STYRENE PARK OFFSITE

Document Title:

Axial Fan Data Sheet

R0	22-06-2024	IFA	F.Aghaienezhad	J.Beigloo	A.Gholizadeh
Rev.	**Issued Date**	**DESCRIPTION**	**PREPARED**	**CHECKED**	**APPROVED**

REVISION RECORD SHEET

Page	Revisions								Page	Revisions						
Page	R0	R1	R2	R3	R4	R5	R6			R0	R1	R2	R3	R4	R5	R6
1	X								41							
2	X								42							
3	X								43							
4	X								44							
5	X								45							
6	X								46							
7	X								47							
8	X								48							
9	X								49							
10	X								50							
11									51							
12									52							
13									53							
14									54							
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16									56							
17									57							
18									58							
19									59							
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21									61							
22									62							
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37									77							
38									78							
39									79							
40									80							

AXIAL FAN DATA SHEET (PROJECT 1158) Qty = 2				
BASIC DATA				
1	Item No.		Air Cooler	
2	Quantity	Manual Adjustable Pitch	100%	
		Automatic Adjustable Pitch	-	
3	Positioner		NO	
4	BEARING BLOCK		YES	
5	Blade Material	Aluminum (ASTM,B-179)	YES	
		Fiber glass	NO	
6	Type of Air cooler/ Inlet		FORCED / CONICAL L/D=0.05	
7	Fan Diameter		7/ 2134	(ft /mm)
8	Fan Ring Diameter		2156	(mm)
9	Fan Ring Height		600	(mm)
10	Altitude		20	(m)
11	Relative Humidity		65	(%)
12	Temperature inlet /outlet		48 /52.28	(° C)
13	Actual flow		26.879	(m3/s)
14	Actual static pressure		102.95	(Pa)
15	Fan RPM		382	(rpm)
16	Tip speed		42.7	(m/s)
17	Motor power rating		7.5	(KW)
18	Noise level (at one meter)		85	(db)
19	Min Temperature		5	° C

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OFFER N. - 6.22.2024 - **REV** 0 **MODEL** 4.3A-2134-03-SML-TS

Client Name:
Project Name:
Project Reference:
Item:

INPUT

Duty Point

Fan Quantity	**2**
Air Flow	**26.879** m^3/s
Static Pressure	**102.95** Pa
Air Density	**1.067** kg/m^3
Air Temperature	**48** °C
Altitude	**20** m
Air Humidity	**65** %

Installation

Application	**Process Air Cooler**
Type	**Forced**
Inlet Shape	**Coni. L/D 0.05**
Tip Clearance	**11** mm
Diffuser	**Not present**
Inlet Obstacles	
Outlet Obstacles	

Fan specification

Diameter	**7** ft
Airfoil	**Aluminum**
Blade Pitch Adjustment	**Only Manual**
Rotational Speed	**382** rpm
Tip Speed	**42.7** m/s

Restrictions

Min Pressure Margin	**21** %
Min Air Flow Margin	**10** %
Min Static Efficiency	**20** %
Min Blade Number	**3**
Min Temperature	**5** °C
Max Power	**7.5** kW
Max Noise	**85** SPL
Distance	**1** m
Position	**Below**

OUTPUT

Details

Fan Static Pressure	**102.95** Pa
Pressure Recovery	**0.0** Pa
Dynamic Pressure	**28.92** Pa
Total Pressure	**131.87** Pa
Fan Diameter	**2134** mm
Fan Ring Diameter	**2156** mm
Blade Airfoil	**4.3A**
Blade Material	**Aluminum**
Rpm	**382.0** rpm
Blade Frequency	**741.9** cpm
Blade Tip Speed	**42.7** m/s
Number of Blades	**3**
Blade Pitch Adjustment	**Manual**
Blade Tip Pitch Angle	**12.20** deg
Blade Shaft Pitch Angle	**8.2** deg
Static Efficiency	**63.04** %
Total Efficiency	**80.75** %
Rotor Shaft Power	**4.39** kW
Rotor Shaft Power at Min Temp.	**5.2** kW
Pressure Margin (API / Pitch)	**56.3 / 79.0** %
Volume Margin	**25.0** %
Aerodynamic Axial Force	**471.5** N
Blade Failure Load	**5724.1** N
Max Residual Unbalance	**7.5** N
Rotor Weight	**29.9** kg
Rotor Inertia	**5.9** kg m^2
Torque at design speed	**109.8** N m
PWL	**84.9** dB(A)
SPL inlet/outlet	**76.9** dB(A)
SPL side	**64.6** dB(A)

Sound spectrum

Octave [Hz]	31.5	63.0	125.0	250.0	500.0	1000.0	2000.0	4000.0	8000.0
PWL [dB]	87.9	89.9	89.9	85.9	82.9	79.9	71.9	67.9	63.9
Inlet/Outlet SPL [dB]	79.9	81.9	81.9	77.9	74.9	71.9	63.9	59.9	55.9
Side SPL [dB]	67.6	69.6	69.6	65.6	62.6	59.6	51.6	47.6	43.6
Tolerance +/-	5.0	5.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0

tolerance on overall sound values +/- 2 dB(A)

IMPORTANT NOTE: The selected fan has to be checked and approved by AFI in order to operate at specified rotation speed and blade pitch angle
You are requested to contact AFI in case any of these values or other boundary conditions would change after installation
NOTE: AFI must be informed in case of fan operation under frequency variator (inverter) to allow AFI to check for any possible critical speed

Sede Legale: Besnate (VA) via L. Da Vinci SNC cap 21010, Tel +39 0331 273315 - Capitale Sociale Euro 100.000,00 i.v. - C.F. e nr. iscrizione al Registro Imprese di Novara 02301740037 - P.IVA 02301740037 R.E.A. VA – 337449 P.E.C. axialfansintsrl@legalmail.it

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Client Name:
Project Name:
Project Reference:
Item:

INPUT

Duty Point

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Installation

Application	**Process Air Cooler**
Type	**Forced**
Inlet Shape	**Coni. L/D 0.05**
Tip Clearance	**11** mm
Diffuser	**Not present**
Inlet Obstacles	
Outlet Obstacles	

Fan specification

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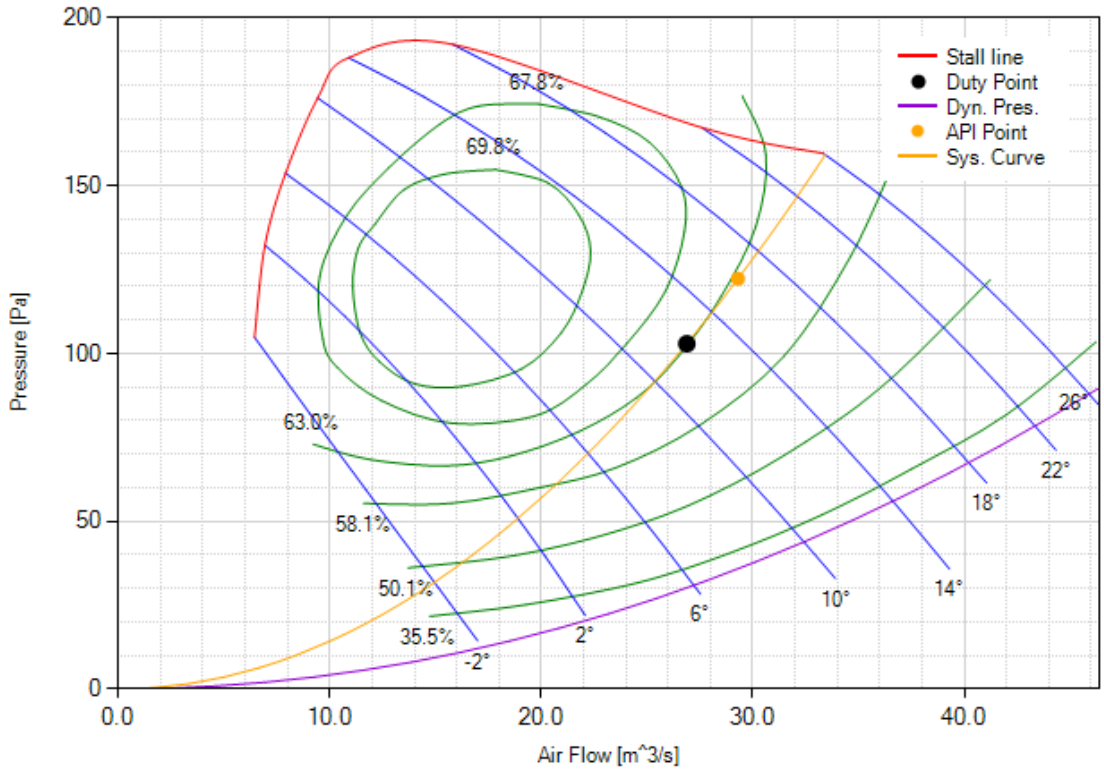
Max Power	**7.5** kW
Max Noise	**85** SPL
Distance	**1** m
Position	**Below**

OUTPUT

Curves: Static Pressure



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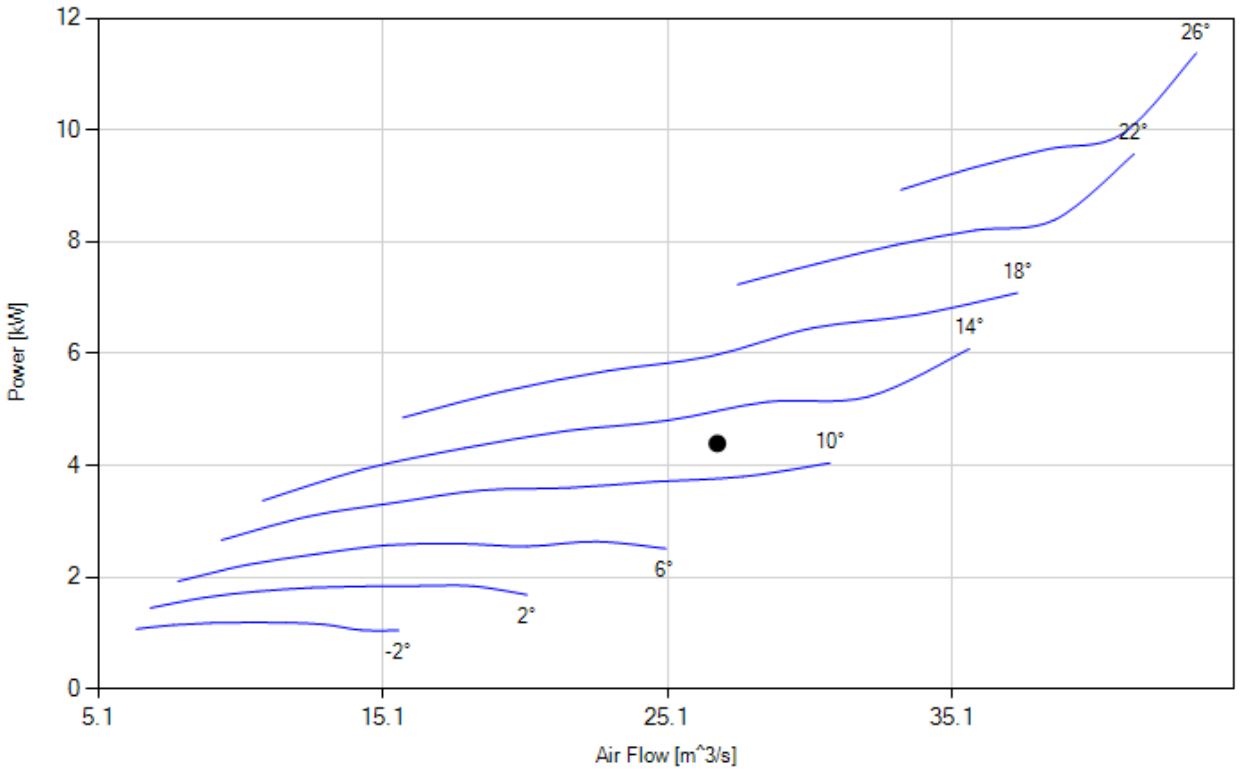
Position	**Below**

OUTPUT

Curves: Power Required



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Type	**Forced**
Inlet Shape	**Coni. L/D 0.05**
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Inlet Obstacles	
Outlet Obstacles	

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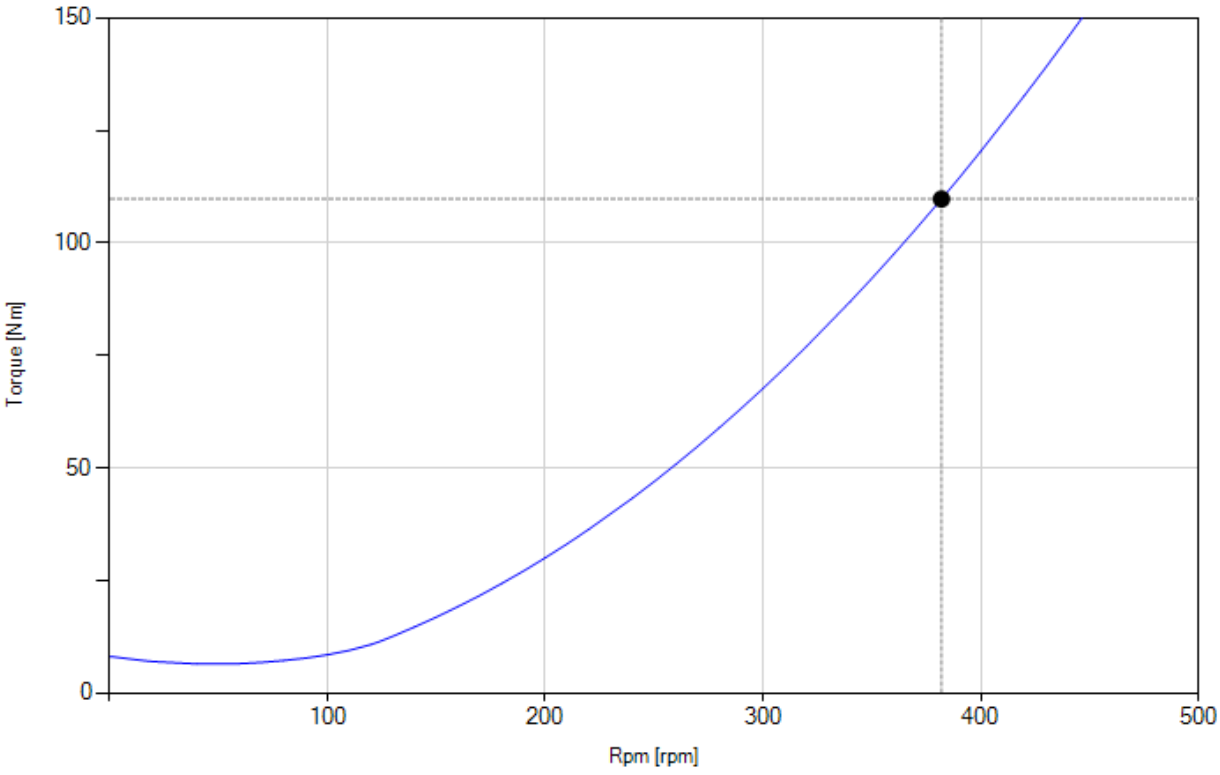
Distance	**1** m
Position	**Below**

OUTPUT

Curves: Torque



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OFFER N. - 6.22.2024 - **REV** 0 **MODEL** 4.3A-2134-03-SML-TS

Client Name:
Project Name:
Project Reference:
Item:

INPUT

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Installation

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Type	**Forced**
Inlet Shape	**Coni. L/D 0.05**
Tip Clearance	**11** mm
Diffuser	**Not present**
Inlet Obstacles	
Outlet Obstacles	

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Restrictions

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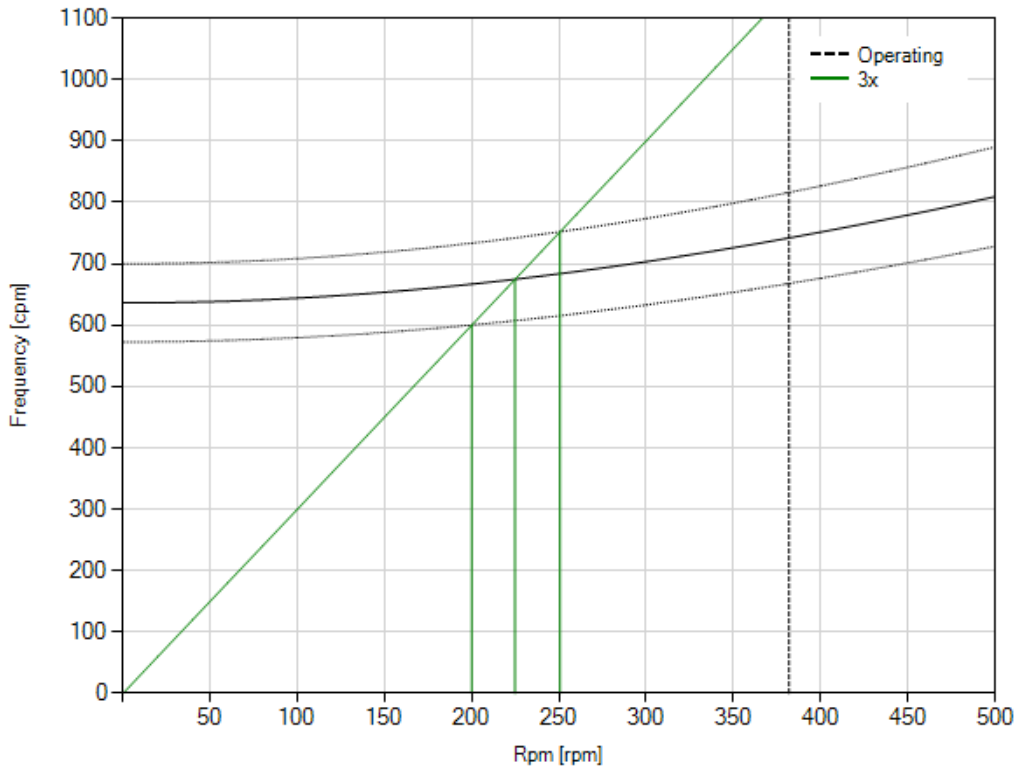
Max Power	**7.5** kW
Max Noise	**85** SPL
Distance	**1** m
Position	**Below**

OUTPUT

Curves: Frequency



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Project Name:
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Type	**Forced**
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Inlet Obstacles	
Outlet Obstacles	

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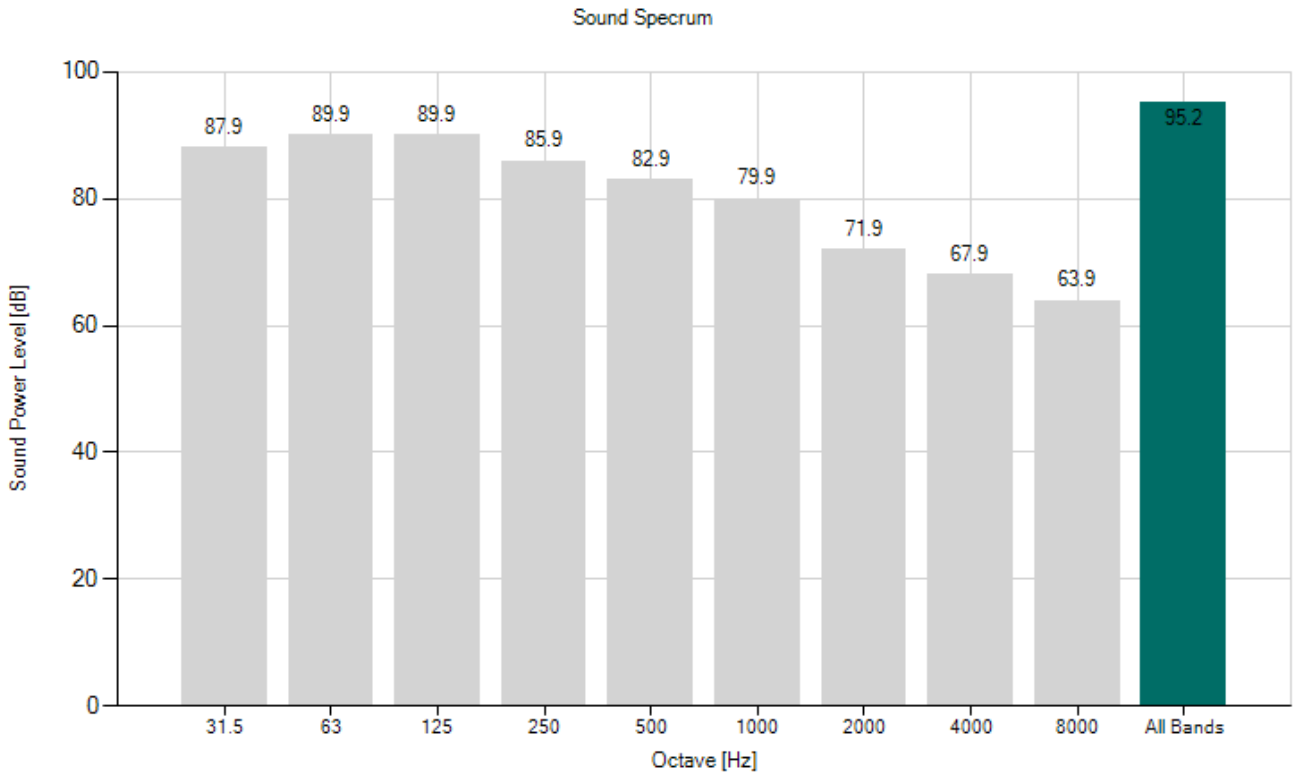
Min Temperature	**5** °C
Max Power	**7.5** kW
Max Noise	**85** SPL
Distance	**1** m
Position	**Below**

OUTPUT

Sound: Spectrum



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Client Name:
Project Name:
Project Reference:
Item:

INPUT

Duty Point

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Installation

Application	**Process Air Cooler**
Type	**Forced**
Inlet Shape	**Coni. L/D 0.05**
Tip Clearance	**11** mm
Diffuser	**Not present**
Inlet Obstacles	
Outlet Obstacles	

Fan specification

Diameter	**7** ft
Airfoil	**Aluminum**
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Max Noise	**85** SPL
Distance	**1** m
Position	**Below**

OUTPUT

Sound: Multiple Fans

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OFFER N. - 6.22.2024 **- REV** 0 **MODEL** 4.3A-2134-03-SML-TS

Client Name:
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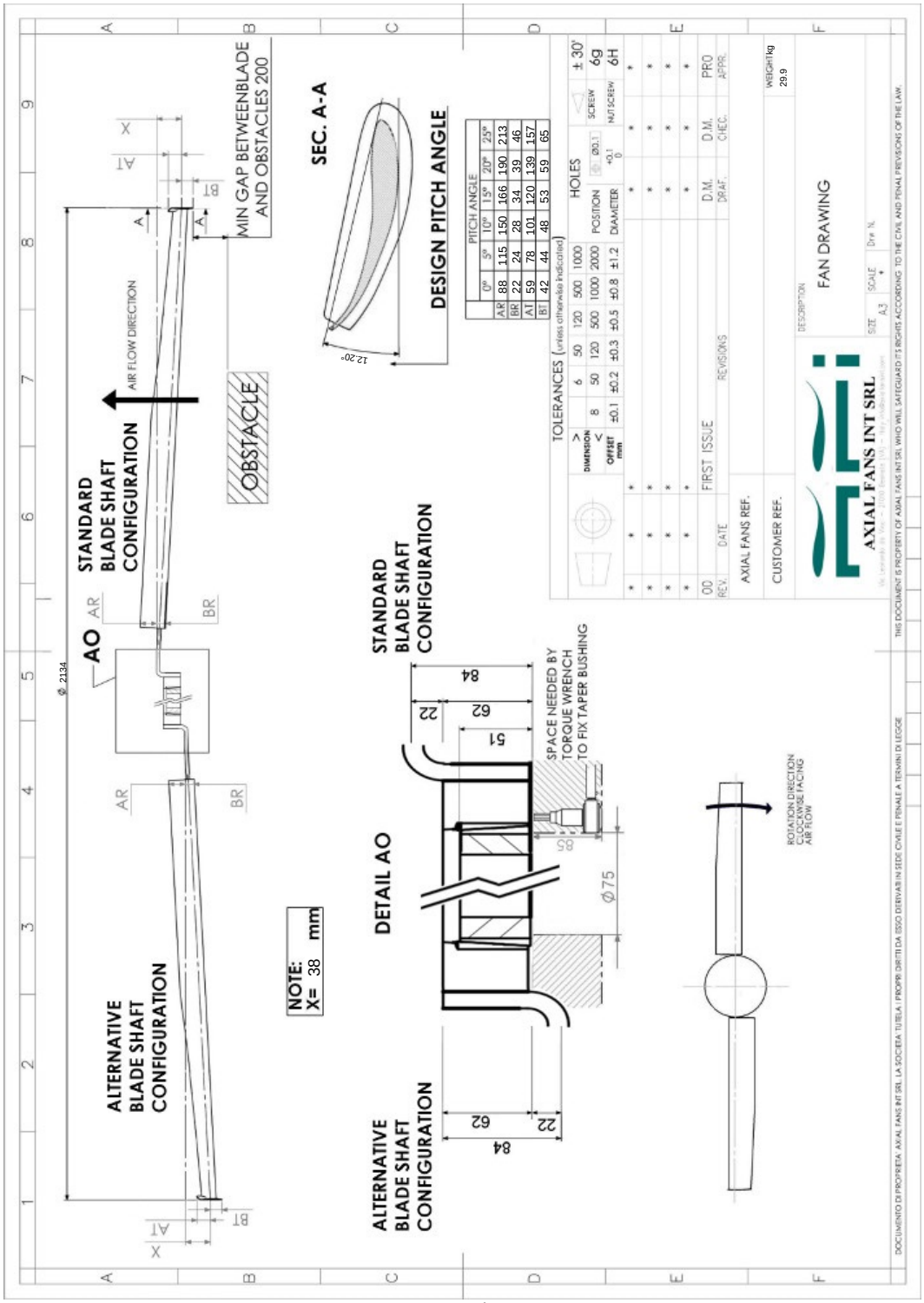
FAN DRAWING



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