



TLT-Turbo GmbH

Erection- and Maintenance Manual

of

Cement Mill Fan Type 17875 B/ 1314

TLT-Job No.: 71260-5

2	25Jan06	Ritz	26Jan06	Labod	Customer: Polysius AG	Job: IRSAB	
Rev.	Date	Prepared	Date	Approval	Job.-No.: 71260-5	Order.-No.: 33705967	Page
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TLT-Turbo GmbH

2. Description

2.1 Rating Data / Technical Data

Kind of Fan: Cement Mill Fan
Type of fan: 17875 B/1314
Job No.: 71260-5
Built in: 2005
Factory No.: 723006981
Sense of rotation: R (VDMA) acc. VDMA 24165

Characteristic of the fan:	Volumetric flow rate:	83,3	m ³ /s
	Gas temperature:	95	°C
	Temperature max. mech.:	150	°C
	Spec. Energy	6917	J/kg
	Density at fan inlet	0,901	kg/m ³
	Total pressure rise:	6383	Pa
	Fan speed:	990	rpm
	Fan speed max.:	1000	rpm
	Power required at shaft:	632	kW
	Mass inertia moment (J = 0,25 x GD ²):	940	kgm ²
	Motor power:	727	kW
	Max. permissible power:		kW
	Motor speed:	990	1/min

Kind of installation: concrete foundation
Kind of coupling: flex. compression sleeve coupling
Kind of bearing: oil lubricated roller bearing
Weight of machinery (without motor and insulation): app. 13980 kg
General drawing No.: H6002317

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2.1.1 Parts of delivery

Driver: (by Customer)

Motor-Fabricate / Type: ELIN / HRR 080 B	Rated output: 727 kW
Size: IM B3	Rated speed: 990 1/min
Frequency: 50 Hz	Rated voltage: 6600V
Weight: 7600 kg	Protection: IP 54

Coupling:

Manufacture: Flender	Type: RWN 450
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Bearing:

Manufacture: SNR	Type: SNOE 224 / SNOE 214
Lubricant: Oil	ISO VG 100
Set points of bearing temperature: (measured at outside bearing ring) Alarm: 95°C Disconnection: 105 °C	Set points of vibration monitoring: (measured at outside bearing ring) Alarm: 8,8 mm/s Disconnection: 11 mm/s

Inlet Damper with actuator:

manufacturer: Steinberg+Kirsch	Type: Auma Actuator SAR 07.1- B3/45-GS100.3/VZ4.3
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Thermo couple:

manufacturer: Dittmer	Type: Pt100 3 Wire connection
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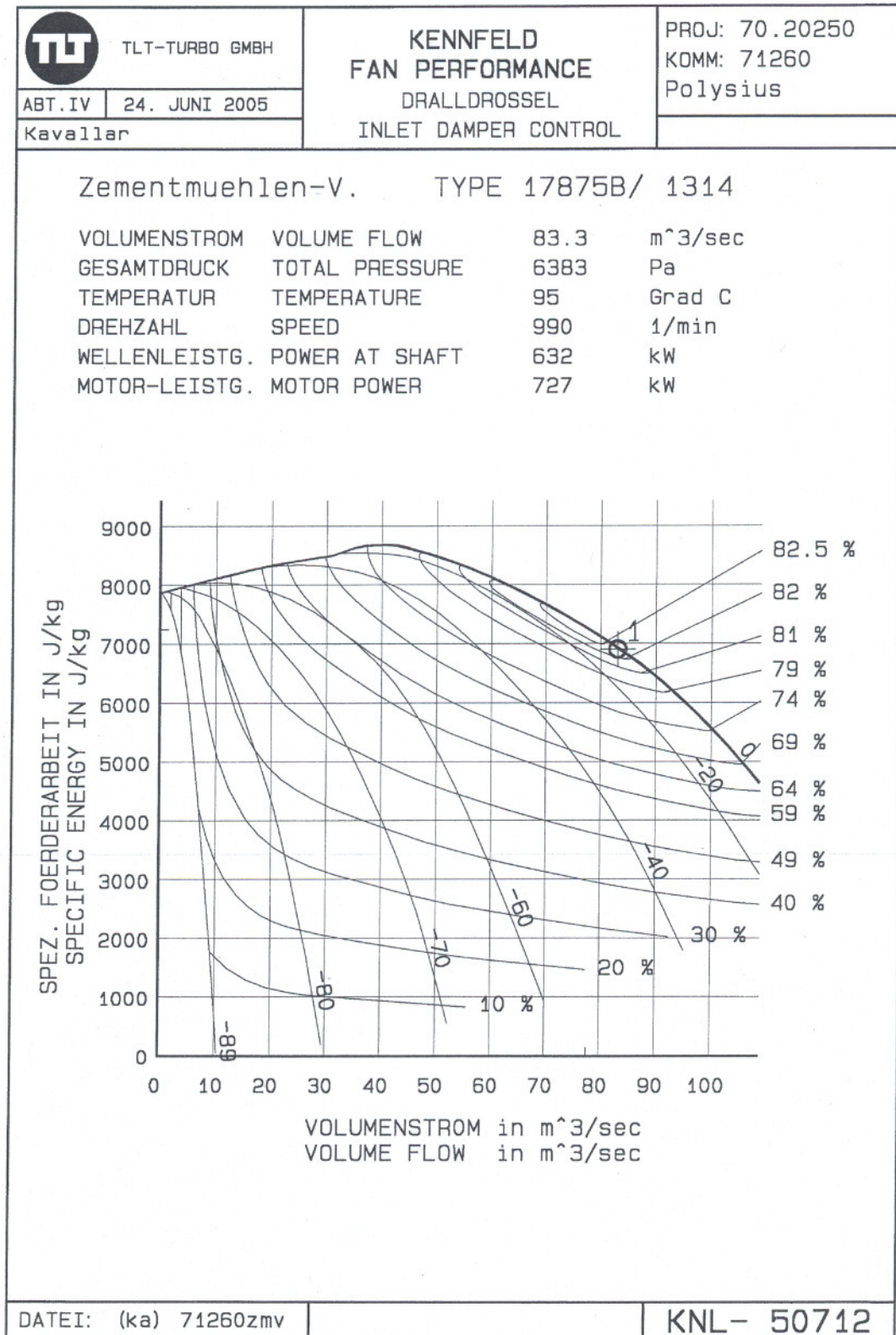
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2.1.2 Characteristic curve



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2.1.3 Table

TLT-Turbo GmbH		Table to the Zementmuehlen-V. Type 17875B/ 1314				Com.-No. 71260 Cust. Polysius	
Dpt IV	24.06.2005					TAB-No. 50712	
Name : Kavallar		Control by Inlet Damper				Sheet 1 of 1	
Impeller diameter	2336 mm	Cross sec. suc. box		IN	2.95	m ²	
Recomm. motor power	727 kW	Cross sec. housing		IN		m ²	
Motor speed	990 1/min	Cross sec. housing		OUT	1.83	m ²	
Barometric pressure	1007 mbar	Cross sec. diffusor		OUT	4.16	m ²	
Load	Design						
Point	1	2	3	4	5	6	
Mass flow kg/s	75.1						
Volume flow Sm ³ /h	207964						
Volume flow Am ³ /s	83.3						
Temperature ss deg C	95						
pl inquiry Pa	6000						
pl suc. box Pa	138						
pl damper Pa	120						
pl shaft Pa	20						
pl diffuser Pa	105						
Total press. Pa	6383						
pa absolute Pa	94720						
Density (std) kg/m ³	1.300						
Density (act) kg/m ³	0.902						
Compress-fact. -	0.977						
Density (aver) kg/m ³	0.923						
Spec. energy J/kg	6916						
Efficiency %	82.3						
Power at shaft kw	632						
Speed rpm	990						
Temperature ds deg C	103						
Datei : ka71260zmv							

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2.1.5 Octave Band Analysis

TLT-Turbo GmbH		Octave Band Analysis to Zementmuehlen-V. Type 17875B/ 1314		Project-no 70.20250 Cust. Polysius			
Dpt IV	24.06.2005			OAN-no 50713			
Name : Kavallar				Sheet 1 of 1			
Design data :							
Volume flow		83.30	m3/s	Diameter of impeller 2336 mm			
Temperature		95	°C	Tip speed 121 m/s			
Total pressure		6383	Pa	Number of blades 12 -			
Density suc. side		0.901	kg/m3	Blade passing frequency 198/396 Hz			
Speed		990	rpm				
Frequency Hz		Measuring surface sound press.level at a distance of 1m from the fan casing re 2·10E-5 N/m²		Sound power level in the gas flow suction side re 10E-12 W		Sound power level in the gas flow discharge side re 10E-12 W	
		dB	dB (A)	dB	dB (A)	dB	dB (A)
31		94	55	114	75	115	76
63		94	68	120	94	121	95
125		93	77	122	106	123	107
250		97	88	127	119	128	120
500		94	91	125	122	126	123
1000		83	83	120	120	121	121
2000		73	74	114	116	115	117
4000		68	69	108	109	109	110
8000		65	63	99	98	100	99
Total level		102	93	131	126	132	127
Measuring area [Ls=10·lg(S/So)]				21 dB			
Tolerances :							
				Total level : ±4 dB Octave band : ±6 dB			
All data according to DIN 45635				Datei : ka71260zmv			

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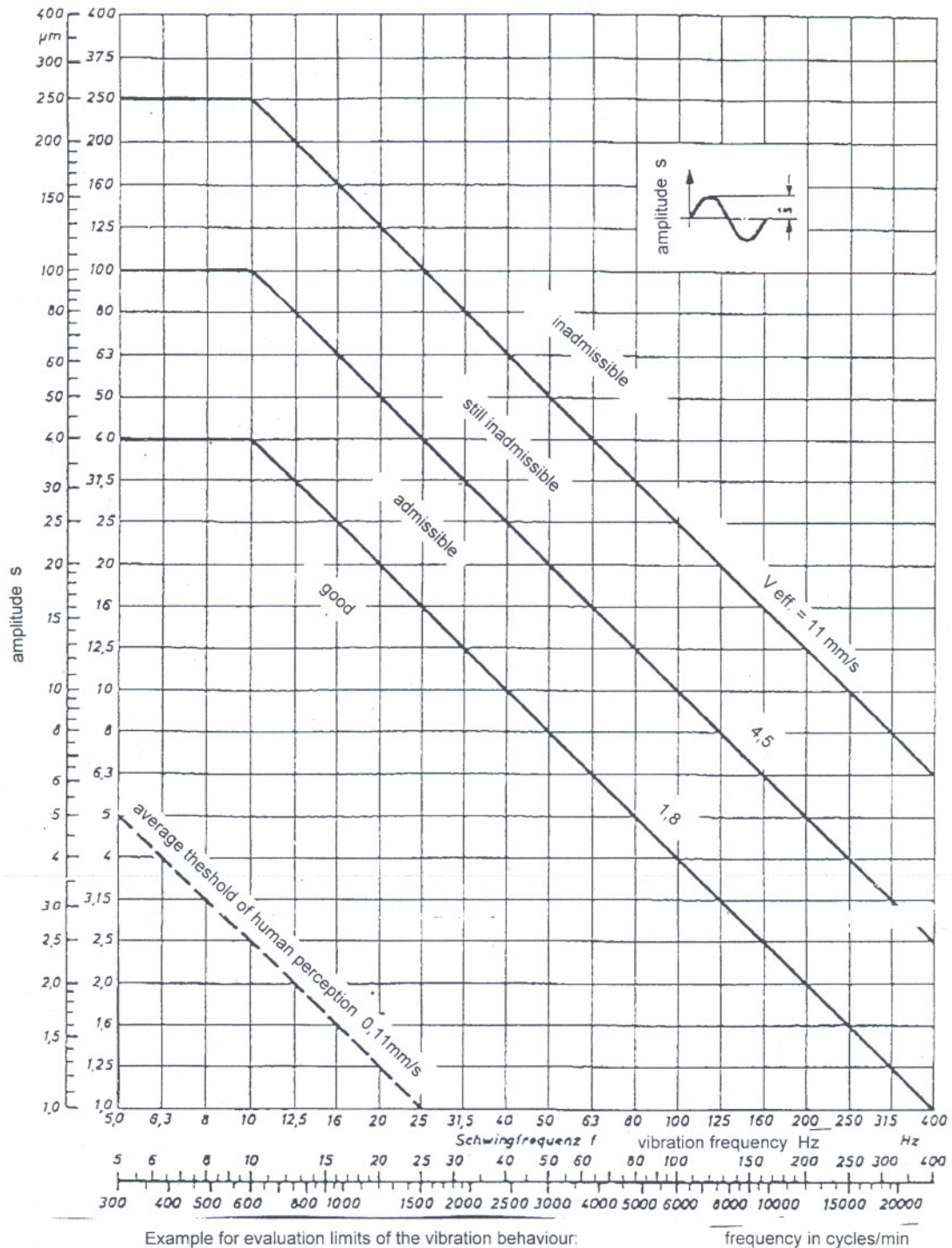
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Set point

VDI 2056



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9. Spare parts

Spare parts and replacement parts that cannot be delivered quickly should be kept in stock. Production down time is generally more expensive than the cost of the part in question.

We wish to point out explicitly that we do not test and issue spare parts or replacement parts not supplied by us. Any and all responsibility by the manufacturer is explicitly excluded for damage arising from the use of non-original parts and accessories.

Our Serviceadresse for Spare parts:

TLT-Turbo GmbH
Havensteinstr. 46
46045 Oberhausen
Tel.: 0049 (208) 8592 451 / Fax 0049 (208) 8592 250

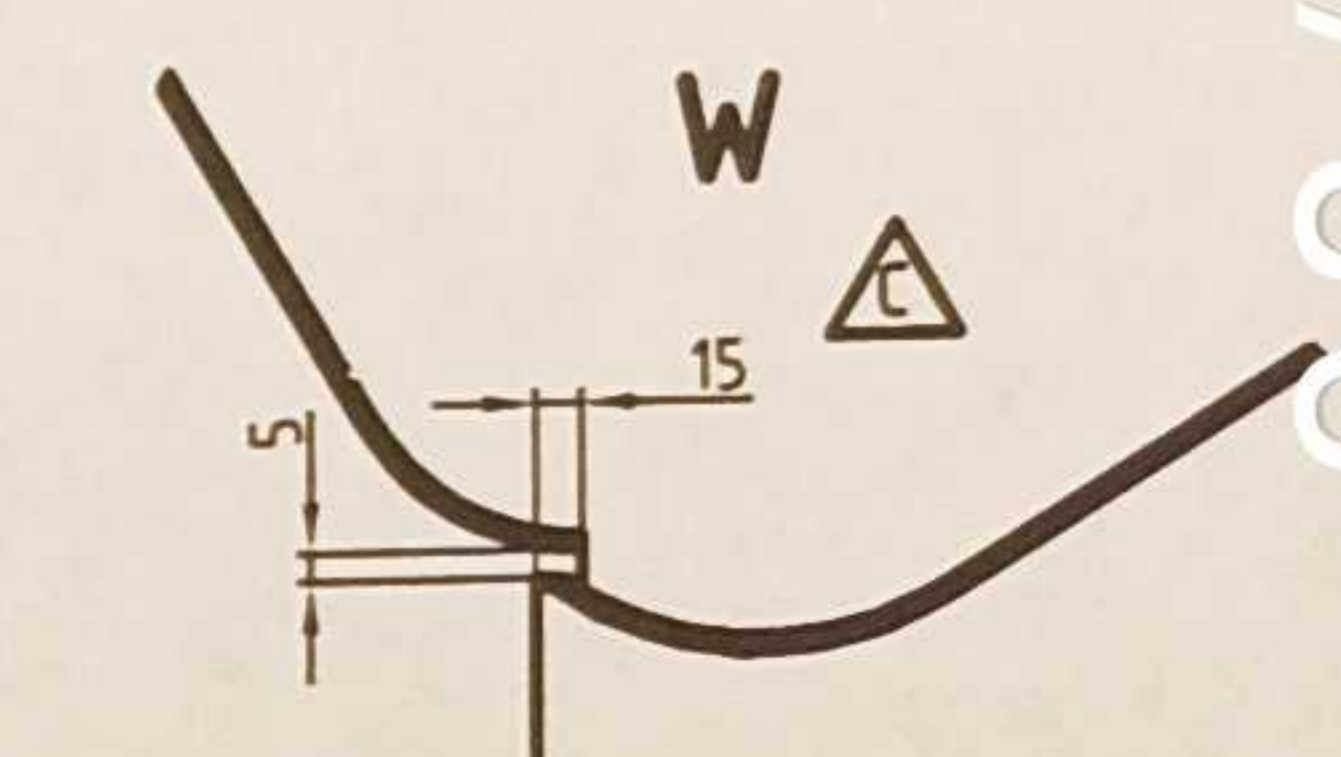
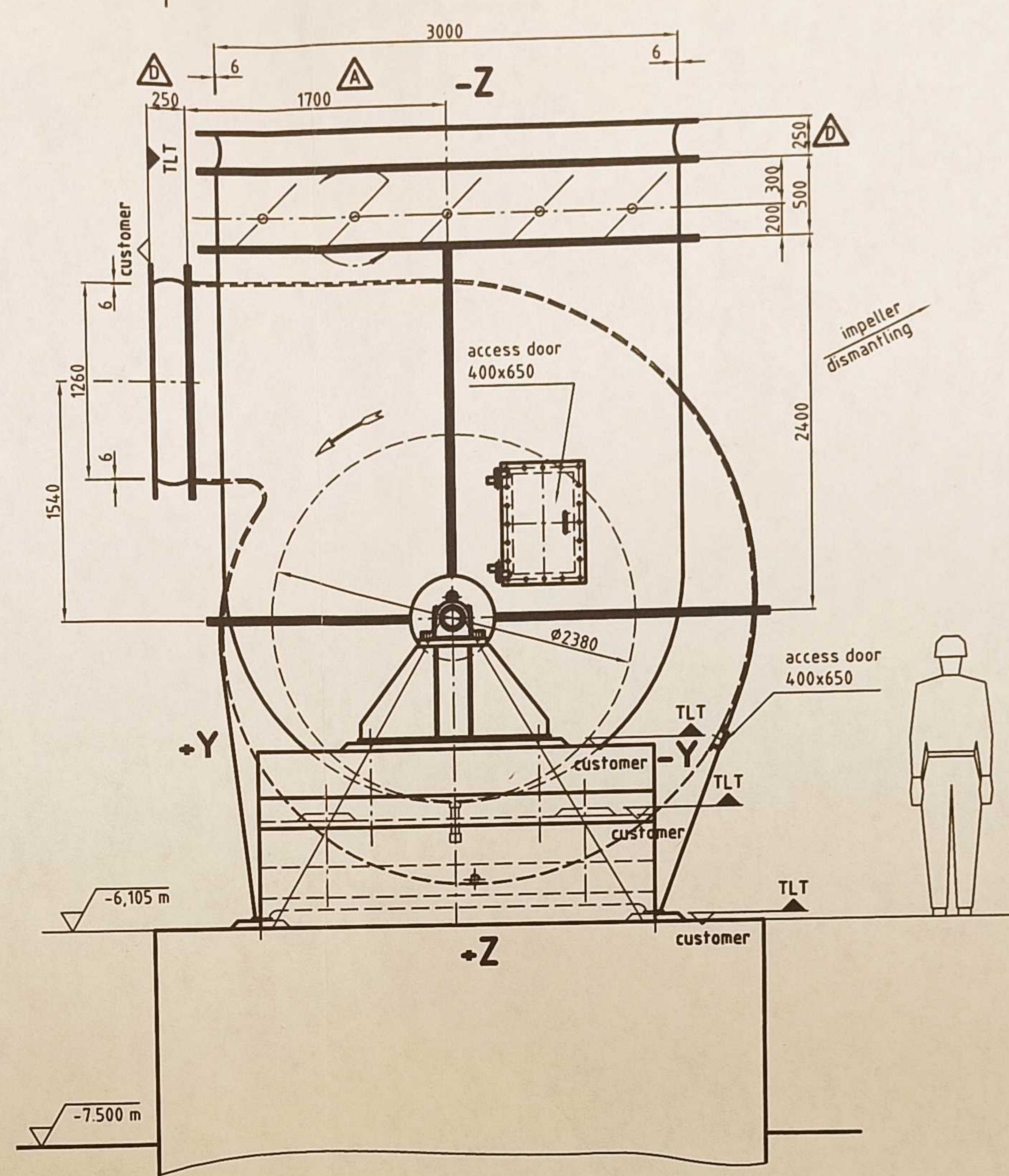
Please mention the Ventilator-Data given below:

Kind of Fan: Cement Mill Fan
Type of fan: 17875 B/1314
Job No.: 71260-5
Dimension sheet H6002317
Factory No.: 723006981
Sense of rotation: R (VDMA) acc. VDMA 24165

Pos	Piece	Denomination	Weight	Wear
1	1	fan wheel Ø 2380 x 573	1500	X
2	1	shaft Ø 185 x 3342 long	600	X
3	1	bearing housing type SNOE 214 AL	28	
4	1	bearing system type 22214EAB33J30	2	X
5	1	bearing housing type SNOE 224 BF	80	
6	1	bearing system type 22224EAB33J30	9	X
7	1	coupling type Rupex RWN 450	178	
8	Set	Elastic buffers	6	X
9	1	Suction side shaft seal type Ø 165 x 10	3	X
10	1	shaft seal type Ø 120 x 10	3	X

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Seismic load (0.3 g)
All values in kN (10kN = 1000kg = 1t)

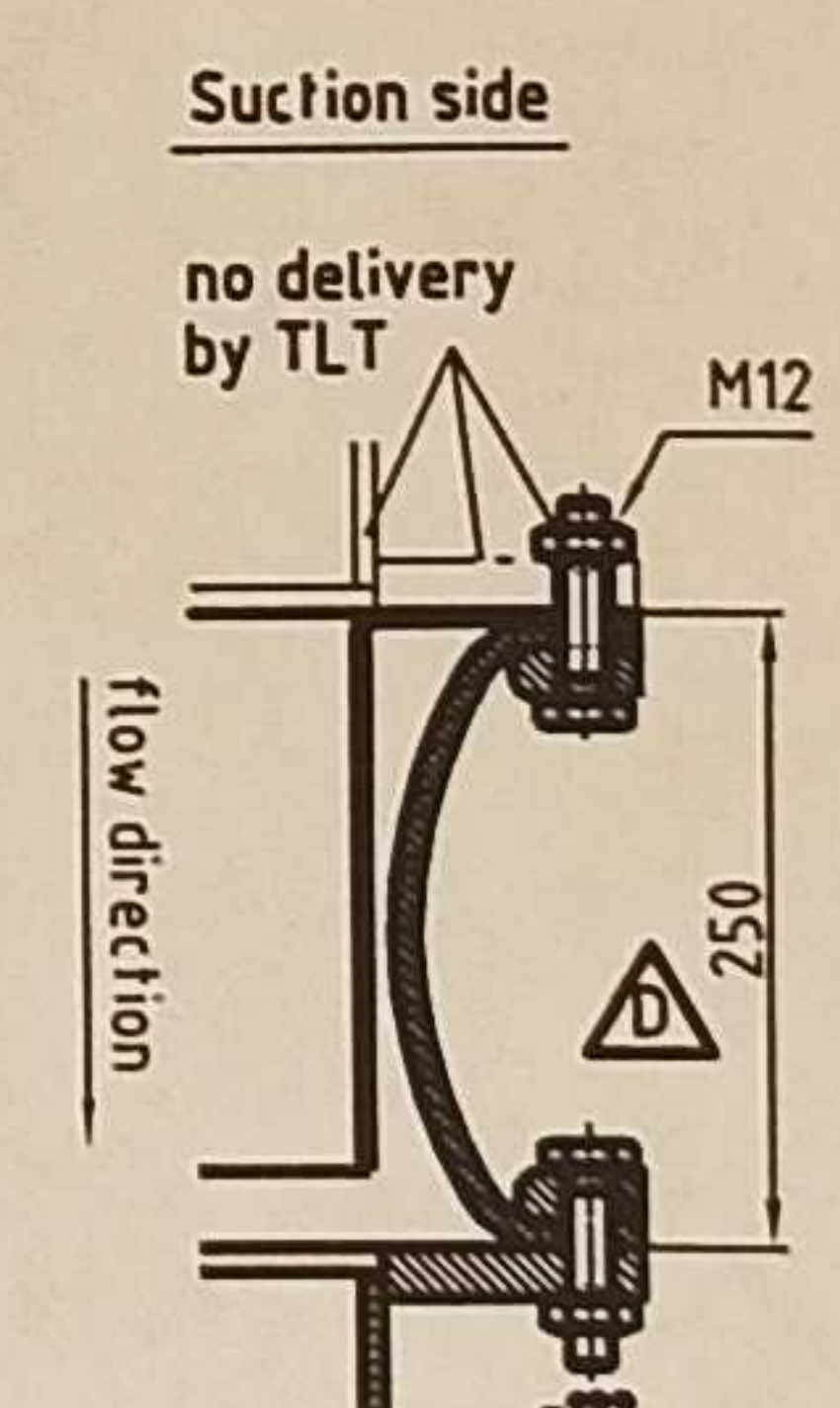
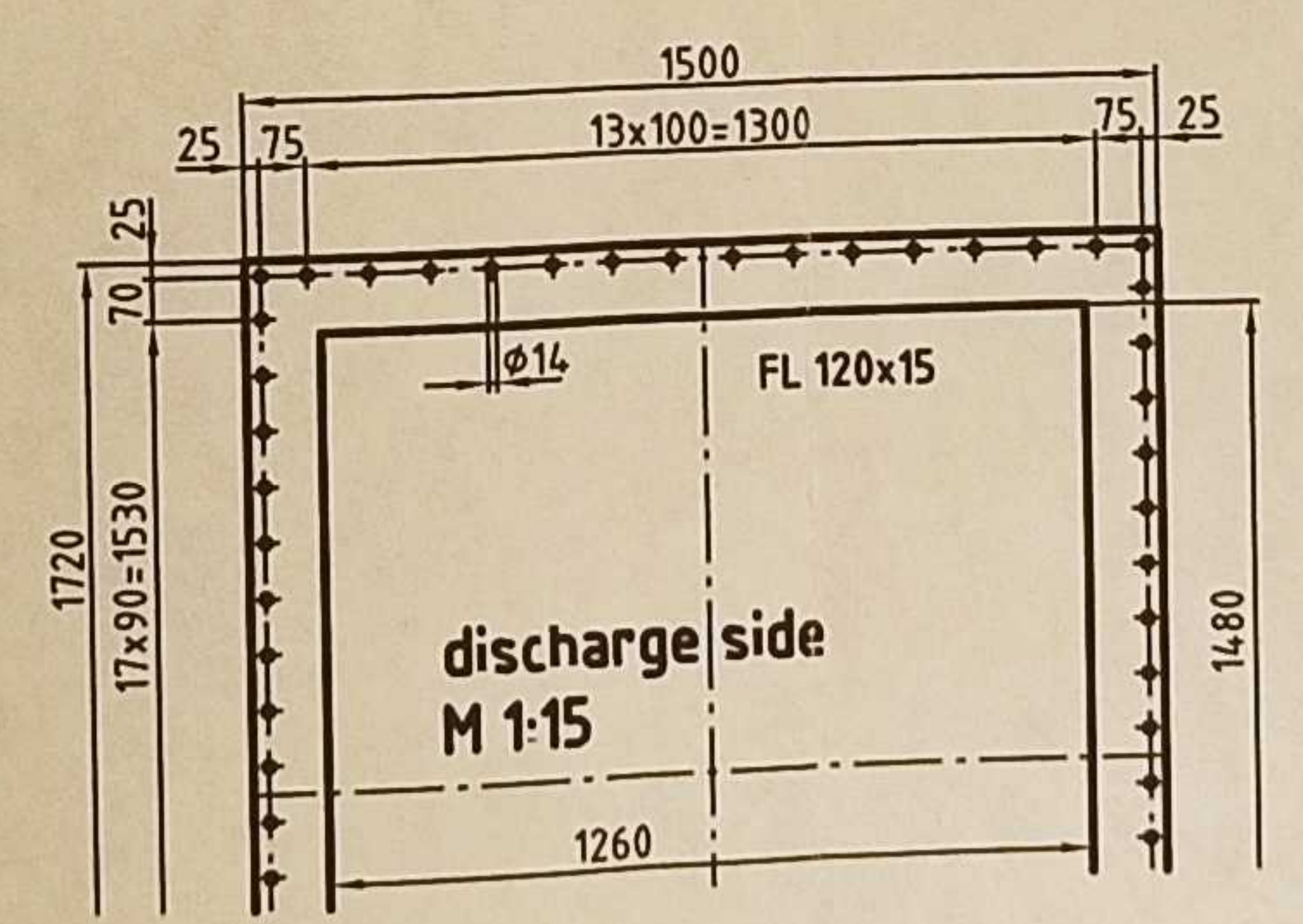
Foundation area	Fan in operation				
	X	Y	Z	Wz	Wy
B1	±2	±2	±8		
B2	±2	±2	±8		
B3	±8	±8	±22		
B4	±8	±8	±22		
B5	±15	±15	±22		
B6					

Foundation area	Fan in operation				
	X	Y	Z	Wz	Wy
B1			15	±4	±2
B2	2		22	±15	±8
B3			40		
B4			15		
B5			50	±50	
B6					

The following should be observed when the foundation is designed:

The different natural frequencies of the foundation should be outside the following frequencies taking into consideration the machines:

from $f = 11,55 \text{ Hz}$ to $f = 21,45 \text{ Hz}$
 $f_0 = 16,5 \text{ Hz}$



Data of fan

Motor

Weights

v	83.3	m/sec
t	95	deg C
i_m	150	deg C
Δp_t	6383	Pa
n_s	990	rpm
$n_{s,m}$	1000	rpm
Q	632	kW
$Q_{s,m}$	---	kW
$j=0.25 \times GD^2$	940	kgm ²

(referred to motor speed n_s)

P ₂	727	4W
	990	720

retaining parts	2190	kg
housing	3940	kg
suction box	1700	kg
bearing support	4100	kg
drive engine support		kg
expansion joint	450	kg
throttle damper	1600	kg
sound insulation	---	kg
drive engine	7600	kg
	21580	kg

Attention

The indicated weights do not include additional loads for the calculation of foundation. These additional loads must be calculated by the manufacturer of the foundation, considering the fan speed and if necessary the temperature of the medium handled. The fans must not be charged by the ducts. Therefore the suction and discharge ducts are to be connected by expansion joints.

Tolerierung Tolerated ISO 8015	Allgemetoleranzen für Maße ohne Toleranzangaben General tolerances: Tolerances for dimensions without individual tolerance indications ISO 2768-mk/ ISO 9013-1A/ EN ISO 13920-AE/ DIN 2310-1K/ DIN 6930-m/ DIN 1683-GTB18/ DIN 1684-GTA17/ DIN 1685-GTB17/ DIN 1686-GTB17
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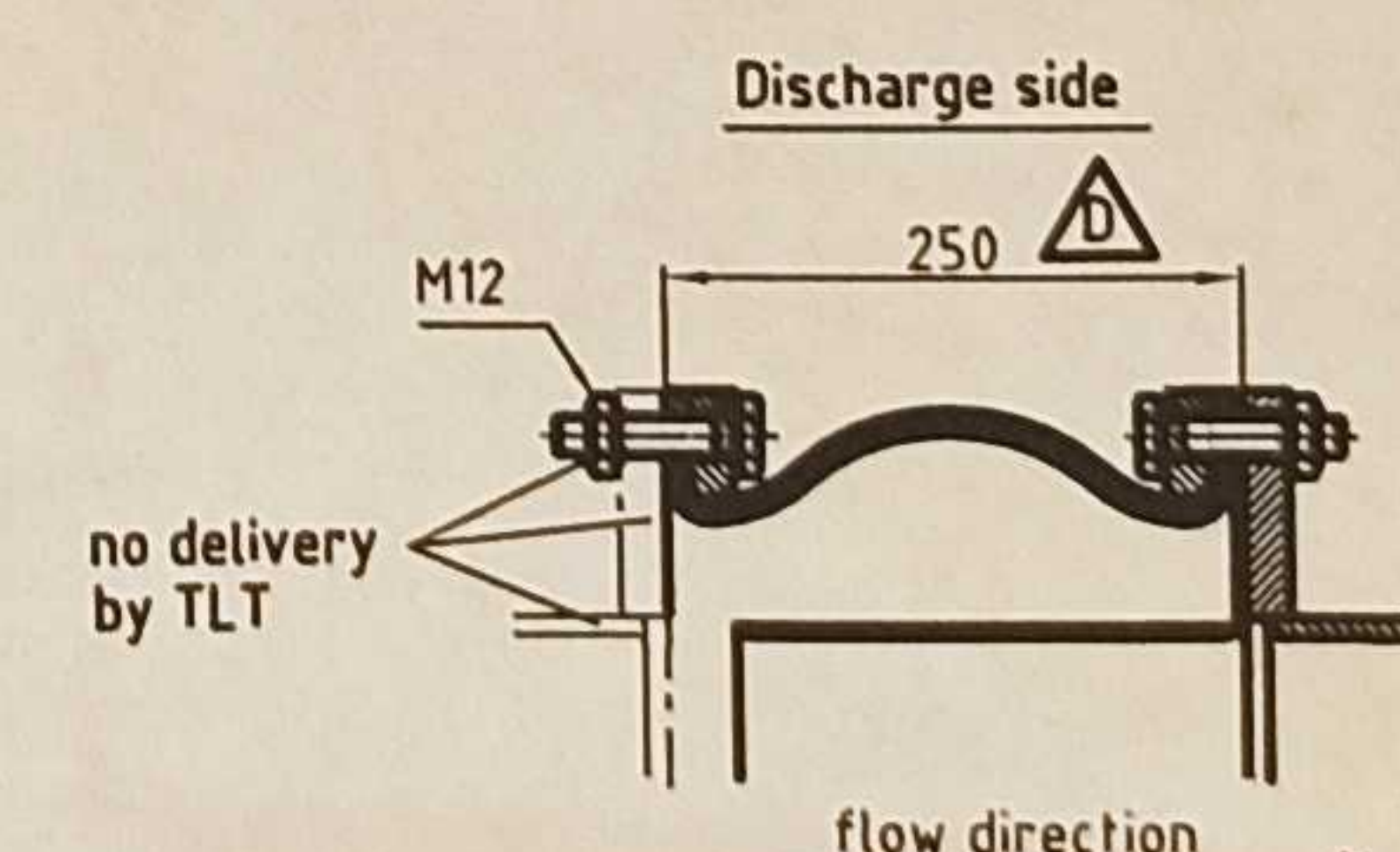
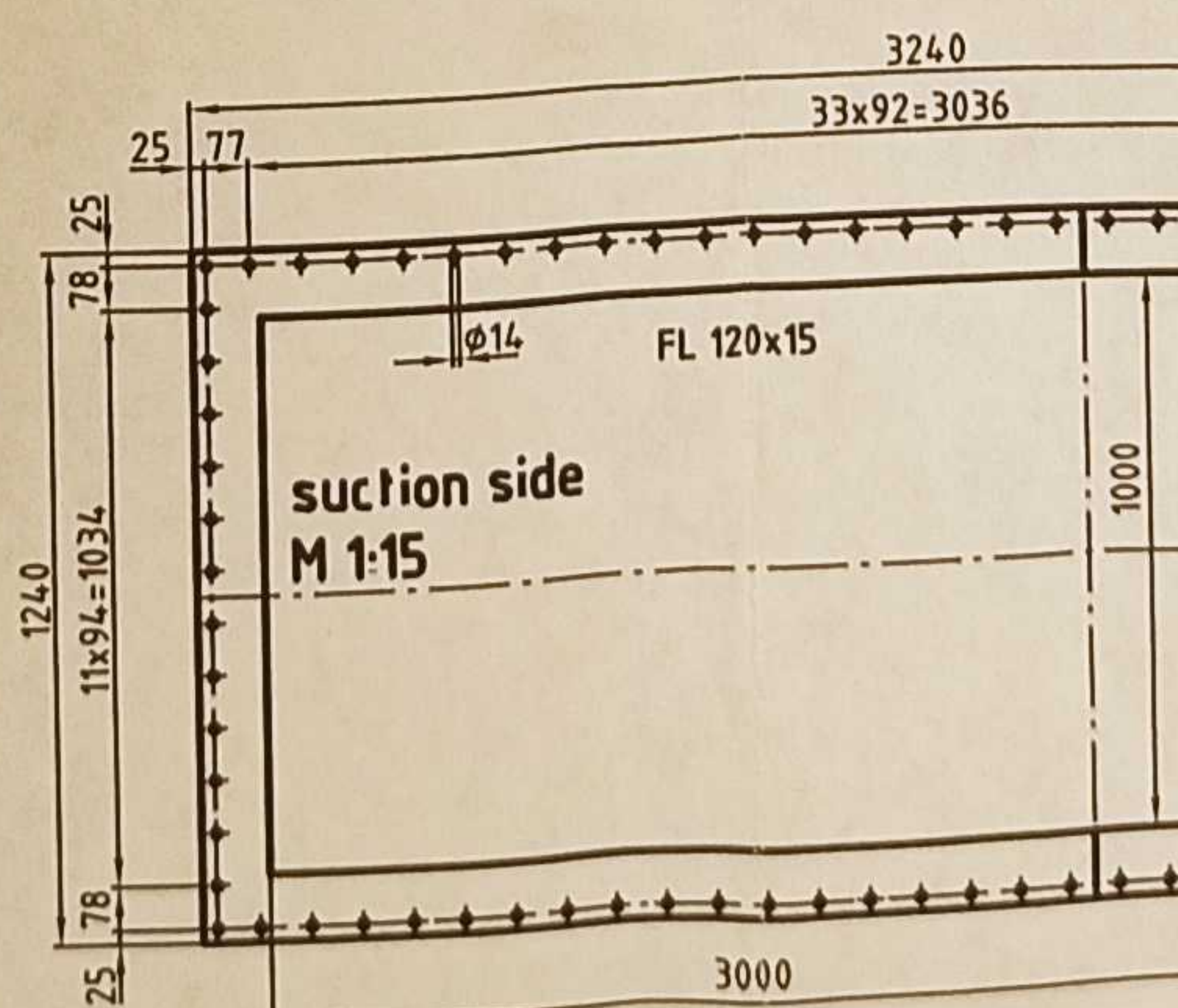
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PROJEKTIONSMETHODE First angle projection		Prepared 27.06.05	Checked 30.06.05	Release 30.06.05	 TL-Turbo GmbH Am Weinberg 68 D-36251 Bad Hersfeld
	URSPRUNG Drawing	Name Storm	Name Sailor	Revision 2	

AAT Pos. 160-21		ABTEILUNG <i>Department</i>	
General Arrangement Drawing		TLT - GB I	
Scale		Date <i>Date</i>	
1:25			

FZS	Cement Mill Fan Type: 17875 B / 1314	Customer Name	
Made in USA			
AUFTRAG-NR. / Order No.	KENNWORT / Code	BAUGR.	F ZEICHNUNGS-IDENT-NR. Drawing-No.
			16000317
			P A

71260-5	Polysius f. IRSAB		1 H6002317	0
13	14	15	16	



				
			axial mm	lateral mm
expansion joint (rated extension)	suction side	+10	±10	
	discharge side	-37		
fan (extension in direction of expansion joint)	suction side	+10	±13	
	discharge side	-29		
duct (remaining extension possibility of duct in direction of expansion joint)	suction side	10	±5	
	discharge side	5	±10	
	suction side	27	±5	
	discharge side	24	±3	

