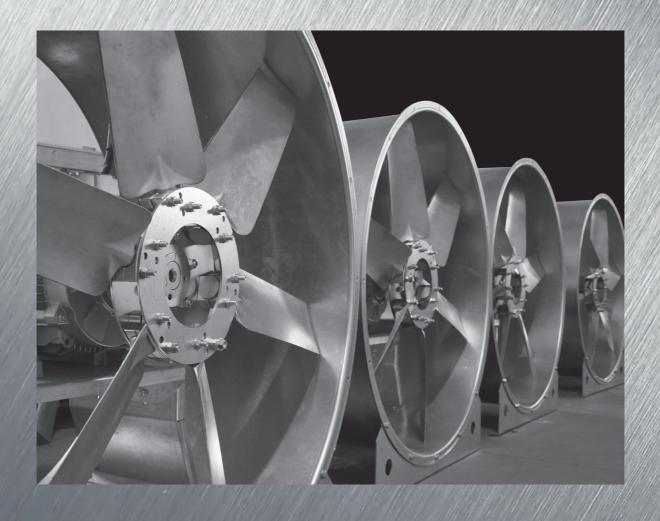
invertors, and energy saving is maximized during the operation process. The Axial fan with self-silencer that AIRONN R&D unit developed received a "Utility Model" patent. As a reliable solution partner, with its powerful group of engineers, AIRONN also supports all products carrying its brand in the after sale process. After sale service quality is another answer to the question of why AIRONN is preferred for over a hundred prestigious projects. AIRONN Fan Engineering can offer proper solutions for projects with its flexible production capacity and produce specific devices. Many of the product groups offer a facility to deliver from stock or delivery in the shortest time. AIRONN proves the power of Turkish engineering in the international market as well.







**TUNNEL FANS** 







# Research & Development

The Aironn R&D staff comprises experienced engineers who maintain their tasks for new products by using licensed programs such as Solidworks, ANSYS Static Structure, ANSYS CFX, and CFDesign. New products designed are turned into prototypes with the help of advanced manufacturing technology and their performances are tested in its own factory by test mechanisms conforming to AMCA standards and approved by TÜV-SÜD.

### Structural Analysis

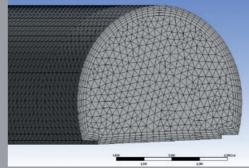
The resistance of fans and fan pieces is calculated with the help of globally accepted structural analysis program ANSYS Static Structure, by using finite elements method. As a result of these analyses, values like the stress occurring on pieces, deformation, vibration spectrum, material fatigue can be seen. In this way, thickness and designs of materials are optimized. The results obtained are verified by means of the test mechanisms in our factory.

### **CFD Analysis**

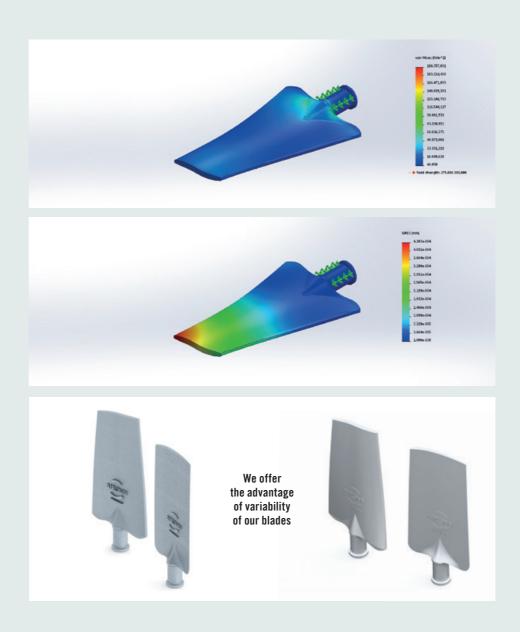
Computational Fluid Dynamics (CFD) is a part of fluid dynamics and its numerical methods and algorithms are used for analyzing and solving fluid problems. CFD is used for blade designs as well as calculating the performance of the fan and system flow examination. By means of CFD analyses, after fan performance analyses are completed and the optimum design is decided, performance tests are conducted with our test mechanisms and our fans are released as a result of their suitability. We also use CFD analyses in system designs to provide information about the accuracy of the system before installation. As a result of the analysis, we can examine many values within the system, such as air speed, temperature values, gas ratio, sight distance. The results obtained are compared with the tests conducted in the field and their accuracy is proven.

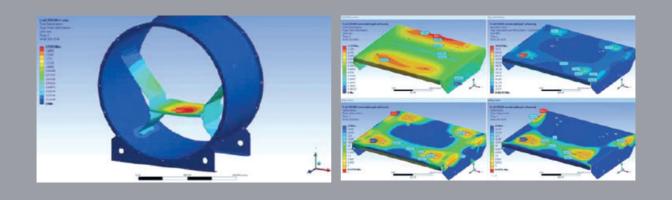












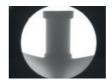


# Laboratory and Test

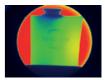
The aim of our company, which adopts the vision of ongoing research and development, is to produce fans to be used worldwide. To do so, test mechanisms conforming to AMCA standards were installed with the efforts of our R&D engineers. These test mechanisms were approved by TÜV-SÜD. With these mechanisms, many parameters of our fans, such as flow, pressure, engine power, efficiency, and driving power, can be measured at different rotation speeds, from 0.55 kW to 160 kW engine power, from 315 mm to 1800 mm diameter. Also, the performance of fans whose design is completed in computer environment can be measured and flawless products can be offered to our customers.

Our fan blades, which are manufactured using the injection method, are tested against discontinuity (pore, slag, residual or gaps) by the radiography method. This method is based on the principle that rays with very short wavelength such as X and

Gama rays pass through the material and form a 2-dimensional image over a film or screen (Radioscopy). Pieces with a negative test result are separated and the continuity of our production quality is ensured.







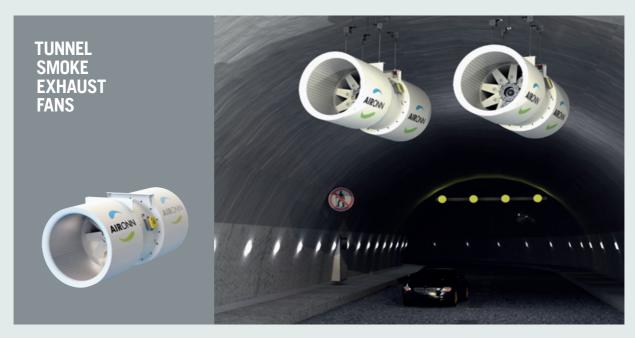
Fan blades are tested against discontinuity by the radiography method

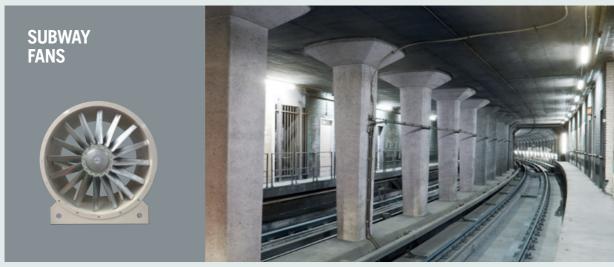






# Fields of Application







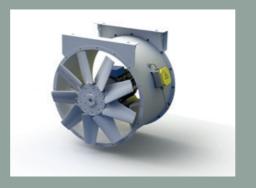


# Technical Data and Accessories

At Aironn Ventilation, we offer you the jet fans we produce with different engine powers, fan diameters, driving powers, different blade designs and accessories in a wide product range. With the power of incorporating R&D and manufacturing within our company, we meet all your different requests in a short time.



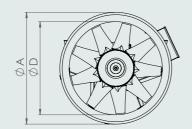


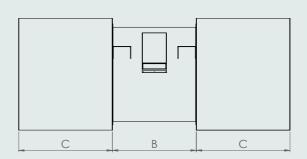






# Dimensions





	А	В	С	D
560	760	420	560	560
630	830	470	630	630
710	910	500	710	710
800	1000	580	800	800
900	1100	700	900	900
1000	1200	775	1000	1000
1120	1320	775	1120	1120
1250	1450	775	1250	1250
1400	1600	850	1400	1400
1600	1800	900	1600	1600

Туре	Diameter [mm]	Length [mm]	External Diameter [mm]	Thrust Power [N]	Flow [m³/s]	Air Velocity [m/s]	Power [kW]	Pole
AID IF	560	1540	760	225	6,8	27,6	7,5	2
AIR-JF	500	1540	760	305	7,9	32,1	11	2
AID IE	620	1720	930	399	10,2	32,7	15	2
AIR-JF	630	1730	830	443	10,7	34,4	18,5	2
AID IF	710	1920	010	518	13,1	33,0	22	2
AIR-JF	710	1920	910	670	14,9	37,6	30	2
AID IF	000	2180	1000	296	11,1	22,2	7,5	4
AIR-JF	800	2180	1000	354	12,2	24,2	11	4
AID IF	000	2500	1100	525	16,7	26,2	15	4
AIR-JF	900	2500	1100	605	17,9	28,2	18,5	4
AID IF	1000	2775	1200	749	22,1	28,2	22	4
AIR-JF	1000	2775	1200	950	24,9	31,7	30	4
AIR-JF	1120	3015	1320	1275	32,4	32,8	37	4
AIK-JF	1120	3013	1320	1395	33,8	34,4	45	4
				1450	38,5	31,4	45	
AIR-JF	1250	3275	1450	1715	41,9	34,1	55	4
				2035	45,6	37,2	75	
AID IE	1400	2650	1600	1648	46,0	29,9	45	6
AIR-JF	1400	3650	1600	1802	48,1	31,2	55	6
AIR-JF	1600	4100	1800	1748	54,1	26,9	45	6
AIK-JF	1000	4100	1000	2075	59,0	29,3	55	6



n tunnels, jet fans operate in 2 cases, daily ventilation and emergency (fire) ventilation. In the case of fire, jet fans help to remove smoke from the source of fire out of the tunnel and the evacuation of people inside during that time.

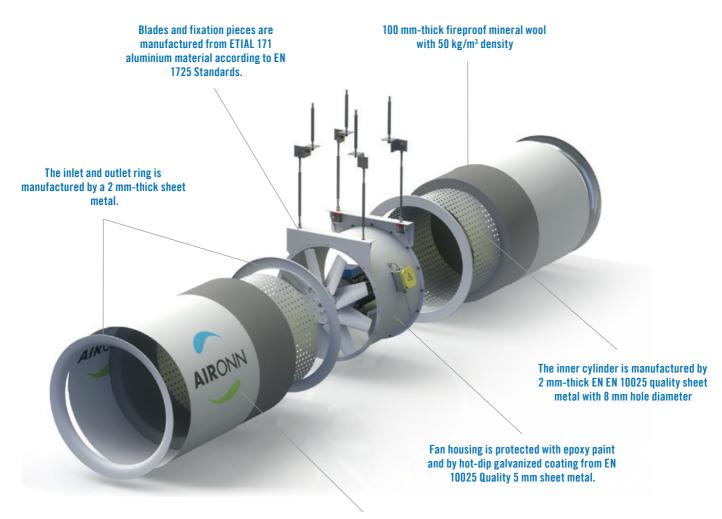
Our jet fans are equipped with equipment suitable to run at high temperatures and are driven by motors that can run in high temperatures in the same way. Both our fans and the motors used in our fans have F300 and F400 certificates according to

EN-12101-3 standard. (See: Documents)

We offer our fans inrange of 400 mm to 1800 mm diameter, from 0.55 kW to 160 kW engine power and up to 3200 Newton by using different blade structures with one way and two way options.





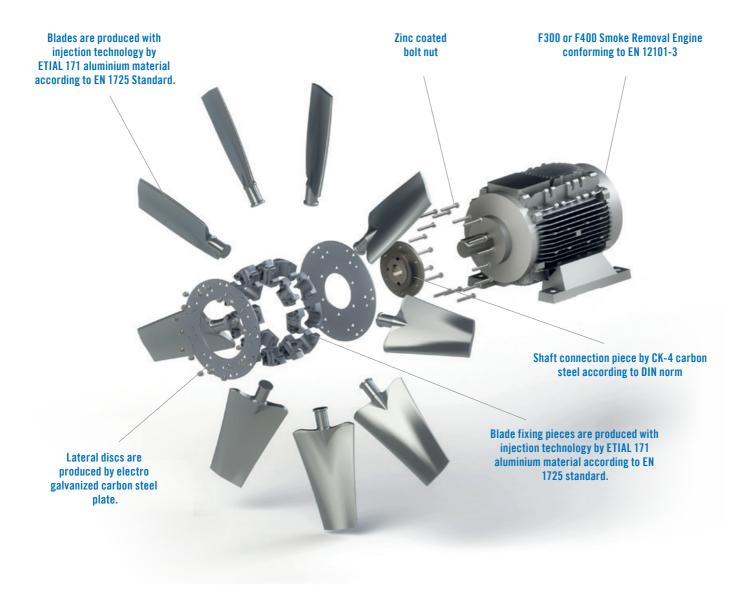


Outer coating is manufactured by 2 mmthick EN EN 10025 quality sheet metal.



While our fan blades and fixing pieces are produced with injection technology by Etial 171 aluminium material according to EN1725 standard, our rings, used as shaft connection pieces, are manufactured by CK-45 carbon steel. Our parts, such as screws and nuts, have a zinc coating.

As a result of structural analyses made in the computer environment and tests conducted after manufacturing, the wall thickness of fan housing for different diameters is determined. Wall thickness of inner cylinder, outer cylinder, inlet port and outlet ring products of our silencers is 2 mm. The diameter of holes on the inner cylinder is 8 mm. All sheet metal products on the fans are protected with epoxy paint after coated with hot-dip galvanizing. 100 mm-thick fireproof rockwool, which has 50 kg/m3 density and is resistant to high temperatures, is used in our silencers.





### Certificates

CEPTU ◆ UKAT ◆ CERTIFICADO ◆ CERTIFICAT **Attestation of Conformity** No.: M15 15P10003 0007 Holder of Certificate: AIRONN HAVALANDIRMA VE KLİMA SİSTEMLERİ SAN, DIŞ. TİC. LTD. ŞTİ. Tatlısu Mah Şenol Güneş Blv Mira Tower Kat'2 D:12 Şerifali/Ataşehir/İstanbul AXIAL SMOKE EXTRACTION FANS Product: AIR-A-U(R)/315, AIR-A-U(R)/355, AIR-A-U(R)/400 AIR-A-U(R)/450, AIR-A-U(R)/500, AIR-A-U(R)/560 AIR-A-U(R)/630, AIR-A-U(R)/710, AIR-A-U(R)/800 AIR-A-U(R)/900, AIR-A-U(R)/1000, AIR-A-(R)/1120 AIR-A-U(R)/1250 Model(s): Rated Voltage: 380V- 400 V Rated Input Power: 0.25-37 KW Rated Current: 0.78-115.62 A Weight: 23-425 KG Product Tested and Inspected according to: 2006/42/EC MACHINE SAFETY DIRECTIVE 2006/95/EC LOW VOLTAGE DIRECTIVE EN ISO 12100:2010 EN 60204-1:2006+A1:2009 舢 認証証 This Attestation of Conformity is issued on a voluntary basis according to Machiner Directive 2006/42/EC. It conforms that the listed equipment (not Annex IV equipment complies with the principal protection requirements of the directive. It refers only to the particular sample and its technical documentationsubmitted for inspection. CERTIFICATE . Test Report No. : TGK-LTMP-12-0043 First Certificate No. : M13 12P10065 0037 2015-01-02 Issue Date Expiry Date 2016-01-02 After preparation of the necessary technical documentation as well as the conformity declaration the required CE marking can be affixed on the product. Other relevant directives have to be observed. • ZERTIFIKAT Page 1 of 1 K03-E06-S02, Issue Date: 07.03.2008, Rev. 02 , Rev. Date: 06.03.2008 TÜV SÜD / Türkiye • Büyükdere Cad. No:103/A Şarlı İş Merkezi A Blok Kat:5 34394 Macidiyeköy - Şişli - İstanbul • TÜRKİYE TUV®

TÜV CE ATTESTATION OF CONFORMITY

Arplus<sup>⊕</sup>



### CERTIFICATE OF CONSTANCY OF PERFORMANCE

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product:

SMOKE AND HEAT CONTROL SYSTEMS. PART 3: SPECIFICATION FOR POWERED SMOKE AND HEAT EXHAUST VENTILATORS: AXIAI, JET FAN, AIR-J-U F300 (40)

And produced in the manufacturing plant:

AIRONN HAVALANDIRMA VE KLIMA SISTEMLERI SANAYI DIŞ TICARET LTD. ŞTI. BARIŞ MAH. 1802. SOKAK No: 3 TUBITAK KARŞISI GEBZE-KOCAELI (TURKEY)

EN 12101-3:2002, EN 12101-3:2002/AC:2005

under system 1 are applied and that the product fulfilis all the prescribed requirements set out above.

This certificate was first issued on 16<sup>th</sup> August 2013 and will remain valid as long as the test methods and/or fectory production control requirements included in the harmonised standard, used to assess the performance of the doclared characteristics, or not charge, and the product, and the manufacturing conditions in the plant are not modified significantly.

Bellaterra, 16<sup>th</sup> August 2013



Applus<sup>®</sup>
LGAI Technological Center, S.A.





#5000#50N MONDALE DE LA ROSEE | four faculties 19th its -15 Floor des degris. | 7 33 1 47 568 21 | infragries, org #6003 MSAD 10000M50N | 90011 La Defenie Codes -1 suice | 7 33 1 49 604 102 | www.plant.org

02/01/2015

**Aironn Ventilation Company** 

Membre collectif / Collective member N° TRC002

Facture acquittée / Paid invoice N° 02-2015-9751-TRC002

PIARC

CERTIFICAT

**CERTIFICADO** 

СЕРТИФИКАТ

.

認証証書

CERTIFICATE

•

ZERTIFIKAT



### CONFIRMATION CERTIFICATE / LIYGUNI UK SERTIFIKASI

### CONFIRMATION OF AIRONN LABROTARY ACC. TO ANSI/AMCA.210.07 AIRONN LABORATUVARININ ANSI/AMCA.210.07 A UYGUNLUGU

User \* Kullanıcı" : General Marketing Project No. "Proje No" TGK 15-B-00715/01

Company Name Firma AIRONN HAVALANDIRMA VE KLİMA SİSTEMLERİ SAN. DİŞ. TİC. LTD.ŞTİ

Labrotary Place Labaratuvar Yeri Karatepe Mah. Cumhuriyet Cad. Mera Sok. No:13 |zmit/Kocaeli / Turkey

Validity of certificate 09.08.20168 Sertifika Geçerlilik tarihi

Documentes No. In the related ANSI/AMCA 210-07 technical file Döküman No. ANSI/AMCA 210-07 in ilgilii Teknik dosyasında

Labratory Capacity : 315 mm den 1800mm e Çapa, 0,55 kW dan 160 kW motor gücüne kadar

guchne kadar guchne kadar guchne kadar guchne kadar guchne kadar guchne kadar guchne kadar guchne kadar guchne kadar kad

Audit Date "Denetim Tarihi" : 27.08.2015 Audit Place "Denetim Yeri" : lzmit /Kocaeli / Turkey : ANSI/AMCA 210-07 Technical file Anex "Ekler"

Audit Result Denetim Sonucu SATISFACTORY Place / ver Date / tarih

10.08.2015

Istanbul-TURKEY

HAKM OZLUK

# LABORATORY CONFIRMATION CERTIFICATI

CERTIFICAT

**CERTIFICADO** 

СЕРТИФИКАТ

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認配配書

•

CERTIFICATE

•

ZERTIFIKAT

### CONFIRMATION CERTIFICATE / UYGUNLUK SERTIFIKASI

CONFIRMATION OF AIRONN LABROTARY ACC. TO ANSI/AMCA.250.12 AIRONN LABORATUVARININ ANSI/AMCA.250.12 A UYGUNLUGU

User " Kullanıcı" : General Marketing Project No. "Proje No" : TGK 15-B-00715/02

Company Name : AIRONN HAVALANDIRMA VE KLİMA SİSTEMLERİ SAN. DIŞ. TİC. LTD.ŞTİ

Labrotary Place : Karatope Mah. Cumhuriyet Cad. Mera Sok. No:13 Labaratuvar Yeri | Izmit/Kocaeli / Turkey

Validity of certificate : 09.08.20168 Sertifika Geçerlilik tarihi

Documentes No. : In the related ANSI/AMCA 250-12 technical file Dokuman No. : ANSI/AMCA 250-12 in iligili Teknik dosyasında Labratory Capacity : 10 Newtondan 3200 Newtona kadar

Related test standart . ANSIAMAC 350-12 Laboratory Methods of Testing Jet Tunnel fast of Performance and other . Related test standard fasts for Performance and other . Related Standards . Related

Standards requirements
AIROMN Firmasının İzmit / Kocaeli /Turkey kurulumunu yaptığı laboratuvar TUV
SUD denetçileri tarafından ANSI/AMCA 250-12 standardı temel alınarak aşağıdaki şekilde
denetlenmiştir.

denellenmiştr. Laboratuvarda kullanılan ekipmanların kalibrasyon berbürülerin kalibrasyon serlifikaları, simule edimiş testlere nezaret, testlerin kalifikasyonu, test prosedulleri, test raportanının uyguniğul, döğrulama kurveleri ve diğle gerekli bigiler ANSIAMCA 250-12 standardına uygun olduğuna yonelik TUV SUD Denetçlerinin yenmiş olduğu denem sonuçlarının olmun olduğu teşti edilmiştir. ANSIAMCA 250-12 ve atlıra bulunduğu diğer standart gereklilikicini yerine getirmi kapasitesini belgeleme falsıbi üzerine bu serlifiki TUV SUD Türviye tarafından firmiya sunulmuştır.

Audit Date "Denetim Tarihi" : 27.07.2015 Audit Place "Denetim Yeri" : İzmit /Kocaeli / Turkey : ANSI/AMCA 250-12 Technical file Anex "Ekler"

Audit Result Denetim Sonucu SATISFACTORY UYGUN

TOV SUD LUKEY Date / tarih Istanbul-TURKEY 10.08.2015

TÜV SÜD Türkiye • Büyükdere Caddesi • No.103/A • Sarl İs Morkozi • A Sick Kar. 5.34394 Mediciyekdy • İştanbul • Türkiye



### **EFECTIS ERA AVRASYA**

Fire Test Laboratory

### **CLASSIFICATION REPORT OF POWERED SMOKE and HEAT EXHAUST TUNNEL FAN** "AIR-JU-1250/75/1500d/d"

### EEA-17-019

### On behalf of

AIRONN İKLİMLENDİRME SİSTEMLERİ SAN. DIŞ. TİC. LTD. ŞTİ.

Tatlısu Məh. Şenol Güneş Bulvarı Mira Tower Kat: 3 D: 16 Şerifali / Ataşehir / İSTANBUL / TURKEY

This classification report consists of 3 pages and may only be used or reproduced in its entirety.

Address: 1038 TAYSAD Organize San. 80i. 1. CD., 15. Yol No: 1 Setempinar - Cayrova Kocaeli, 198EFY Tei: 0362 6581442 E-mail: turkayilletecile.com

# FIRE RESISTANCE TEST

**ECTIS** 

### FIRE RESISTANCE CLASSIFICATION REPORT Nr. EEA-17-019 Page 2

### 1. INTRODUCTION

This clossification report defines the classification assigned to single compartment powered smole and heat exhaust funnel for "AUR-UR-1250/75/1500d/d" in accordance with the procedures given in RN 13301-42016.

### 2. DETAILS OF ELEMENT

### 2.1. Type of function:

### 2.2. Description:

The product powered smoke and heat exhaust tunnel fan - "AIR-JU-1250/75/1500d/d" is tully described in the test report in support of this classification listed in Clause 3 of this classification

### 3. REPORTS AND RESULTS IN SUPPORT OF CLASSIFICATION

Name of laboratory	Name of sponsor	Unique ref. no.	f (min.)	Temp.
EFECTIS ERA AVRASYA TEST VE BELGELENDRIME A.S.	ARONN KLIMLENDRIME SISTEMERI SAN. DIS. TIC. LTD. STE.	RFTR17027	124	мес

### 4.1. Reference of classification

This classification has been carried out in accordance with £N 13501-4:2016.

### 4.2. Classification

The product, powered smoke and heat exhaust tunnel for - "AIR-JU-1250/75/1500d/d" has been classified as:

F <sub>300</sub> 60	
Inclassified: 300 °C	120 minute











ISO 9001:2008 Kalite Yönetim Sistemi

AIRONN HAVALANDIRMA VE KLİMA SİSTEMLERİ SANAYİ DIŞTİCARET LTD.ŞTİ.

Karatepe Mah. Mera Sokak No:13 Kartepe, KOCAELİ

Yukanda belirtilen kuruluşun, NAVİGA Belgelendirme Prosedürüne göre Standardın şartlarını aşağıdaki kapsamda karşıladığı kanıtlanmıştır.

### IKLIMI ENDIRME CİHAZLARININ İMALATI

Sertifika Kayıt No:1540504

Sertifika Bitiş Tarihi: 21.06.2018

Ilk Belgelendirme Tarihi: 22.06.2015 Belgelendirme NAVİGA Tetkik ve Belgelendirme Prosedürlerine uygun olarak uygulanmış olup

gözetim denetimine(11.06.2016) kadar geçerlidir.

NAVİGA ULUSLARARASI BELGELENDİRME VE EĞİTİM HİZ. LTD. ŞTİ.



9001:2008





### **SERTIFIKA**



ISO 10002:2004 Kalite Yönetimi - Müşteri Memnuniyeti

AIRONN HAVALANDIRMA VE KLİMA SİSTEMLERİ SANAYİ DIŞTİCARET LTD.ŞTİ.

Karatepe Mah. Mera Sokak No:13 Kartepe, KOCAELİ

Yukarıda belirtilen kuruluşun, NAVİGA Belgelendirme Prosedürüne göre Standardın şartlarını aşağıdaki kapsamda karşıladığı kanıtlanmıştır

### IKLIMLENDIRME CIHAZLARININ İMALATI

Rapor No: 1500C317 Sertifika Kavıt No:1547506 Sertifika Bitis Tarihi: 21.06.2018

Ilk Belgelendirme Tarihi: 22.06.2015 Belgelendirme NAVIGA Tetkik ve Belgelendirme Prosedürlerine uygun olarak uygulanmış olup

gözetim denetimine(11.06.2016) kadar geçerlidir.

NAVİGA ULUSLARARASI BELGELENDİRME VE EĞİTİM HİZ. LTD. ŞTİ.



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NAVÍGA ULUSLARARASI BELGELENDÍRME VE EĞİTİM HİZMETLERİ LTD. ŞTİ. Ali Rızı Güncan cad, Metropol Center Katı 11 No 46 Metter 34015 / ISTANBUL Tel: 0212 62 50 56 Fax: 0212 462 942 www.navigatifs.com - info@anrigatid.com

### SERTIFIKA



OHSAS 18001:2007 İş Sağlığı ve Güvenliği Yönetim Sistemi

AIRONN HAVALANDIRMA VE KLİMA SİSTEMLERİ SANAYİ DIŞTİCARET LTD.ŞTİ.

Karatepe Mah. Mera Sokak No:13 Kartepe, KOCAELİ

Yukarıda belirtilen kuruluşun, NAVİGA Belgelendirme Prosedürüne göre Standardın şartlarını aşağıdaki kapsamda karşıladığı kanıtlanmıştır.

### İKLİMLENDİRME CİHAZLARININ İMALATI

Rapor No: 15QOC317 Sertifika Kayıt No:1544505 Sertifika Bitis Tarihi: 21.06.2018

Ilk Belgelendirme Tarihi: 22.06.2015 ndirme Prosedürlerine uygun olarak uygulanmış olup gözetim denetimine(11.06.2016) kadar geçerlidir.



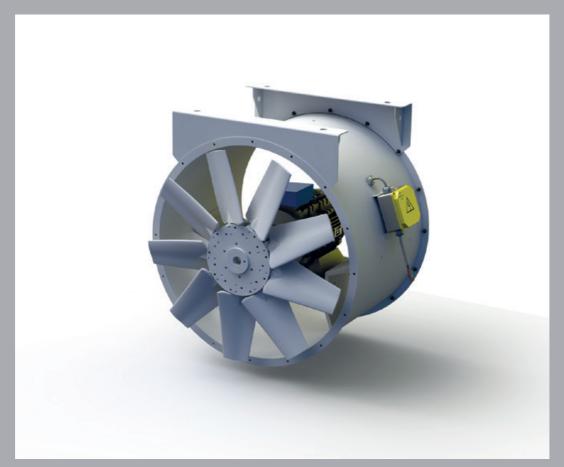
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NAVIGA ULUSLARARASI BELGELENDIRME VE EĞİTİM HİZMETLERİ LTD. ŞTİ, AJI RIJA GÜYCAN CAD. Metropal Center Kazı: 11 No 46 Metter 24015 / İSTANBUL TE: 0212 429 96 56 Faz: 0212 482 94 www.navigatik.com - info@nayigatik.com











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www.aironn.com.tr