CEGELEC MOTEURS
MOTEURS ALSTHOM

PROCES VERBAL D'ESSAI DE BRUIT DE MACHINES TOURNANTES
Noise test report rotating machine

FNQXR 9450

CLIENT/Customer LS . SPA No Cde CEGELEC.M/CEGELEC.M Order Nr 014 113

TYPE MOTEUR/Motor Type N3PX 450 KG. No MACHINE/Serial number 321

MOYENNE QUADRATIQUE Quadratic average value				MOYENNE QUADRATIQUE Quadratic average value			
MESURE Measured		GARANTIE Guaranteed		MESURE Measured		GARANTIE Guaranteed	
Pression Pressure	Puissance Power	Pression Pressure (1)	Puissance Power (1)	Pression Pressure	Puissance Power	Pression Pressure (1)	Puissance Power (1)
77,3							

NIVEAUX DE PRESSION ACOUSTIQUE PONDERE AU DESSUS DE 2.10 -5 Pa.MESURE SUR LE CONTOUR PRESCRIT. UNITE : dB. A. (1)
average level of acoustic pressure upper than 2.10-5 Pa.mesuared on the required circuit unity : db. A. (1)

MESURES dB. A. (1)	1	2	3	4	5	6	7	8	9	10	11
	78,6	76,2	76,5	78,5	75,7						

CALCUL A PARTIR DES RESULTATS EN BANDES D'OCTAVES
Calculation from octave bands results

NIVEAU DE PRESSION ACOUSTIQUE EN BANDES D'OCTAVES OU BANDES DE 1/3 OCTAVE
Acoustic pressure levels in octave band or 1/3 octave band
Unité Unity : dB

OCTAVE (1)	1/3 D'OCTAVE (1)	1	2	3	4	5	6	7	8	9	10	11
63	50 63 80											
125	100 125 160											
250	200 250 315											
500	400 500 630											
1000	800 1000 1250											
2000	1600 2000 2500											
4000	3150 4000 5000											
	6300											

OBSERVATIONS

Réception

	CLIENT/Customer	Etabli par - Established By	Approuvé par/Approved
NOM/Name	Pedrini	BERTRAND. CL	CEGELEC MOTEURS
DATE	CEGELEC MOTEURS	21 mai 1992	Le Chef de plate-forme J.-L. GAZIN
VISA/Signed	Certifié Conforme à l'Assurance Qualité		

CEGELEC MOTEURS
MOTEURS ALSTHOM

Essai de Survitesse

FNQXR: 9450 | 7/7

CLIENT/Customer C$ SPA No Cde CEGELEC.M/CEGELEC.M Order Nr 014113

TYPE MOTEUR/Motor Type N3PX 450 K6. No MACHINE/Serial number 921

Temperature Paliers Pendant essai de survitesse à 2314 Tr/mn

Temps	T° Palier CA	T° Palier COA
15'	42,1	47
30'	47,3	49
45'	51,9	48,2
60'	55,8	47,2

Vibrations à 2314 Tr/mn après 1H de survitesse.

Machine accouplée à une machine tournant continue.

mm/s 1/2 laserte	CA	COA
V	1,1	0,4
H	0,8	0,7
Ax	1,6	0,8

Certifié conforme à l'original

CEGELEC MOTEURS
Assurance Qualité

Réception

CLIENT/Customer	Etabli par-Established by	Approuvé par-Approved by
NOM/Name	BERTRAND. cL	CEGELEC MOTEURS
DATE	21 mai 1992	Le Chef de plate-forme - essa J.-L. GAZIN
VISA/Signed		

CEGELEC MOTEURS — MOTEURS ALSTHOM

RAPPORT D'ESSAIS MACHINE ASYNCHRONE
TEST REPORT ASYNCHRONOUS MACHINE

FNQXR: 9448

CLIENT /Customer : LP SpA — CdeN°/Order N°: 014113-921 — SERVICE/Duty: S1

TYPE : N3PX 450 K6 — PUIS/Power: 1160 KW — COS /Power factor: 0,8

VITESSE/Speed : 1010 tr/mn — ECHAUFFt CLASSE/Temp. Rise cl.: ΔT 80°K

6000 V — 131,3 A — COUPLAGE/Coupling: Δ — PHASE/Phas.: 3 — FREQ: 50

RESISTANCES		TENSION LU Read Voltage K =	COURANT LU Read Current K =	RESISTANCES T 25,6 °C
COUPLAGE/Coupling				
STATOR BORNES Terminals	UV			0,543
	VW			0,542
	WU			0,542
ROTOR BAGUES Rings	1.2			
	2.3			
	3.1			

RAPPORT DE TRANSFORMATION/Ratio

STATOR _____ V — ROTOR BAGUES Rings 1.2 _____ V; 2.3 _____ V; 3.1 _____ V

R = U ROTOR / U STATOR = _____

SONDES/Probes	STATOR RESISTANCE	°C
U1		25,5
V1		25,4
W1		25,7
U2		
V2		
W2		
PALIER Bearings		
CA AS 1		24,2
CA AS 2		
COA EAS 1		23,8
COA EAS 2		

ACCESSOIRES DIVERS / Miscellaneous
RESISTANCE DE RECHAUFFAGE / Heating resistance
R = 50,1 Ω — 966 W sous 8,80 mono

DESIGNATION	NOMBRE number
MANOMETRE/Manometer	
THERMOMETRE/Thermometer	
PRESSOSTAT/Pressostat	
DEBIMETRE/Flow-meter	
CONTROLEUR-VIBRATION/Vibr.probe	
DYNAMO-TACHY/Tachogenerator	1

type REO 444R 1 60V/1000 tpm n° 3276169

RESULTATS CONFORMES A LA SPECIFICATION
Results according to specification FNQ
41015 41017 41035 41020 42020 42021

ESSAI A VIDE/No load test — T° 42,2

TENSION K / K Voltage							
TENSION VRAIE / Real Voltage	6680	6000	5400	4420	3400	2410	1510
COURANT K / K Current							
COURANT CALCULE / Measured Current	55,2	41	33,4	25,4	19,1	13,5	8,5
d1	190	127,7	94.	59,3	34,8	18,2	7,8
d2 —	174,8	116,7	85,1	52,8	29,9	14,3	4,9
d1 + d2 K							
PUISSANCE ABSORBEE / Consumed Power	15,2	11	8,9	6,5	4,9	3,9	2,9
COS PHI/Power Factor I							
PERTES JOULE / Joule losses							
PERTES MAGN.MECA / Magnet.Mecha.losses							

ESSAI en Ct Ct / Short Circuit test — Bras de levier / Lever arm _____ mm T°

TENSION K / K Voltage			
TENSION VRAIE / Real Voltage	1370	660	440
COURANT K / K Current			
COURANT CALCULE / Measured current	132,3	62,6	41,7
d1	116,0	26,6	11,8
d2 —	63,6	15,1	6,9
d1 + d2 K			
PUISS.ABSORBEE / Consumed Power	52,4	11,5	14,9
COS φ /Power factor			
FORGE Kg/Stress Kg			

ID/IN MESURE Measured — GARANTIE Warranted — CD/CN MESURE Measured — GARANTIE Warranted
SC/FLC — ST/FLT

SURVITESSE DUREE / Overspeed time 60 mn — POURCENTAGE / Percentage ___ % — Tr/mn Rpm 2314

SENS DE ROTATION / Rotation direction — VUE COTE ACCOUPLEMENT / from coupling side — POUR/for U-V-W

VENTILATEUR-ORIENTE ~~RADIAL~~ / Radial/orientated fan — VUE COTE ACCOUPLEMENT / from coupling side

CENTRAGE MAGNETIQUE / Magnetic center _____ mm — COTE A FRAPPER / dimension for marking _____

EQUILIBRAGE / Balancing — mm/s — ~~avec MANCHON~~ ~~sans~~ avec 1/2 clavette / with Coupling without / with 1/2 key

	COA EAS	CA AS
AXIAL	0,3	0,7
VERTICAL	0,2	0,3
HORIZONTAL	0,2	0,3

TEMPERATURES APRES ESSAIS / After test de 1 h	TEMP. °C	ECHAUF Temp. Rise °C
AMBIANTE / Ambient. Temp.	26°	
BOBINAGE STATOR / Stator winding	42,2	
CARCASSE / Frame		
BOBINAGE ROTOR / Rotor winding		
BAGUES / Rings		
PALIERS / Bearings COA	39,3	
PALIERS / Bearings CA AS	31,1	

PALIERS / Bearings	C.A AS	C.O.A EAS
PRESSION HUILE / Oil pressure		
DEBIT HUILE / Oil Flow		
Ø DIAPHRAGME / Ø Diaphragm		
QUANTITE HUILE / Oil Quantity		

RIGIDITE DIELECTRIQUE/dielectric withstand

STATOR/MASSE — Stator/Ground : 13 KV 1 min
ENTRE PHASES — Between phases : _____ KV _____ min
ROTOR/MASSE — Rotor/Ground : _____ KV _____ min

RESISTANCE D'ISOLEMENT/Insulating resistance

STATOR/MASSE — Stator/Ground : 10000 MΩ 2500 V.
ENTRE PHASES — Between phases : _____ MΩ _____ V.
ROTOR MASSE — Rotor/Ground : _____ MΩ _____ V.

SONDES STATOR — Stator probes > 1000 MΩ 500 V.
SONDES PALIER — Bearing probes > 1000 MΩ 500 V.
RESIST. RECHAUF. — Heating résist. > 1000 MΩ 500 V.

Réception

CLIENT/Customer	Etabli par-Established by	Approuvé par-Approved by
NOM/Name	BERTRAND.CL	CEGELEC MOTEURS
DATE	21 mai 1992	Le Chef de plate-forme - es J.L. GAZIN
VISA/Signed — Certifié conforme à l'original — Assurance Qualité CEGELEC MOTEURS		

CEGELEC MOTEURS
MOTEURS ALSTHOM

Essai de survitesse

FNQXR: 9448 — 1/1

CLIENT/Customer LS-SPA — No Cde CEGELEC.M/CEGELEC.M Order Nr 014112

TYPE MOTEUR/Motor Type N3PXC400SG — No MACHINE/Serial number 991

Temperature Paliers Pendant essai de survitesse à 3024 Tr/mn

Temps	T° Palier CA	T° Palier COA
-14H20	34,5	35,2
-14H30	43	42,3
-14H40	52	43
-14H50	56,5	42,3
-15H00	56,8	42
-15H10	56,8	41,2
-15H20	56,7	40,8

Vibrations à 3024 Tr/mn après 1H de survitesse accouplée à une machine courant continu

mm/s 1/2 flasque	CA	COA
V	0,27	0,10
H	0,16	0,16
AX	0,18	0,30

Ambiante - 25°
Pendant survitesse

Certifié conforme à l'original

CEGELEC MOTEURS
Assurance Qualité

Réception

CLIENT/Customer	Etabli par-Established by	Approuvé par-Approved by
NOM/Name Pestoni	LEROND	CEGELEC MOTEURS
DATE	21/05/92	Le Chef de plate-forme essais J.L. GAZIN
VISA/Signed		

CEGELEC
MOTEURS
MOTEURS ALSTHOM

PROCES VERBAL D'ESSAI DE BRUIT DE MACHINES TOURNANTES
Noise test report rotating machine

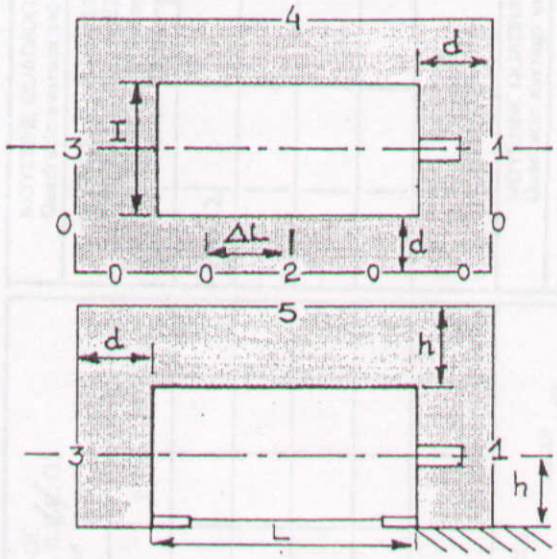
FNQXR 9449

CLIENT/Customer LS Spa N° Cde CEGELEC M/CEGELEC M Order Nr 01h112

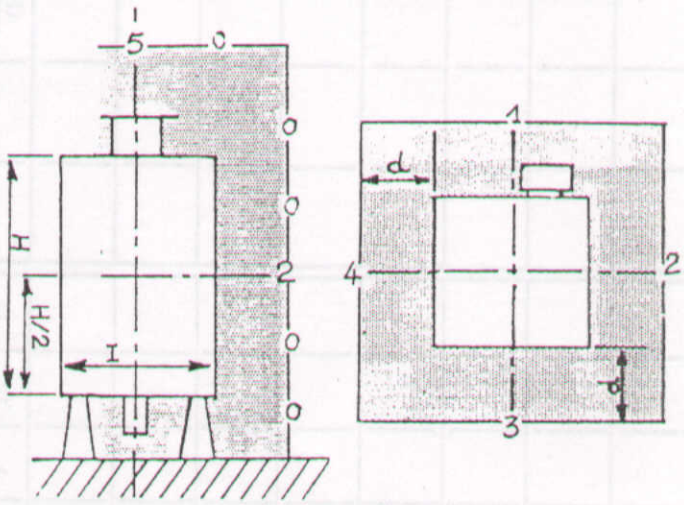
TYPE MOTEUR/Motor Type N3 FXC hor 56 N° MACHINE/Serial number 921

IMPLANTATION DES POINTS DE MESURE/Measure points location

MACHINE AXE HORIZONTAL/Machine horizontal axis(1)



MACHINE AXE VERTICAL/Machine vertical axis



1,2,3,4,5: POINTS DE MESURE PRINCIPAUX / Main measure points
0: POINTS DE MESURE A 1m DES POINTS PRINCIPAUX / Measure points at 1m from the main points

CALCUL DE LA SURFACE DE MESURE / Calculation of measuring surface

d= 1 m	ΔL = 1 m	h= 0,100 m	L= 1,44 m	I= 0,82 m	H= m
Machine axe horizontal / Machine horizontal axis			a=L/2+d=	b=I/2+d=	c=b+h=
Machine axe vertical / Machine vertical axis			a=I/2+d=	b=I/2+d=	c=H+d=
S = π a(b+c) = 17,50 m²			suivant ISO R 1680 / according to ISO R 1680		

CONVERSION PRESSION EN PUISSANCE ACOUSTIQUE — SUIVANT ISO R 1680
Conversion of pressure in acoustic power — According to ISO R 1680
10log(S/SO) avec SO=1m² soit : dB
10log(S/SO) with SO=1m² that is to say : 12,43 dB

APPAREILS UTILISES / Apparatus used for the measurement :

DESIGNATION / Designation	MARQUE / Mark	TYPE / Type (1)
SONOMETRE / sonometer	BRUEL & KJAER	2203 2230 2215
FILTRE EN BANDES DE 1/3 D'OCTAVE/Filter in 1/3 octave band	" " "	1616
FILTRE EN BANDES D'OCTAVE/Filter in octave band	" " "	1613 2215
ENREGISTREUR / Recorder	" " "	2306

(1) Rayer les mentions inutiles / Scratch the useless mentions

RESULTATS CONFORMES A LA SPECIFICATION / results according to specification : IQ 41031

CLIENT / Customer	CEGELEC Moteurs	Etabli par/Established by	Approuvé par/Approved by
NOM / Name EMIT	M./Mr.	LEROND	CEGELEC MOTEURS Le Chef de plateforme - essais J.C. GAZIN
DATE / Date	DATE/date	21/05/92	
SIGNATURE / Visa	SIGN./Visa	CEGELEC MOTEURS Assurance Qualité	

Réception

Certifié conforme à l'original

Date d'édition :

Remplace :

A00525000

Réception

CEGELEC MOTEURS — MOTEURS ALSTHOM

PROCES VERBAL D'ESSAI DE BRUIT DE MACHINES TOURNANTES
Noise test report rotating machine

FNQXR 9449 — 1/2

CLIENT/Customer LS Spa — No Cde CEGELEC.M/CEGELEC.M Order Nr 01h 112

TYPE MOTEUR/Motor Type AB PXC 160 — No MACHINE/Serial number 921

NIVEAUX DE PRESSION ACOUSTIQUE PONDERE AU DESSUS DE 2.10 -5 Pa.MESURE SUR LE CONTOUR PRESCRIT.UNITE : dB. A.B.C. (1)
average level of acoustic pressure upper than 2.10-5 Pa.mesuared on the required circuit unity : db. A.B.C. (1)

MESURES dB. A.B.C. (1)	1	2	3	4	5	6	7	8	9	10	11
	87,4	77,8	78,7	81	72,3						
CALCUL A PARTIR DES RESULTATS EN BANDES D'OCTAVES Calculation from octave bands results											

MOYENNE QUADRATIQUE Quadratic average value

MESURE Mesured		GARANTIE Guaranteed	
Pression Pressure	Puissance Power	Pression Pressure (1)	Puissance Power (1)
78,22			

NIVEAU DE PRESSION ACOUSTIQUE EN BANDES D'OCTAVES OU BANDES DE 1/3 OCTAVE
Acoustic pressure levels in octave band or 1/3 octave band — Unité Unity : dB

OCTAVE (1)	1/3 D'OCTAVE (1)	1	2	3	4	5	6	7	8	9	10	11
63	50											
	63											
	80											
125	100											
	125											
	160											
250	200											
	250											
	315											
500	400											
	500											
	630											
1000	800											
	1000											
	1250											
2000	1600											
	2000											
	2500											
4000	3150											
	4000											
	5000											
8000	6300											
	8000											
	10000											

MOYENNE QUADRATIQUE Quadratic average value

MESURE Mesured		GARANTIE Guaranteed	
Pression Pressure	Puissance Power	Pression Pressure (1)	Puissance Power (1)

OBSERVATIONS

Certifié conforme à l'original

CLIENT/Customer

Etabli par - Prepared by CEGELEC MOTEURS

Contrôlé et approuvé par/Approved By CEGELEC MOTEURS

NOM/Name EMIT LEROUX — CEGELEC MOTEURS

DATE 21/05/91 — Le Chef de Plateforme - e... — M. CUZAIN

VISA/Signed

CEGELEC
MOTEURS

TEST REPORT : ASYNCHRONOUS MOTOR

FNQXR 9445

DATE 05/21/92 ORDER No 014113 Sr No 00921

Client : LS SPA
Type : N3PX 450 K6

RATED CHARACTERISTICS

Power :	1160.0 kW	Voltage :	6000 Volts	Current :	131.3 Amps	Power factor :	0.85
Speed :	1010.0 rpm	Frequency :	50 Hz	Phase(s):	3	Connection :	WYE

Temperature rise class B at ambient temperature 40 oC Duty-type : CONTINUOUS

RESISTANCE MEASUREMENTS AT 25.6 DEGREE(S) C

Stator | U-V : 0.54300 Ohm(s)
Stator | V-W : 0.54200 Ohm(s)
Stator | W-U : 0.54200 Ohm(s)

STATOR TEMPERATURE DETECTORS , WHEN COLD

Ui : 25.5 oC Vi : 25.4 oC Wi : 25.7 oC

TEMPERATURES AFTER NO-LOAD TEST AT 1 h 0 mn

Ambient :	26.0 oC	Frame :	oC	Stator winding:	42.2 oC	Rotor winding:	oC
Rings :	oC	Bearing C.S:	39.3 oC	Bearing O.C.S :	31.1 oC	Thrust :	oC

DIELECTRIC WITHSTAND

Stator phases-earth : 13000 V Time : 1 mn

INSULATION RESISTANCES

Stator phases-earth	: >	10000 Mohms under 2500
Stator detec./earth	: >	1000 Mohms under 500
Heating resistances	: >	1000 Mohms under 500

OVERSPEED : 2314 rpm Time : 60 mn

ROTATION DIRECTION AND SEQUENCE CONTROL

Seen from coupling side (C.S) : CLOCKWISE

Machine terminals	: U-V-W
Corresponding network terminals	: U-V-W
Cooling fan	: ORIENTED

VIBRATIONS MEASUREMENTS mm/s

Horizontal C.S :	0.30	Horizontal O.C.S :	0.20	Axial C.S :	0.70
Vertical C.S :	0.30	Vertical O.C.S :	0.20	Axial O.C.S :	0.30

Réception

CEGELEC
MOTEURS
Le Chef de plate-forme - essais
J.-L. GAZIN

Certifié conforme à l'original
CEGELEC
MOTEURS
Assurance Qualité

TEST REPORT: ASYNCHRONOUS MOTOR

FNQXR 9449

DATE 05/21/92 ORDER No 014113 Sr No 00921

Client : LS SPA
Type : N3PX 450 K6

INPUT DATA

SQUIRREL-CAGE Rotor . WYE - Connected stator

Resistance measurements by DIRECT method
Open-circuit characteristic with 7 points
Short-circuit characteristic with 3 points

Rated voltage between two phases 6000 Volts
Rated current ..... 131.3 Amps
Rated power ..... 1160.0 kW
Rated power-factor ... 0.85
Rated efficiency ..... 95.80 %
Rated speed ..... 1010.0 Rpm

Stator average resistance between two phases : 0.54200 Ohm at +25.6 degree(s) Celsius
Stator winding average temperature during the open-circuit test : +42.2 degree(s) Celsius
Stator winding average temperature during the short-circuit test : +41.8 degree(s) Celsius

Certifié conforme à l'original.

CEGELEC
MOTEURS
Assurance Qualité

Date of tests MAY 21 92 RESPONSABLE OF MEASUREMENTS M. BERTRAND

TEST REPORT: ASYNCHRONOUS MOTOR

FNQXR 9449

DATE 05/21/92 ORDER No 014113 Sr No 00921

Client : LS SPA
Type : N3PX 450 K6

VALUES READ ON INDICATORS DURING OPEN-CIRCUIT TEST

Stator voltage during the open-circuit test (div/k)
151.0 /10 241.0 /10 340.0 /10 442.0 /10 540.0 /10 600.0 /10 668.0 /10

Stator current during the open-circuit test (div/k)
8.5 /1 13.5 /1 19.1 /1 25.4 /1 33.4 /1 41.0 /1 55.2 /1

Input power during the open-circuit test (div1,div2,sigma/k)
+7.8 , -4.9 , +2.9 /1000 +18.2 , -14.3 , +3.9 /1000 +34.8 , -29.9 , +4.9 /1000
+59.3 , -52.8 , +6.5 /1000 +94.0 , -85.1 , +8.9 /1000 +127.7 , -116.7 , +11.0 /1000
+190.0 , -174.8 , +15.2 /1000

VALUES READ ON INDICATORS DURING SHORT-CIRCUIT TEST

Stator voltage during the short-circuit test (div/k)
440.0 /1 660.0 /1 137.0 /10

Stator current during the short-circuit test (div/k)
41.7 /1 62.6 /1 132.3 /1

Input power during the short-circuit test (div1,div2,sigma/k)
+11.8 , -6.9 , +4.9 /1000 +26.6 , -15.1 , +11.5 /1000 +116.0 , -63.6 , +52.4 /1000

Certifié conforme à l'original.

CEGELEC
MOTEURS
Assurance Qualité

TEST REPORT: ASYNCHRONOUS MOTOR

FNQXR 9449

DATE 05/21/92 ORDER No 014113 Sr No 00921

Client : LS SPA
Type : N3PX 450 K6

RESISTANCE MEASUREMENTS AT 25.6 degree(s) C

STATOR AVERAGE RESISTANCE PHASE TO PHASE = 0.54200 Ohm

NO-LOAD CHARACTERISTIC

Stator winding average temperature 42.2 degree(s) C

Point Number	1	2	3	4	5	6	7
Stator voltage (Volts)	1510.0	2410.0	3400.0	4420.0	5400.0	6000.0	6680.0
Stator current (Amps)	8.5	13.5	19.1	25.4	33.4	41.0	55.2
Power-factor	0.131	0.069	0.044	0.033	0.029	0.026	0.024
Magnetizing current (Amps)	8.43	13.47	19.08	25.39	33.39	40.99	55.18
Absorbed power (kW)	2.90	3.90	4.90	6.50	8.90	11.00	15.20
I2 R stator losses (kW)	0.06	0.16	0.32	0.56	0.96	1.45	2.64
Mechanical and core losses (kW)	2.84	3.74	4.58	5.94	7.94	9.55	12.56

INTERPOLATION AT RATED VOLTAGE 6000 Volts

MAGNETIZING CURRENT = 41.1 Amps

IRON LOSSES = 7.1 kW
MECHANICAL LOSSES = 2.6 kW
SUM = 9.6 kW

SHORT-CIRCUIT CHARACTERISTIC

Stator winding average temperature 41.8 degree(s) C

Point Number	1	2	3
Stator voltage (Volts)	440.0	660.0	1370.0
Stator current (Amps)	41.7	62.6	132.3
Power-factor	0.150	0.157	0.166
Absorbed power (kW)	4.90	11.50	52.40
I2 R stator losses (kW)	1.50	3.38	15.11

EXTRAPOLATION AT RATED VOLTAGE 6000 Volts

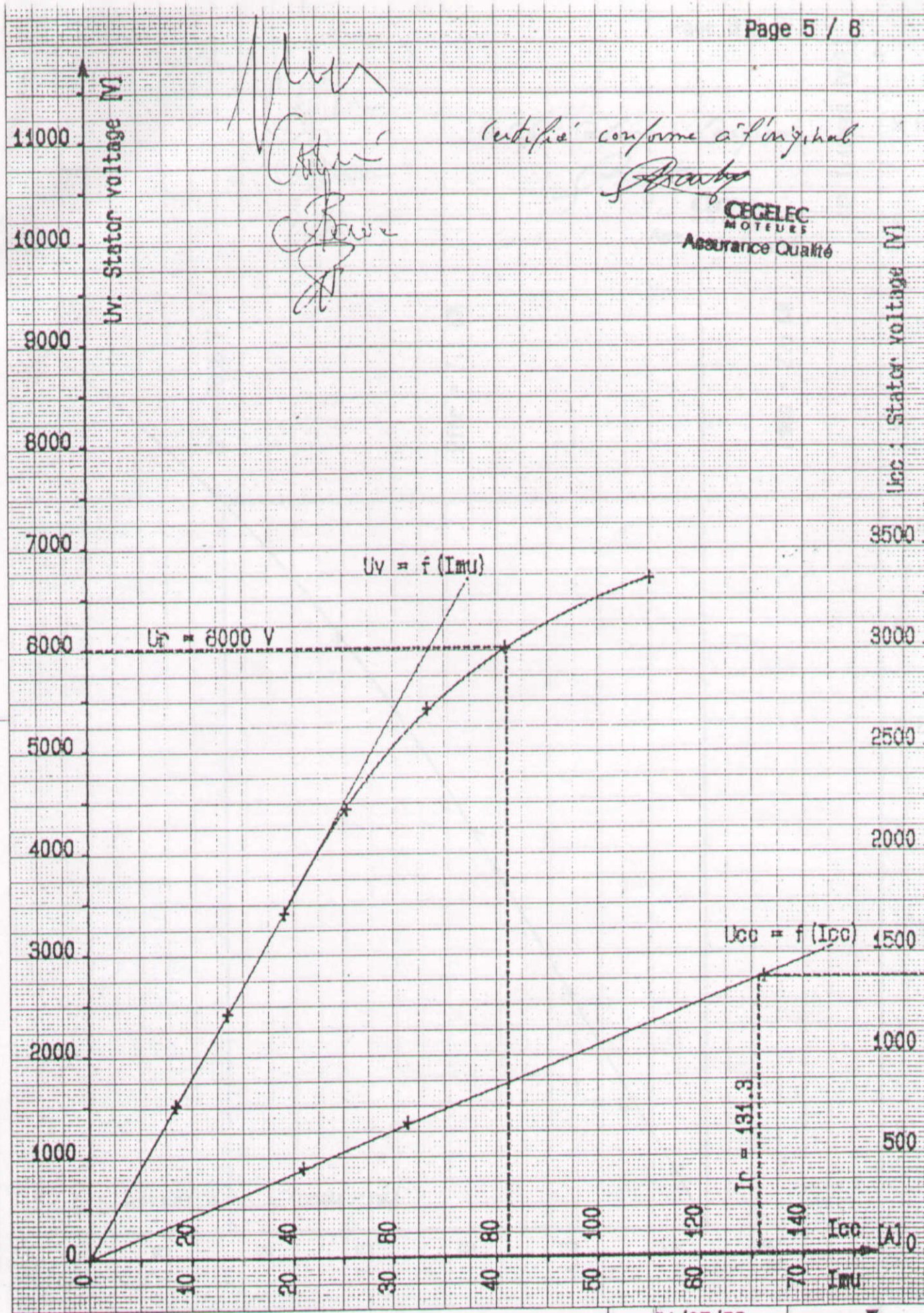
STARTING CURRENT = 577 Amps SC/FLC = 4.39

Certifié conforme à l'original

CEGELEC MOTEURS
Assurance Qualité

Certifié conforme à l'original

CEGELEC
MOTEURS
Assurance Qualité



Uv (V/mm) = 50
Imu (A/mm) = .5
Ucc (V/mm) = = 25
Icc (A/mm) = 1

OFF-LOAD AND SHORT-CIRCUIT CURVES

Modif.

Date 21/05/92

Visa

CEGELEC MOTEURS

Odr No 014113 - FN 00821-8

A 005 00300

Certifié Conforme à l'original

CEGELEC
MOTEURS
Assurance Qualité

Pmf = f (U2)

Un = 8000 V

Pfer = 7.1 KW

Pmec = 2.8 KW

U2 (x10**8 [V2])

Pmf: Mech. + core losses [KW]

12 | 10.5 | 9 | 7.5 | 6 | 4.5 | 3 | 1.5 | 0

5.5 | 5 | 4.5 | 4 | 3.5 | 3 | 2.5 | 2 | 1.5 | 1 | .5

Pmf (KW/mm) = .075U2 (V2/mm) - 025

NO-LOAD
LOSSES CURVE

Date
Visa 21/05/82

CEGELEC
MOTEURS

Odr No 014113 - FN 00921-6

Modif.

A 005 00300

TEST REPORT: ASYNCHRONOUS MOTOR

FNQXR 9447
Sr No 00921

DATE 05/21/92 ORDER No 014112

Client : LS SPA
Type : N3PXC 400 JG

VALUES READ ON INDICATORS DURING OPEN-CIRCUIT TEST

Stator voltage during the open-circuit test (div/k)
126.5 /10 244.0 /10 357.0 /10 456.5 /10 552.1 /10 602.5 /10 671.5 /10

Stator current during the open-circuit test (div/k)
5.0 /1 9.5 /1 13.9 /1 18.2 /1 23.5 /1 27.6 /1 36.7 /1

Input power during the open-circuit test (div1,div2,sigma/k)
+4.1 , -2.1 , +2.0 /1000 +13.0 , -10.1 , +2.9 /1000 +26.9 , -22.7 , +4.2 /1000
+44.3 , -38.5 , +5.7 /1000 +68.7 , -60.8 , +7.8 /1000 +87.7 , -78.3 , +9.4 /1000
+129.2 , -116.3 , +12.9 /1000

VALUES READ ON INDICATORS DURING SHORT-CIRCUIT TEST

Stator voltage during the short-circuit test (div/k)
734.0 /1 138.6 /10 259.5 /10

Stator current during the short-circuit test (div/k)
39.0 /1 73.6 /1 139.5 /1

Input power during the short-circuit test (div1,div2,sigma/k)
+18.0 , -10.2 , +7.8 /1000 +64.6 , -36.0 , +28.6 /1000 +231.0 , -126.0 , +105.0 /1000

Certifié conforme à l'original

CEGELEC
MOTEURS
Assurance Qualité

Date of report MAY-21-92 At 12 h 47 mn RESPONSABLE OF MEASUREMENTS : Mr LEROND

CEGELEC
MOTEURS

TEST REPORT: ASYNCHRONOUS MOTOR

FNQXR 9447

DATE 05/21/92 ORDER No 014112 Sr No 00921

Client : LS SPA
Type : N3PXC 400 JG

RESISTANCE MEASUREMENTS AT 24.5 degree(s) C

STATOR AVERAGE RESISTANCE PHASE TO PHASE = 0.99700 Ohm

NO-LOAD CHARACTERISTIC

Stator winding average temperature 34.0 degree(s) C

Point Number	1	2	3	4	5	6	7
Stator voltage (Volts)	1265.0	2440.0	3570.0	4565.0	5521.0	6025.0	6715.0
Stator current (Amps)	5.0	9.5	13.9	18.2	23.5	27.6	36.7
Power-factor	0.180	0.071	0.049	0.040	0.035	0.033	0.030
Magnetizing current (Amps)	4.92	9.48	13.88	18.19	23.49	27.59	36.68
Absorbed power (kW)	1.97	2.85	4.19	5.73	7.84	9.40	12.90
I2 R stator losses (kW)	0.04	0.14	0.30	0.51	0.86	1.18	2.09
Mechanical and core losses (kW)	1.93	2.71	3.89	5.22	6.98	8.22	10.81

INTERPOLATION AT RATED VOLTAGE 6000 Volts

MAGNETIZING CURRENT = 27.6 Amps

IRON LOSSES = 6.5 kW
MECHANICAL LOSSES = 1.7 kW
SUM = 8.2 kW

SHORT-CIRCUIT CHARACTERISTIC

Stator winding average temperature 36.0 degree(s) C

Point Number	1	2	3
Stator voltage (Volts)	734.0	1386.0	2595.0
Stator current (Amps)	39.0	73.6	139.5
Power-factor	0.158	0.162	0.167
Absorbed power (kW)	7.80	28.60	105.00
I2 R stator losses (kW)	2.38	8.46	30.40

EXTRAPOLATION AT RATED VOLTAGE 6000 Volts

STARTING CURRENT = 319 Amps SC/FLC = 4.36

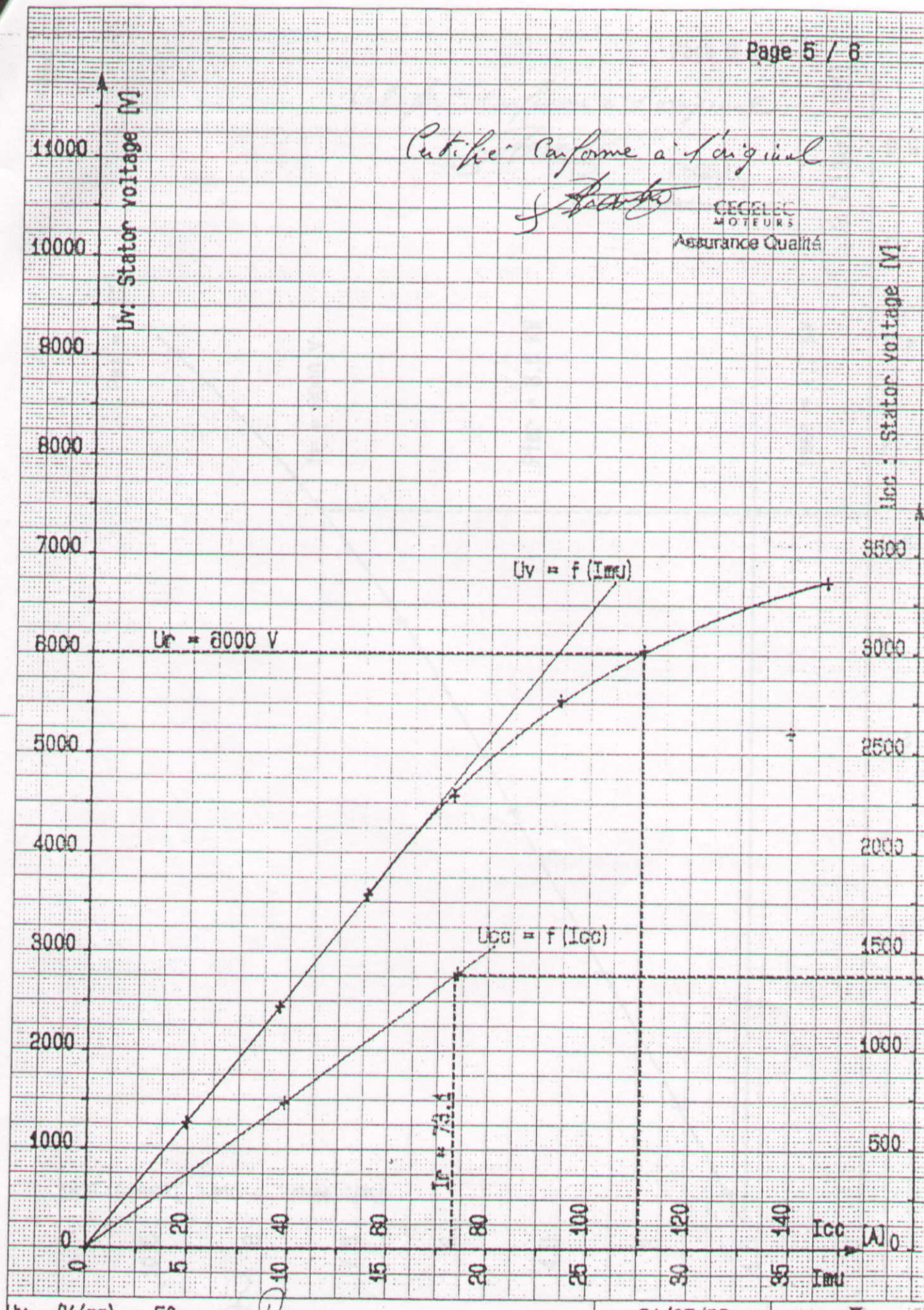
Certifié conforme à l'original

CEGELEC
MOTEURS
Assurance Qualité

Date of report MAY-21-92 At 12 h 47 mn RESPONSABLE OF MEASUREMENTS : Mr LEROND

Certifié Conforme à l'original

CEGELEC MOTEURS
Assurance Qualité



Uv (V/mm) = 50
Imu (A/mm) = .25
Ucc (V/mm) = 25
Icc (A/mm) = 1

OFF-LOAD AND SHORT-CIRCUIT CURVES

Date 21/05/92

Visa

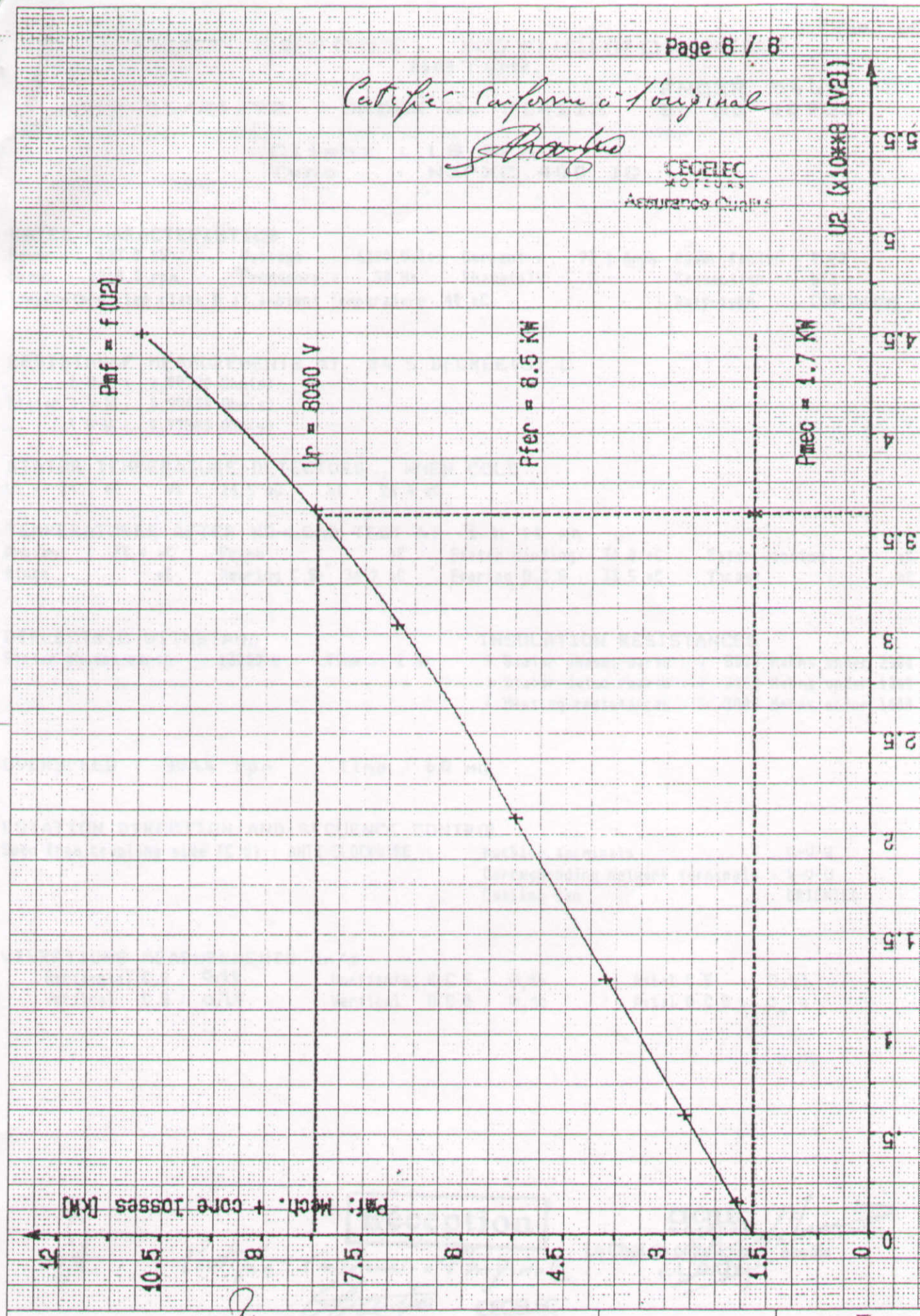
CEGELEC MOTEURS

Cdr No 014112 - FN 00921-8

Modif.

Certifié conforme à l'original

CEGELEC
MOTEURS
Assurance Qualité



Pmf (KW/mm) = .075U2 (V2/mm) = .025

NO-LOAD LOSSES CURVE

Date 21/05/92

Visa

CEGELEC MOTEURS

Cdr No 014112 - FN 00921-8

Modif.

CEGELEC MOTEURS
MOTEURS ALSTHOM

PROCES VERBAL D'ESSAI DE BRUIT DE MACHINES TOURNANTES
Noise test report rotating machine

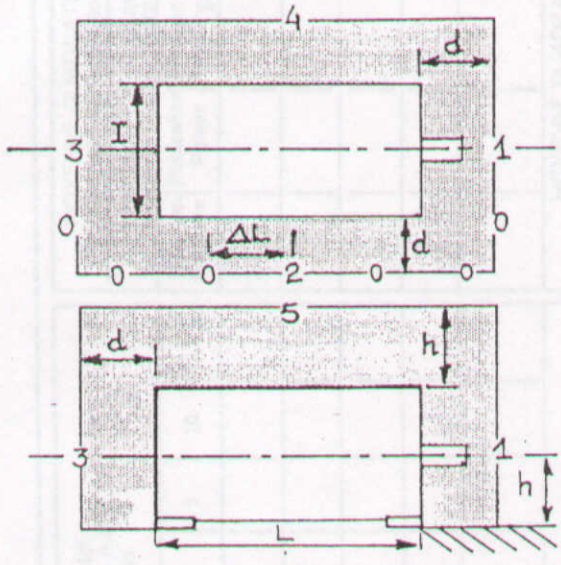
FNQXR 9450

CLIENT/Customer L&S SPA N° Cde CEGELEC M/CEGELEC M Order Nr 014113

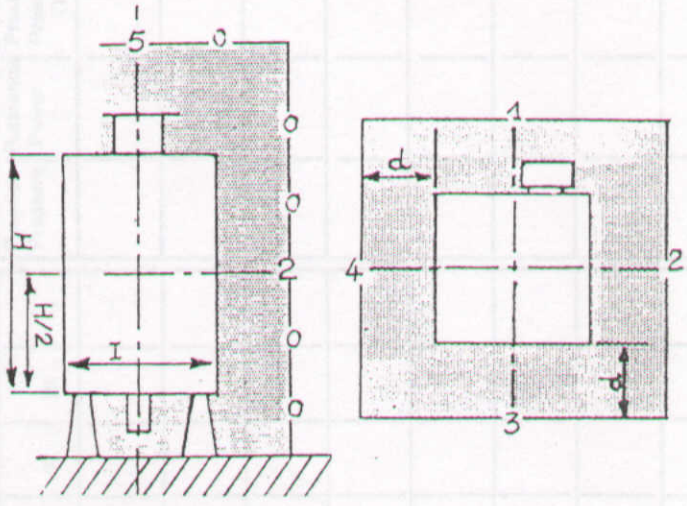
TYPE MOTEUR/Motor Type N3PX 450 K6. N° MACHINE/Serial number 921

IMPLANTATION DES POINTS DE MESURE/Measure points location

MACHINE AXE HORIZONTAL/Machine horizontal axis(1)



MACHINE AXE VERTICAL/Machine vertical axis



1,2,3,4,5: POINTS DE MESURE PRINCIPAUX / Main measure points
0: POINTS DE MESURE A 1m DES POINTS PRINCIPAUX / Measure points at 1m from the main points

CALCUL DE LA SURFACE DE MESURE / Calculation of measuring surface

d= 1 m	ΔL = 1 m	h= 0,45 m	L= 1,7 m	I= 0,325 m	H= m
Machine axe horizontal / Machine horizontal axis			a=L/2+d= 1,85	b=I/2+d= 1,4625	c=b+h= 1,9125
Machine axe vertical / Machine vertical axis			a=I/2+d=	b=I/2+d=	c=H+d=
S = π a(b+c) = 19,61 m²			suivant ISO R 1680 / according to ISO R 1680		

CONVERSION PRESSION EN PUISSANCE ACOUSTIQUE — SUIVANT ISO R 1680
Conversion of pressure in acoustic power — According to ISO R 1680
10log(S/SO) avec SO=1m² soit : 12,9 dB
10log(S/SO) with SO=1m² that is to say : dB

APPAREILS UTILISES / Apparatus used for the measurement :

DESIGNATION / Designation	MARQUE / Mark	TYPE / Type (1)
SONOMETRE / sonometer	BRUEL & KJAER	~~2203~~ 2230 ~~2215~~
FILTRE EN BANDES DE 1/3 D'OCTAVE/Filter in 1/3 octave band	" " "	1616
FILTRE EN BANDES D'OCTAVE/Filter in octave band	" " "	1613 2215
ENREGISTREUR / Recorder	" " "	2306

(1) Rayer les mentions inutiles / Scratch the useless mentions

RESULTATS CONFORMES A LA SPECIFICATION / results according to specification : IQ 41031			
CLIENT / Customer	CEGELEC Moteurs	Etabli par/Established by	Approuvé par/Approved by
NOM / Name Sadroni	M./Mr.	BERTRAND. CL	CEGELEC MOTEURS Le Chef de plate-forme - essais J.L. GAZIN
DATE / Date	DATE/date	21 mai 1992	
SIGNATURE / Visa	SIGN./Visa		

Réception

Certifié conforme à l'original
CEGELEC MOTEURS
Assurance Qualité

Date d'édition :

Remplace :

A00525000