


	<p>Toase-e Park Sanati Gohar Ofogh Petrochemical Co.</p> <p>CONCEPTUAL, BASIC and DETAIL DESIGN ENGINEERING OF STYRENE PARK OFFSITE</p>	  	
	<p>Document Title: Axial Fan Data Sheet</p>		
<p>Document No.: EI027-DMF-VD-ME-DSH-016- R2</p>		<p>Rev. R2</p>	<p>Page 1 of 10</p>

STYRENE PARK OFFSITE

Document Title:

Axial Fan Data Sheet

R2	18-08-2024	IFA	F.Aghaienezhad	J.Beigloo	A.Gholizadeh
R1	06-08-2024	IFA	F.Aghaienezhad	J.Beigloo	A.Gholizadeh
R0	22-06-2024	IFA	F.Aghaienezhad	J.Beigloo	A.Gholizadeh
Rev.	Issued Date	DESCRIPTION	PREPARED	CHECKED	APPROVED



Toase-eh Park Sanati Gohar Ofogh
Petrochemical Co.
**CONCEPTUAL, BASIC and DETAIL DESIGN
ENGINEERING OF STYRENE PARK OFFSITE**



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Rev. R2

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REVISION RECORD SHEET

Page Page	Revisions							Page	Revisions						
	R0	R1	R2	R3	R4	R5	R6		R0	R1	R2	R3	R4	R5	R6
1	X	X	X					41							
2	X	X	X					42							
3	X	X						43							
4	X	X	X					44							
5	X	X						45							
6	X	X	X					46							
7	X	X						47							
8	X	X						48							
9	X	X						49							
10	X	X						50							
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AXIAL FAN DATA SHEET (PROJECT 1158) Qty = 4		
BASIC DATA		
1	Item No.	Air Cooler
2	Quantity	Manual Adjustable Pitch
		Automatic Adjustable Pitch
3	Positioner	NO
4	BEARING BLOCK	YES
5	Blade Material	Aluminum (ASTM,B-179)
		Fiber glass
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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Customer Name	Job Reference
Job Name	
Item Number	Date 8/6/2024

CHARACTERISTICS

Required Volume	26.87 m³/sec	Required Static Pressure	102.95 Pa
Pressure recovery	0.00 Pa	Fan static pressure	102.95 Pa
Velocity pressure	28.98 Pa	Total pressure	131.93 Pa
Air Temperature	48.0 °C	Site Elevation	20.0 m
Inlet Air Humidity (%)	65.0	Inlet Air Density	1.068 kg/m³
Fan diameter	2134 mm	Fan ring diameter	2156 mm
Blade Airfoil	24L ALU	Rotor hub type	B3
Speed	382.0 RPM	Blade Tip Speed	42.68 m/sec
N° blades	4	Blade Operating Freq. +/-5%	722 cpm
Static efficiency	61.4 %	Total efficiency	78.7 %
Blade pitch angle	8.5 (°)	Rotor shaft power	4.5 kW
Min. Ambient Temperature	5.0 °C	Rotor shaft power @ 5.0 °C	5.3 kW
		Rotor shaft power @ API point	6.0 kW
Pressure Margin (%)	65 ¹ / 95 ²	Volume Margin (%)	28 ¹
Tip Clearance/D	0.005	Inlet	Conical L/D=0.05
Diffuser angle (°)		Diffuser:Length/D	
Inlet Obstacle a/A		Inlet Obstacle x/D	
Outlet Obstacle a/A		Outlet Obstacle x/D	
Installation Type	Forced	Aerod axial force	472 N
Rotor total weight	52 kg		
Rotor inertia PD²	35 kg x m²		
Max residual unbalance	13.1 N		
Blade Failure Load	3847 N		
2 Blades Failure Load	5441 N		
Xs Static deflection	55 mm	Xr Running deflection	43 mm

¹ according to API ² at Design Pitch Angle

NOISE CHARACTERISTICS

Tolerance on sound values +/- 2 dB(A)

PWL (± 2)	SPL @	Inlet / outlet (± 2)	Side (± 2)
86 dB(A)	1.0 m	78 dB(A)	65.8 dB(A)
	From Fan		

Octave [Hz]	31.5	63	125	250	500	1000	2000	4000	8000
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ROTOR MODEL 2134- 4-24L/B3T

PAC

All data must be approved by Cofimco

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Customer Name

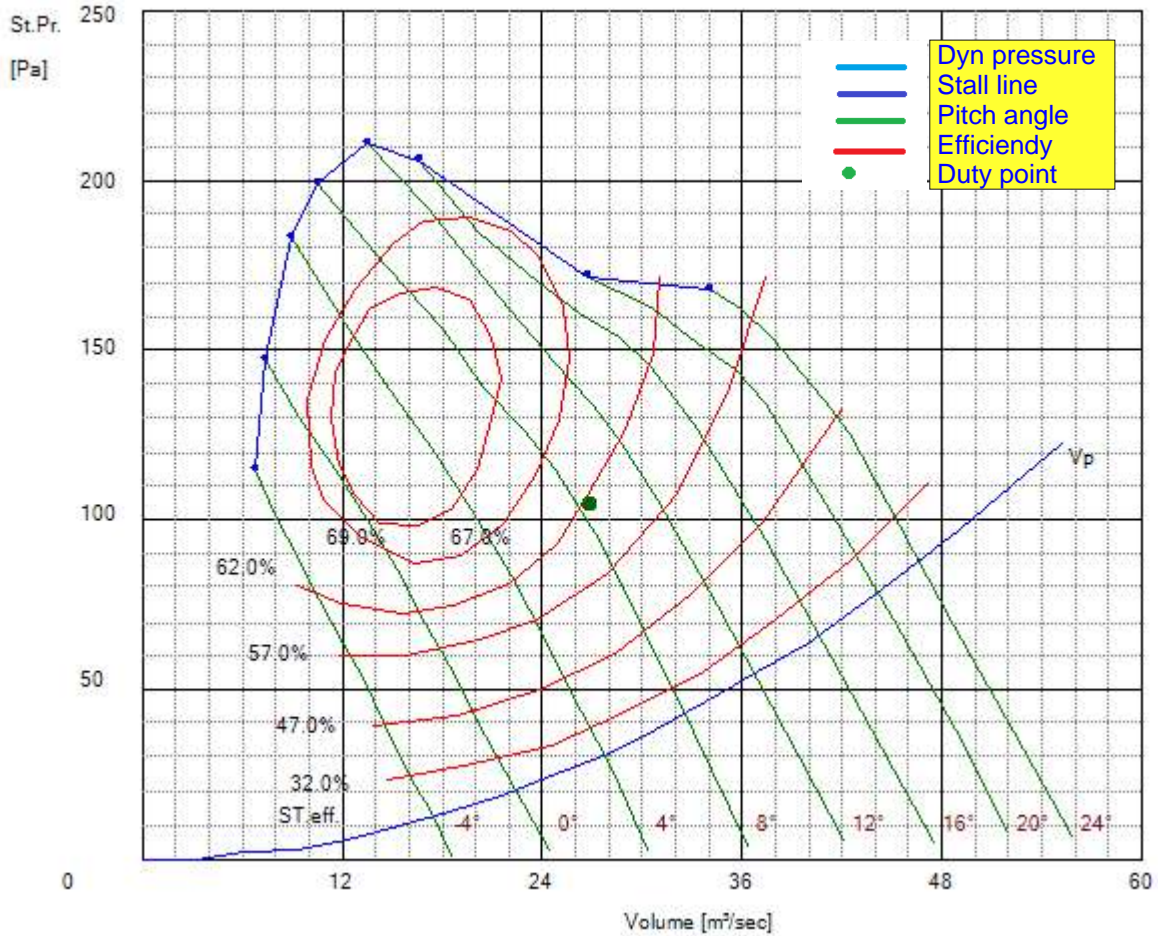
Job Reference

Job Name

Item Number

Date **8/6/2024**

STATIC PRESSURE vs VOLUME CURVE



Inlet Air Density 1.068 kg/m³
382 RPM = 42.68 m/sec
Pressure recovery 0.00 Pa
Rotor shaft power 4.5 kW
PWL (± 2) 86 dB(A)

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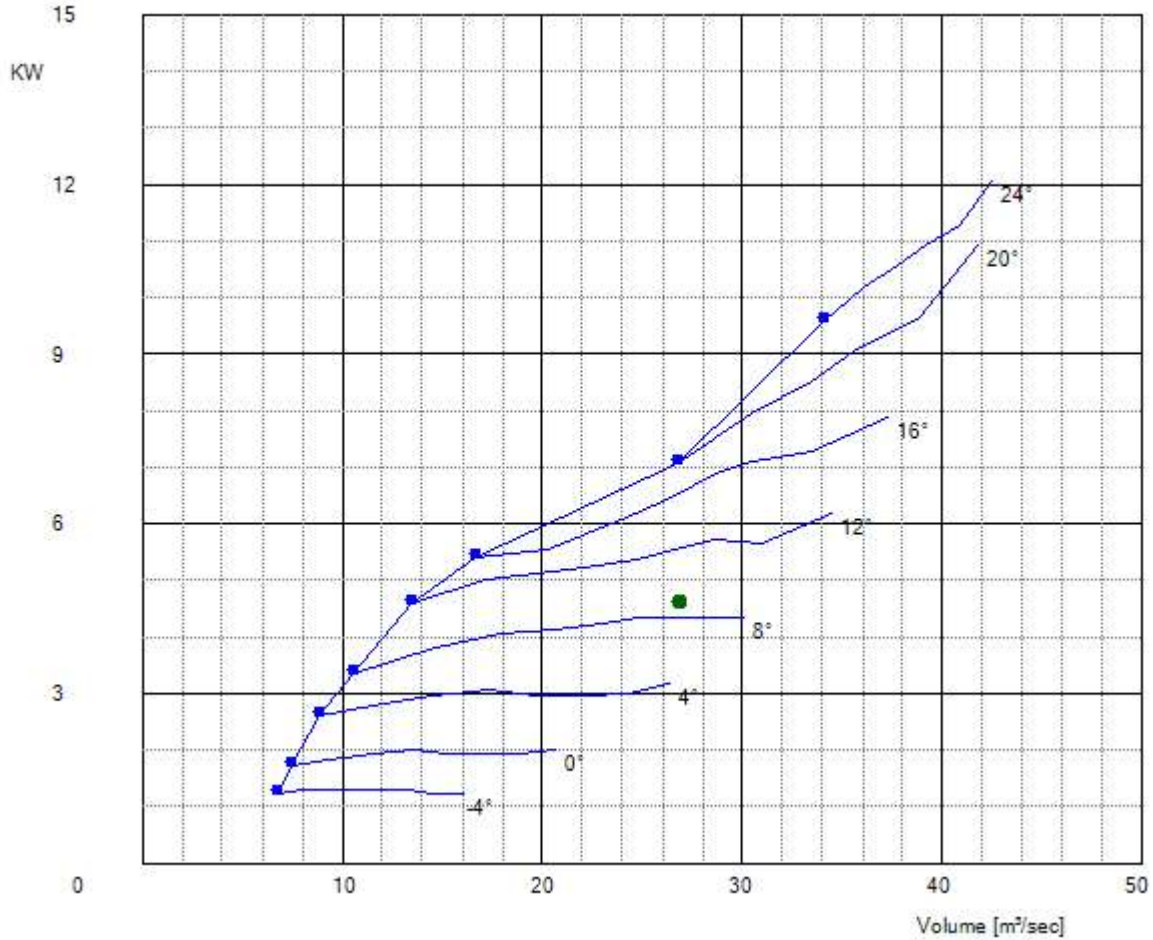
Job Reference

Job Name

Item Number

Date **8/6/2024**

FAN POWER vs VOLUME CURVE



Inlet Air Density 1.068 kg/m³
382 RPM = 42.68 m/sec
Pressure recovery 0.00 Pa
Rotor shaft power 4.5 kW

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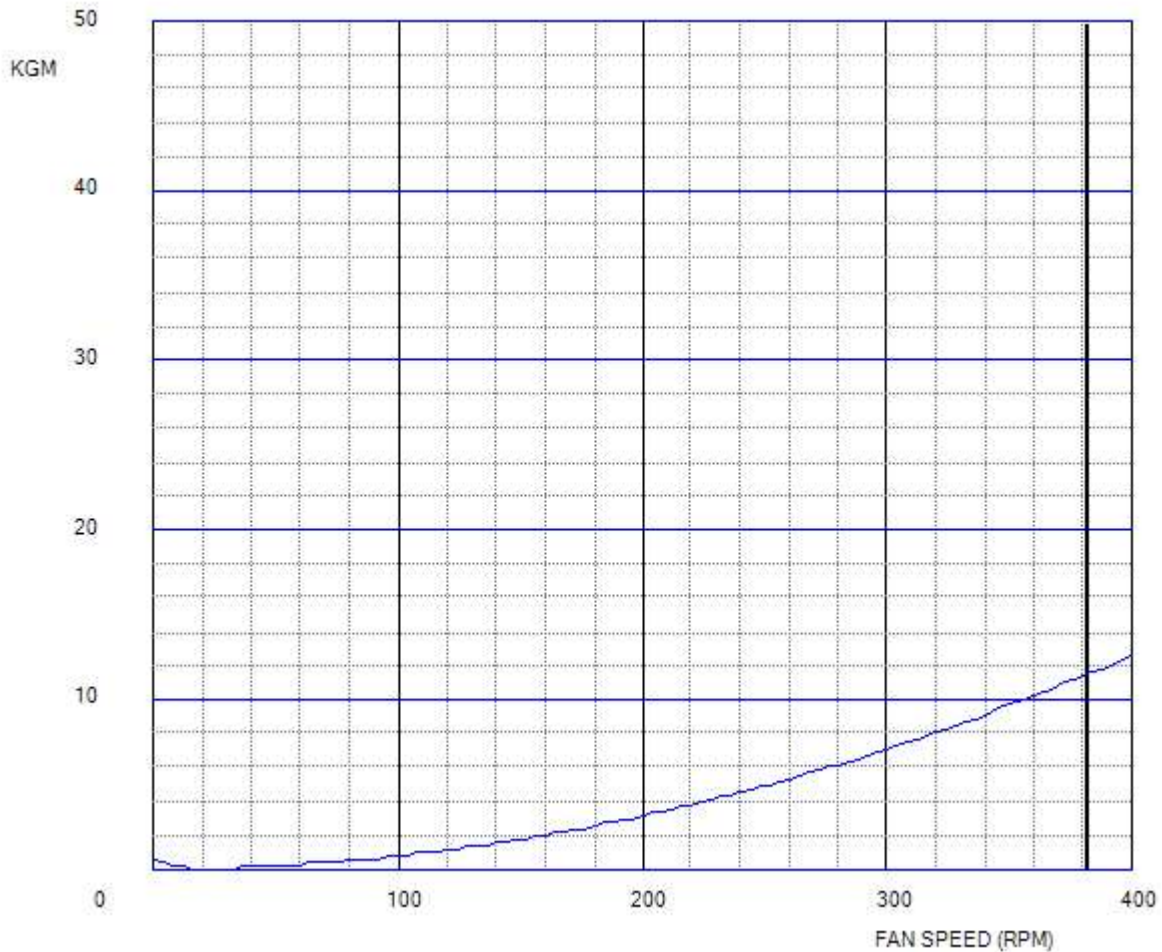
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Date **8/6/2024**

TORQUE CURVE



Rotor shaft power 4.5 kW
RPM = 382.0
Torque @ 382.0 rpm = 11.5 kgm

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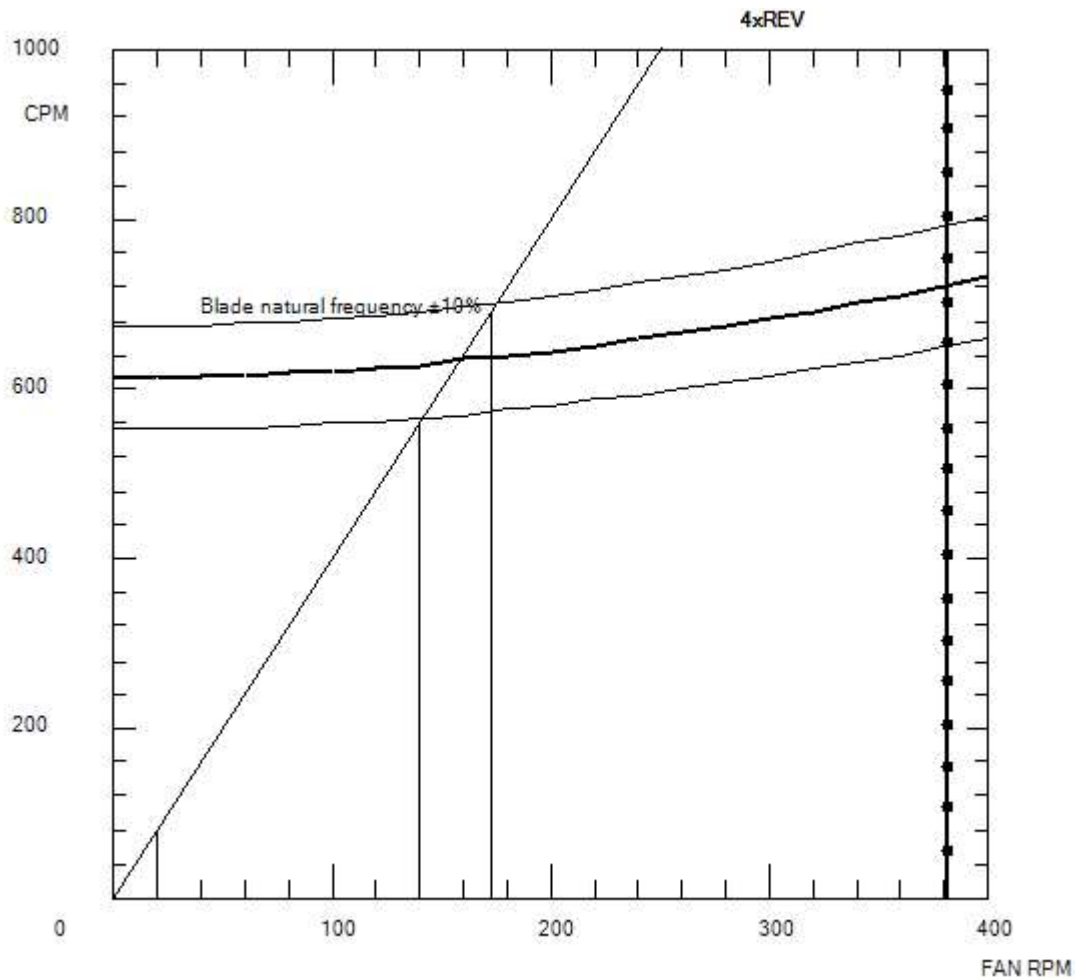
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CAMPBELL DIAGRAM



N° blades 4

382 RPM = 42.68 m/sec

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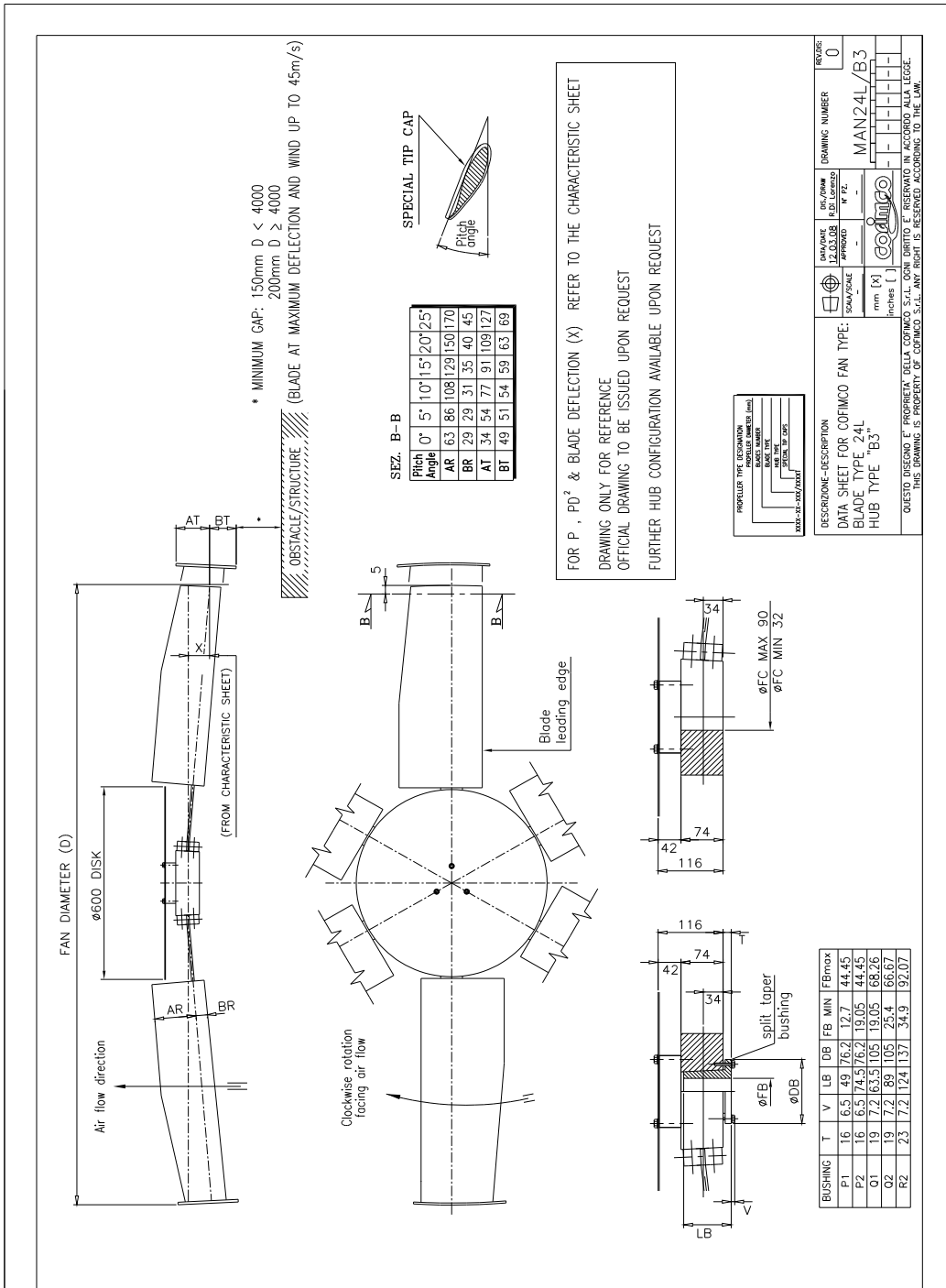
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