

fan type MAE050-005630-00	BU serial no. 1	comm. no. 1258041
your order no.	type of control valve	codeword 1258041

fan type MAE050-005630-00

type of connection
 operating condition
 handled gas
 designated volume flow
 designated static pressure increase
 humidity
 gas constant
 coefficient of adiabatic compressibility Kappa
 inlet temperature
 discharge temperature
 altitude
 abs. atmos. pressure
 athmos. density
 density at inlet
 volume flow
 total pressure increase
 dynamic pressure
 dynamic pressure
 static pressure increase
 shaft power
 impeller speed
 rec. motor power
 motor synchronous speed
 tip speed

NP
 free inlet
 discharge operation
 clean air
 m³/min
 daPa
 g/kg
 J/(kg K)
 -
 °C
 °C
 m
 kPa
 kg/m³
 kg/m³
 m³/min
 daPa
 daPa
 daPa
 daPa
 kW
 rpm
 kW
 rpm
 m/s

A-weighted total sound power level

inlet	LwAi1	95 dB(A)
discharge	LwAi2	99 dB(A)
correct.value A-weight.dB(A)	dLkA	7 dB(A)

A-weighted meas.surf.sound pressure level at 1m distance with

both sides ducted	LpAm	68 dB(A)
free inlet	LpA5	86 dB(A)
free discharge	LpA6	90 dB(A)
superficial dimension	Ls-k	14 dB

characteristic curve type

Δp/Pw 4/4 -

efficiency at total pressure increase

η_{tot} 75.6 %

efficiency at static pressure increase

η_{stat} 68.1 %

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housing data

inlet opening	Aø	250	mm
discharge opening	B1	200	mm
discharge opening	B2	160	mm
diffusor	B1'	-	mm
diffusor	B2'	-	mm
length of suction box	AN	-	mm
width of suction box	BN	-	mm
thickness of housing wall	sGV	5	mm
thickness of housing scroll	sSP	3	mm

impeller data

outer diameter impeller	D2	556	mm
blade outer diameter	D2S	541	mm
quantity of blades	z	9	-
splitter blade	z'	-	-
moment of inertia of impeller	ILr	0.75	kgm ²
shaft diameter	dW	-	mm
moment of inertia of shaft	IW	-	kgm ²

Basic conditions

design temperature	tB	20	°C
max. operating temperature	tmax	80	°C
max. impeller speed	nVmax	3090	1/min
speed at inlet	c1	19.01	m/s
speed at inlet AK	c1'	-	m/s
speed at discharge	c2	28.31	m/s
speed at discharge DIF	c2'	-	m/s

Weight specification

Typ

fan without motor	MAE	112	kg
motor	1TZ9003-1CA13-4FB4	57	kg
total weight		169	kg

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Drive components

bearing unit	fixed bearing	-
	non-locating bearing	-
coupling	size	-
- rated output torque	Mmax	Nm
- max. speed of coupling	Nmax	1/min
material of shaft	mat shaft	1.0577 - S355J2

impeller data

- back plate	sT	4	mm
- shroud	sD	3	mm
- impeller nozzle	sDü	3	mm
- blade	sSch	3	mm
- material of impeller	Mat_LRE	1.0577 - S355J2	-
- natural frequency	fLRE	-	Hz
- blade pass frequency	fSch	437.3	Hz
bending critical speed of shaft	nkrit shaft	-	1/min

shaft sealing

type	-
material	-
material of sleeve	-

wear protection of impeller

struct. design	-
material	-
thickness of wear protection	mm

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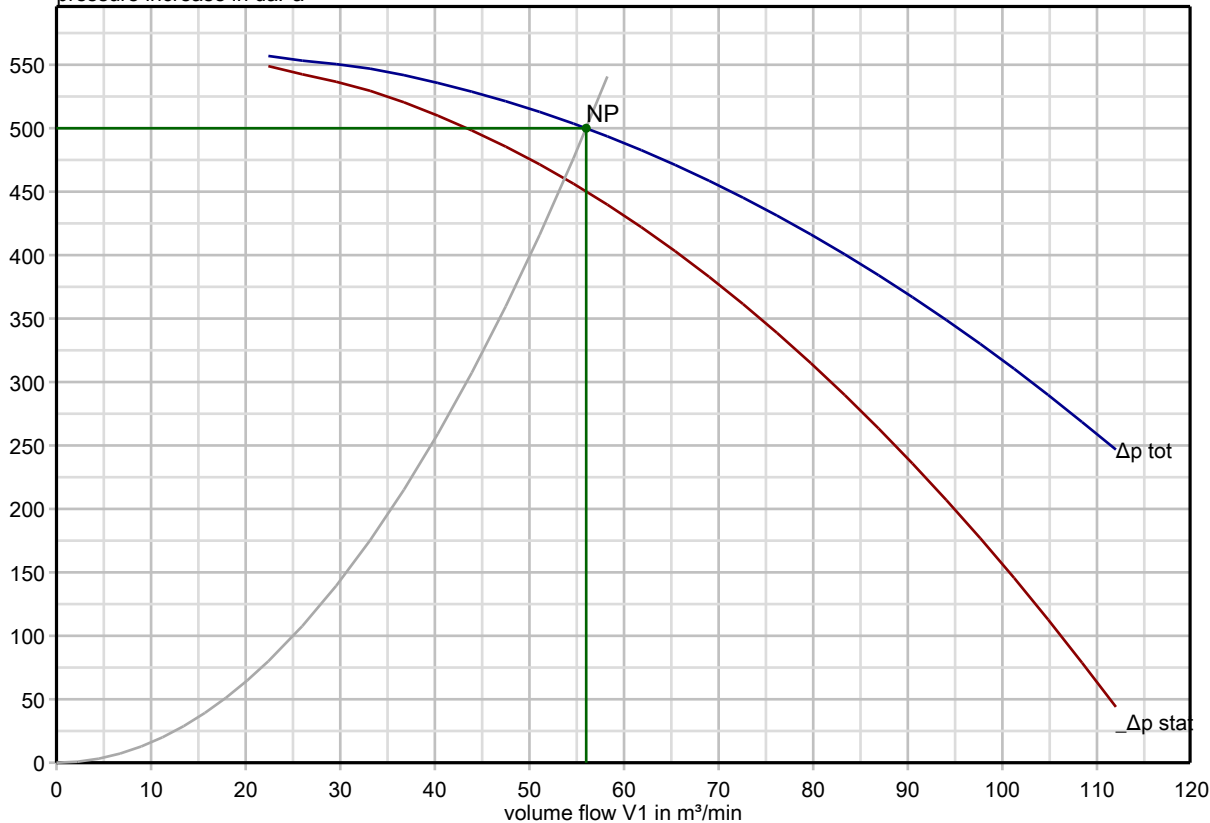
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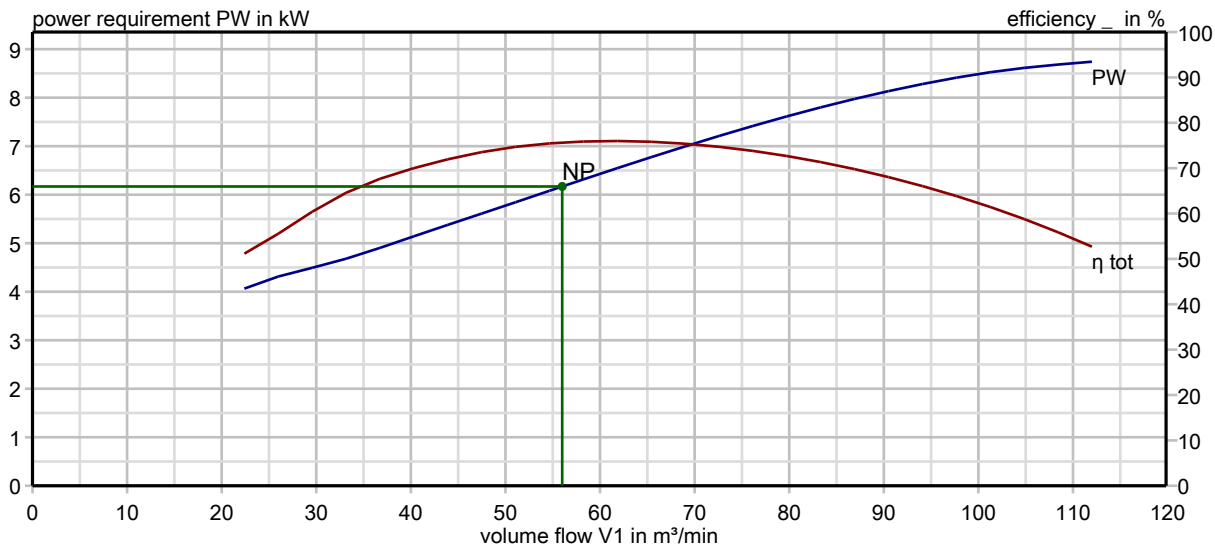
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pressure increase in daPa



power requirement PW in kW



	NP	OP 1	OP 2	OP 3	OP 4	OP 5	OP 6	OP 7	OP 8	OP 9	OP 10
volume flow V1	m³/min	56									
total pressure increase Δpt	daPa	500									
density at inlet ρ1	kg/m³	1.205									
impeller speed n1	rpm	2915									
inletguidevane/damp.											

DN1 SFV1.0 EV1.0 RE1.0 AKZ1.0 AKZ2.0 AKZ1.0 Gnr1

3.0.7.21

Tolerances as per accuracy class according to ISO 13348:2007-01 table 2.
Allocation of accuracy classes according to ISO 13348:2007-01 table 1.
Terminology and classification according to DIN EN ISO 13349-2012-07.
pressure units : 1 daPa = 10 Pa = 10 N/m² = 0,1 mbar = 1,0197 mmWS

class of accuracy	AN2	AN3	AN4
Δpt und V1 [%]	+/- 2,5	+/- 5	+/- 10
PW [%]	+ 3	+ 8	+ 16
Lw und Lp [dB]	+ 3	+ 4	+ 6

SOUND DATA

Liste 17_1 80Grad

quotation item
KRV 202314034-00 - 1.02
designation
date
12.12.2023 / cab

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technical data of fan at p-1 = 1.205 kg/m³ (nominal point) :

total pressure increase	Δpt	500 daPa	volume flow	V1	56 m³/min
impeller speed	nl	2915 rpm	shaft power	PW	6.2 kW
no. of blades	z	9 -	main residual frequency	f	437 Hz
drive motor	PM	7.5 kW	motor speed	nM	2950 rpm

sound data:

superficial dimension	Ls-k	14.0 dB	corr. value A-weighting	dlkA	7.2 dB(A)
A-weighted total sound power level at inlet:	LwAi1	95.0 dB(A)	at discharge	LwAi2	99.2 dB(A)
A-weighted free inlet resp. free discharge sound pressure level at 1m distance from hemisphere radius					
at inlet:	LpA5	86.0 dB(A)	at discharge	LpA6	90.2 dB(A)
A-weighted external sound power level				LwAa	81.6 dB(A)
A-weighted meas. surf. sound pressure level				LpA	67.6 dB(A)
A-weight. meas. surface sound pressure level of drive			LpAMo		68.0 dB(A)
A-weight. meas. surface sound press. level fan and drive			LpAMo+LpA		dB(A)

octave spectrum

frequency	fm in Hz	63	125	250	500	1000	2000	4000	8000	Dim
main residual frequ.	dLD-okt	0.0	0.0	0.0	2.3	0.5	0.1	0.0	0.0	dB
relative octave spectrum	dLw-okt	-4.6	-5.4	-7.1	-9.7	-13.2	-17.7	-23.0	-29.2	dB
A-weighting	dLA	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1	dB
total sound power	Lwi2-okt	101.5	100.7	99.0	98.7	93.4	88.5	83.1	76.9	dB
	Lwi1-okt	97.3	96.5	94.8	94.5	89.2	84.3	78.9	72.7	dB
	LwAi2-okt	75.3	84.6	90.4	95.5	93.4	89.7	84.1	75.8	dB(A)
	LwAi1-okt	71.1	80.4	86.2	91.3	89.2	85.5	79.9	71.6	dB(A)
A-weighted external sound power level										
	LwAa-okt	57.6	66.9	72.7	77.8	75.7	72.1	66.5	58.1	dB(A)
A-weighted meas. surf. sound pressure level										
	LpA-okt	43.6	52.9	58.7	63.8	61.7	58.1	52.5	44.1	dB(A)

Remark : The rounding of the values to whole figures results necessarily in differences of further calculations.
When calculating the measuring surface sound pressure level a reduction of 3 dB for self shielding of the fan housing is to be taken into account.
LpA = LwAa - Ls - 3 dB(A) / The sound data refer to the fan without considering sound insulation and motor.

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class of accuracy	AN2	AN3	AN4
Δpt und V1 [%]	+/- 2,5	+/- 5	+/- 10
PW [%]	+ 3	+ 8	+ 16
Lw und Lp [dB]	+ 3	+ 4	+ 6

TORQUE DIAGRAM

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12.12.2023 / cab

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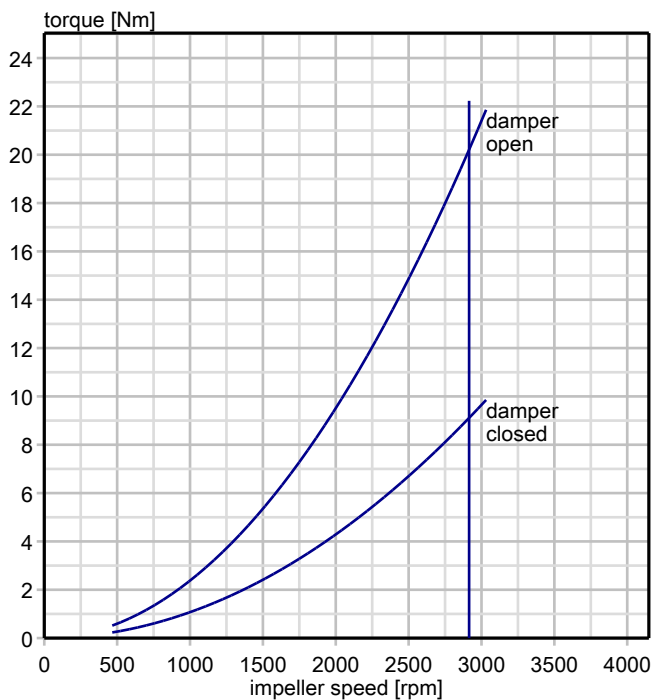
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nominal point : NP —

V1 = 56 m³/min
 Δp_t = 500 daPa
 PW = 6.2 kW
 n_l = 2915 rpm
 ρ_1 = 1.205 kg/m³
 J (imp.) = 0.750 kgm²

DN1 SFV1.0 EV1.0 RE1.0 AKZ1.0 AKZ2.0 AKZ1.0 Gnr1

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class of accuracy	AN2	AN3	AN4
Δp_t und V1 [%]	+/- 2,5	+/- 5	+/- 10
PW [%]	+ 3	+ 8	+ 16
Lw und Lp [dB]	+ 3	+ 4	+ 6



MOTOR DATA / START-UP

Liste 17_1 80Grad

quotation item
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designation

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The following data apply to the fan nominal point.

Start-up data

rated output motor torque	24.3	Nm
torque Y	12.47	Nm
torque Δ	46.17	Nm
load torque in NP	20.21	Nm
load torque damper closed	10.11	Nm
moment of inertia relative to nM	0.77	kgm ²
start-up time in NP Y	54.2	s
start-up time closed damper Y	28.2	s
start-up time in NP Δ	6.2	s
start-up time closed damper Δ	5.6	s
theoretical starting time	5.8	s
mass inertia ratio Iv/Im	24.8	-

Δ-start-up possible (DOL start-up)

Please note the heavy-duty start for the YΔ-start-up type. It is necessary to have the start-up behaviour checked by the motor producer.

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class of accuracy	AN2	AN3	AN4
Δpt und V1 [%]	+/- 2,5	+/- 5	+/- 10
PW [%]	+ 3	+ 8	+ 16
Lw und Lp [dB]	+ 3	+ 4	+ 6