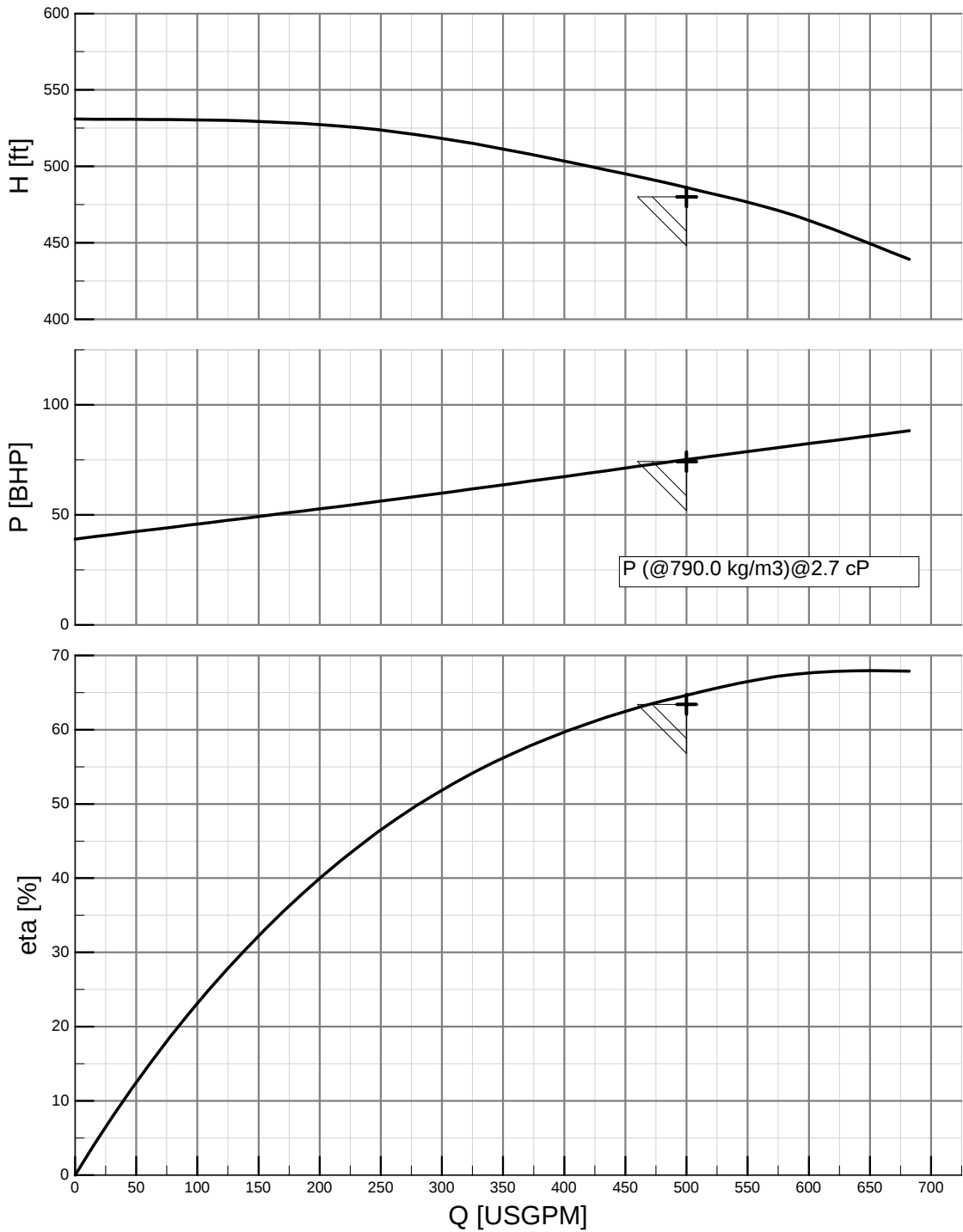


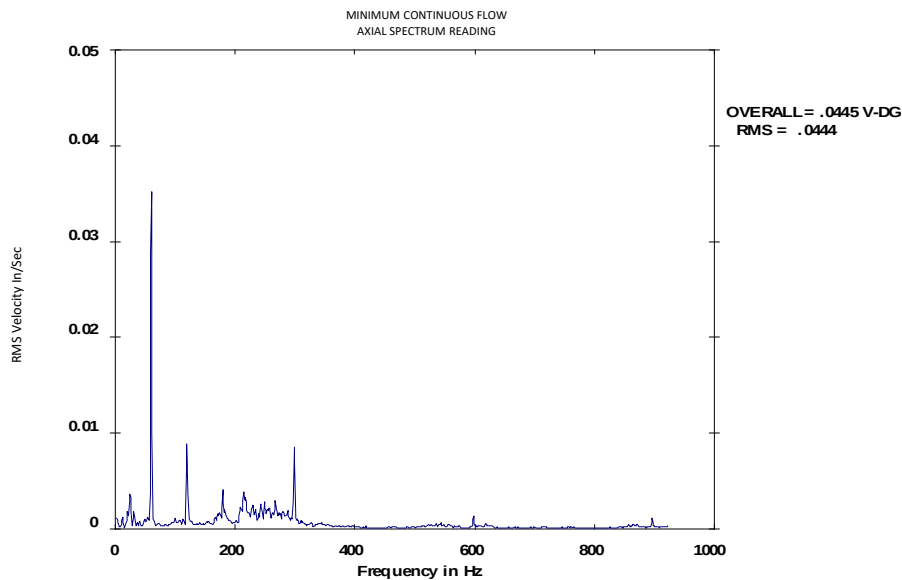
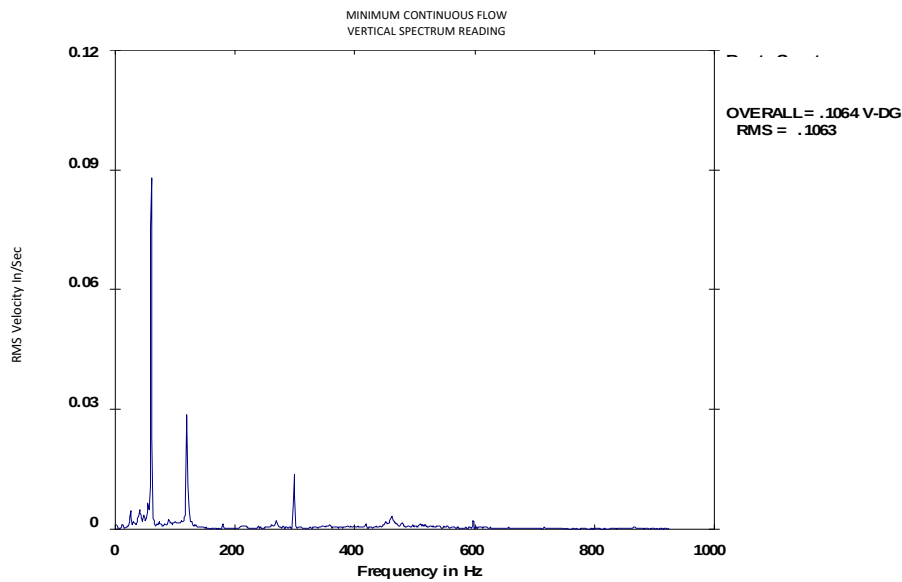
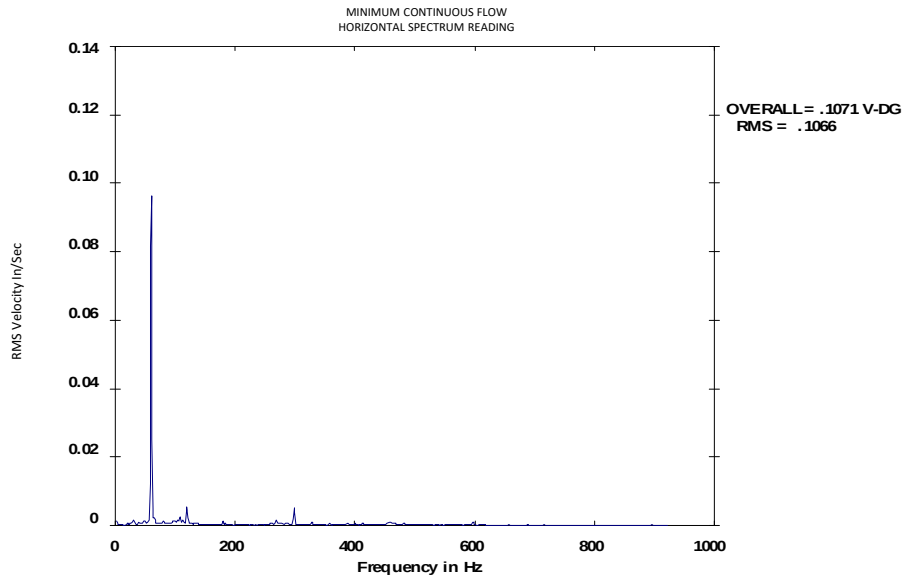
SULZER		Tipo: 3x4x13-1 OHH		No. de Orden: 100488873-0020-01	
Reporte de prueba 128/23		Type		Order No.	
Test Report No.		Item Cliente No.: 18-P-1812		No. de Serie: 656619	
		Client's Item No.		Sulzer Serial. No.:	
		Cliente/Destino: AIR PRODUCTS AND CHEMICALS		Curva de prueba: M-13603	
		Client/Destination		Test Curve:	
Datos de punto de operación Data at guarantee point		Drive / Motor: 1-ML-58		No / Nr.: 149.1	
Q _N 500.0 USGPM		1st gear drive / 1. Getriebe:		No / Nr.:	
H _N 480.0 ft		2st gear drive / 2. Getriebe:			
P _N 74.2 BHP		Tacometro Tachometer		PEPPERL+FLUSCHS Nr. No.: 1-ML-158	
η _N 63.4 %		Medidor de potencia Power measuring		ZES ZIMMER TM39 Nr. No.: 1-ML-33	
ρ _N 0.8 SG		Medidor de flujo Pump capacity meter		F & R 0-30 PSI CAP -103 L-1 Nr. No.: Venturi 4"	
n _N 3570 rpm		Medidor de Ps Inlet pressure meter		Rosemount -14.7-150PSI SUCT Nr. No.: 1ML-141	
NPSH 17.2 ft		Medidor de Pd Outlet pressure meter		Rosemount 0-800 PSI Disch Loop 1 Nr. No.: 1-ML-110	
θ _N 160.0 °F		Sensor Temp. de liquido Temp.sensing test liquid		TEMP LOOP4 Nr. No.: 1-ML-171	
Diametros de succion y descarga p _s / p _d		No. De Pasos No. Stages 1		Dia.Maximo Impulsor Imp. Max Dia. 12.7 in in	
4 in 3 in		No. De Venas No. Vanes 5		Dia.Impulsor Prueba Imp. Test Dia. 11.35 in in	
Presión Barométrica: mean barometric press.		Modelo Impulsor 313OHH-13			
11.2266 p.s.i.					
Measurement no.		Lecturas No.		1 2 3 4 5 6 7	
Motor speed Velocidad de Motor		n _M rpm		3557.2 3564.2 3567.1 3570.0 3574.6 3578.2 3577.7	
Pump speed Velocidad de Bomba		n _P rpm		3557.2 3564.2 3567.1 3570.0 3574.6 3578.2 3577.7	
Outlet pressure Presión de Descarga		p _d p.s.i.		227.04 242.32 251.71 253.98 270.10 274.43 273.50	
Inlet pressure Presión de Succión		p _s p.s.i.		31.8 31.8 31.3 30.9 31.4 31.1 29.6	
Seal chamber Pressure Presión cámara del sello		p ₁ p.s.i.		59.9 60.59 62.79 63.88 63.71 63.74 61.91	
Velocity head difference Hv Dif. de velocidades		(v _d ² -v _s ²)/2g ft		9.134 6.763 4.800 4.326 1.425 0.351 0.000	
Pressure head outlet Presión de carga de salida		H _d ft		525.32 560.68 582.35 587.61 624.87 634.90 632.81	
Pressure head inlet Presión de carga de entrada		H _s ft		73.51 73.67 72.52 71.43 72.59 71.97 68.54	
Pump head Carga total		H ft		463.98 496.82 517.68 523.55 556.75 566.32 567.31	
Pump capacity Capacidad de la Bomba		Q USGPM		701.14 603.33 508.29 482.50 276.95 137.45 0.00	
Efficiency Eficiencia		η %		67.90 67.43 64.37 63.33 48.58 29.28 0.00	
Electric power Potencia Electrica		P _{el} BHP		129.92 120.46 110.94 108.30 86.90 73.49 60.35	
Motor efficiency Eficiencia de motor		η _{Mot} %		92.95 93.00 92.87 92.83 92.06 91.18 90.13	
Motor power output Potencia de salida del Motor		P _{Mot} BHP		120.76 112.03 103.03 100.54 80.00 67.01 54.39	
Pump input P Entrada a la Bomba		P BHP		120.76 112.03 103.03 100.54 80.00 67.01 54.39	
Values converted to n _N and i stages		Valores corregidos n _N = 3570.0			
Efficiency Eficiencia		η %		67.90 67.43 64.37 63.33 48.58 29.28 0.00	
Pump capacity Capacidad de la Bomba		Q USGPM		682.20 585.87 493.18 467.78 268.16 132.95 0.00	
Pump head Carga Din. Tot.		H ft		439.26 468.49 487.38 492.10 521.96 529.86 530.93	
Pump input at p _N P Entrada a Bomba p _N		P BHP		88.18 81.32 74.61 72.62 57.56 48.07 39.04	
Probado por: Tested by		Observaciones: Remarks		TRIM DIAMETER AFTER TEST TO: 11.09	
Fecha: Date		Brandon Arias 15.06.2023			
Atestiguado por: Witnessed by					
Fecha: Date		Temperatura de Soporte: Bearing temperature:		104.50 °F Brg Hsg DE	
				RATED POINT	
				F-BP-001	

SULZER		1er Paso 1st Stage		Series Series		No. Or 100488873-0020-01			
Curva de prueba Test Curve		Impulsor Impeller		0-104203705		Sulzer Comm.Nr.			
Cliente Customer		Modelo Pattern		313OHH-13		Tipo Type		3x4x13-1 OHH	
Orden Compra		Difusor Diffuser							
No. Identif. Ident No.		Modelo Pattern							
No. Serie. Item No.		D2 Diseño. D2 design.		Ø11.06 in		Venas Vane		Ø11.06 in	
Nombre Name		D2 min. D2 min.		Ø10.2 in					
Fecha Date		D2 max. D2 max.		Ø12.7 in					
Reporte No. Test Report No.		128/23		Fecha dated		..			
n=		3570		1/min.		i=		1	
DN _s		4 in		DN _d		3 in		Stufen Stages	



100488873-0020
3x4x13-1 OHH
137.14 USGPM
3578 RPM

[Handwritten signatures]

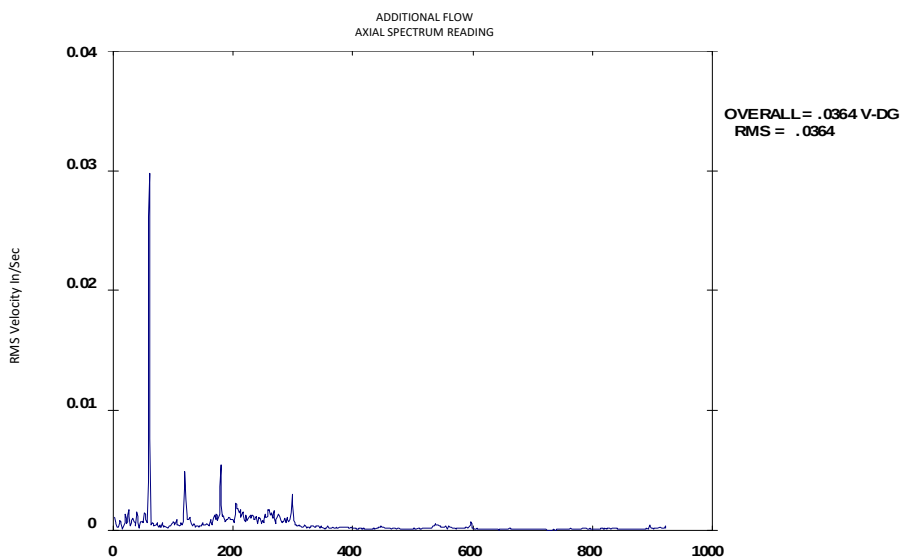
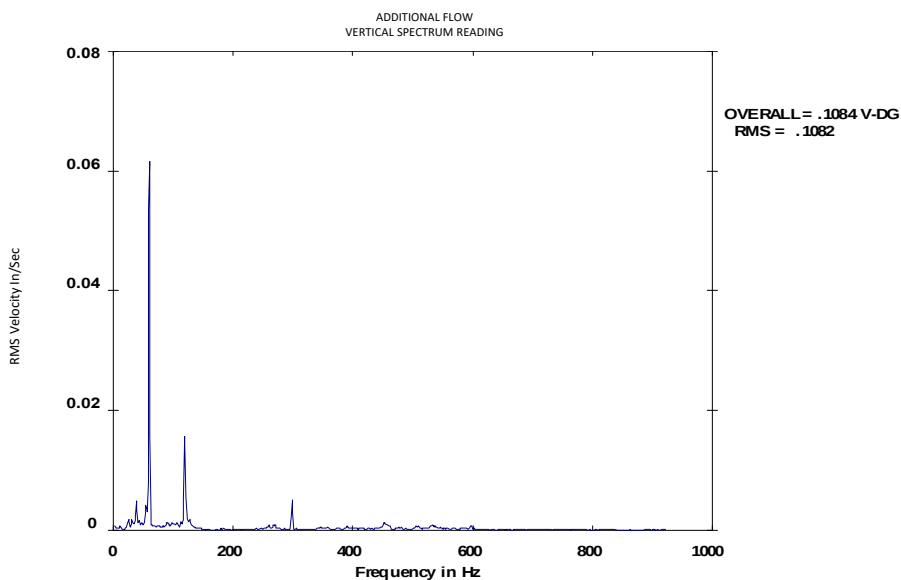
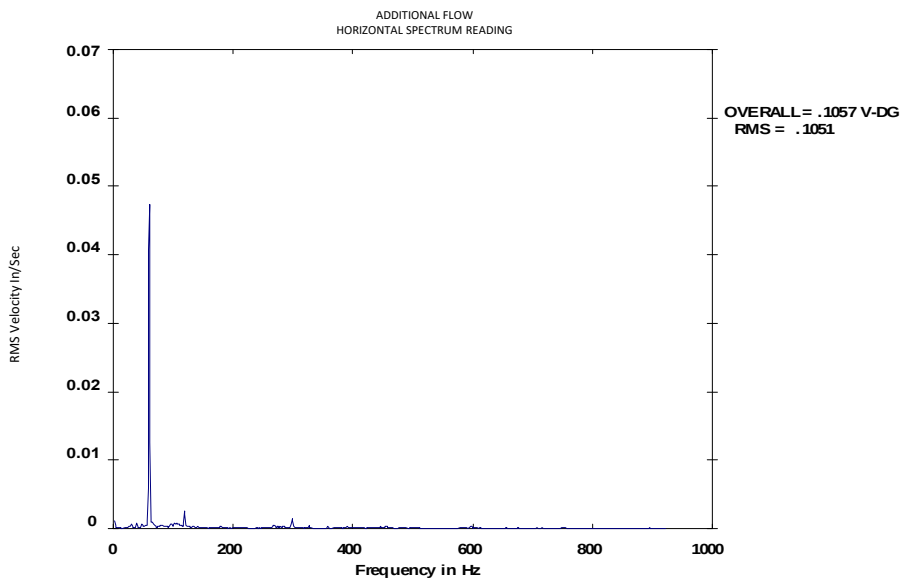


F-BP-004

SULZER CONFIDENTIAL

100488873-0020
3x4x13-1 OHH
276.60 USGPM
3574 RPM

[Handwritten signatures]

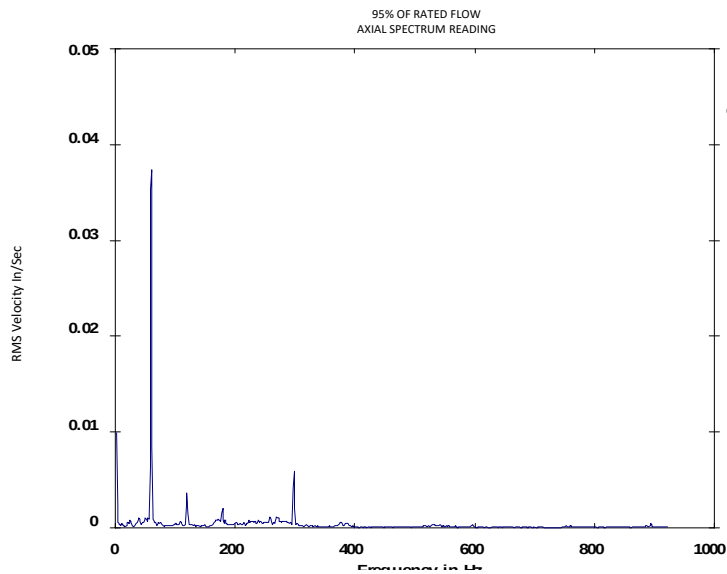
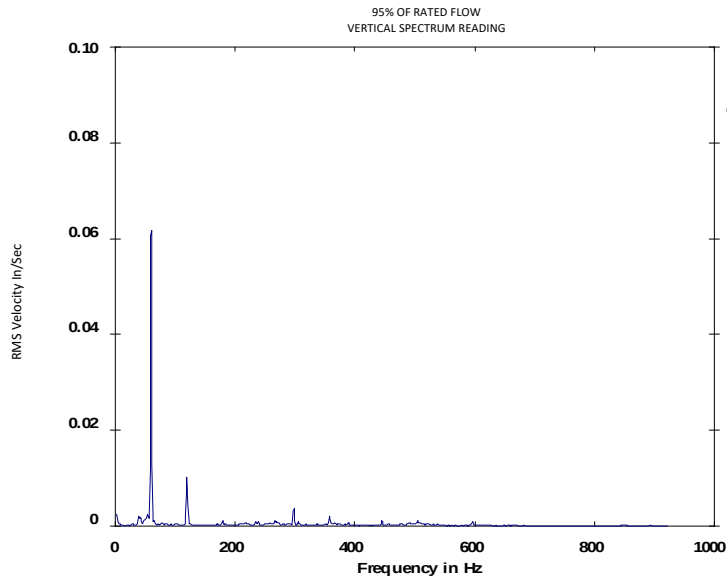
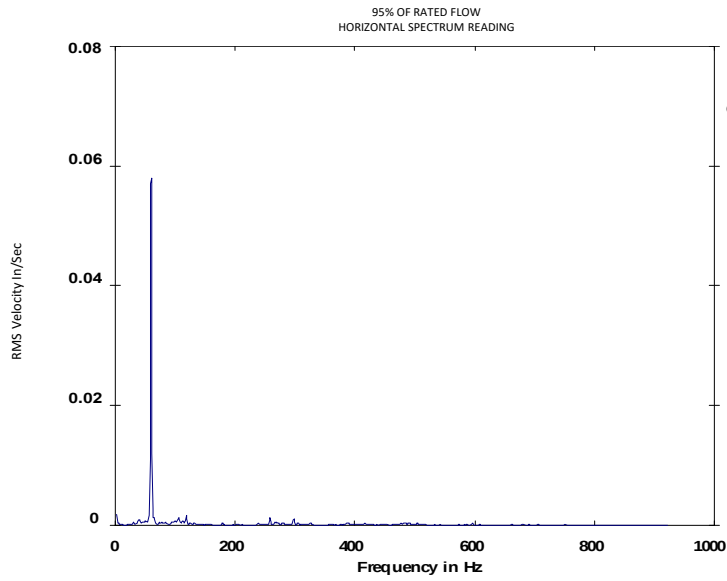


F-BP-004

SULZER CONFIDENTIAL

100488873-0020
3x4x13-1 OHH
482.50 USGPM
3570 RPM

[Handwritten signature]
[Handwritten mark]

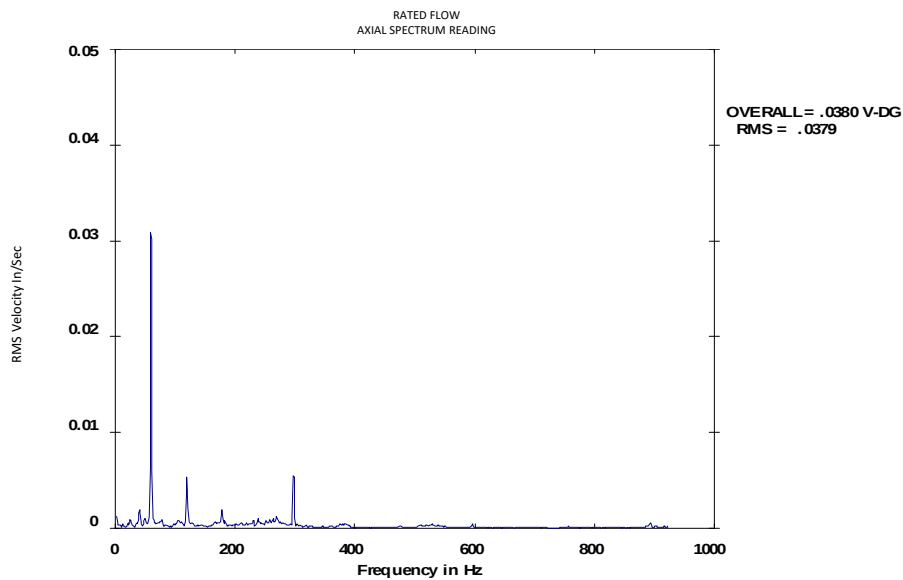
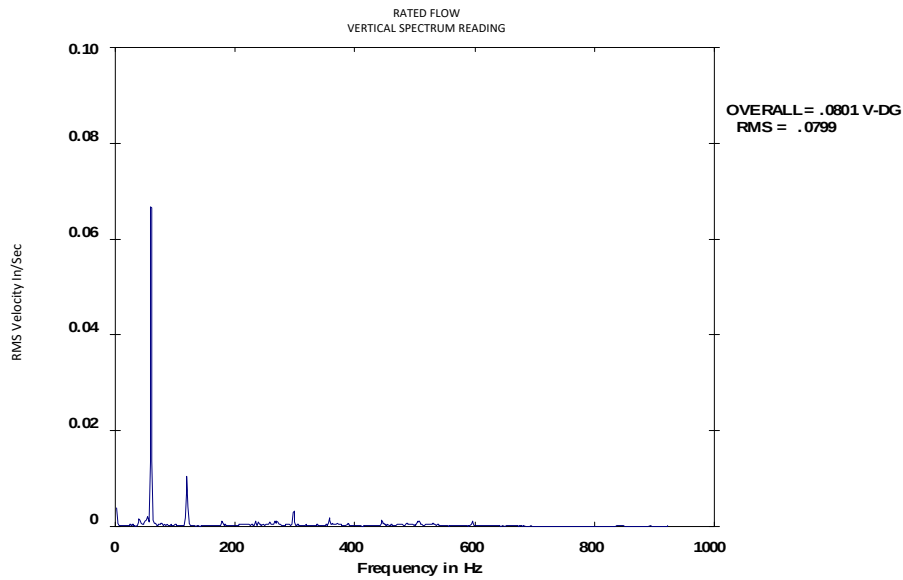
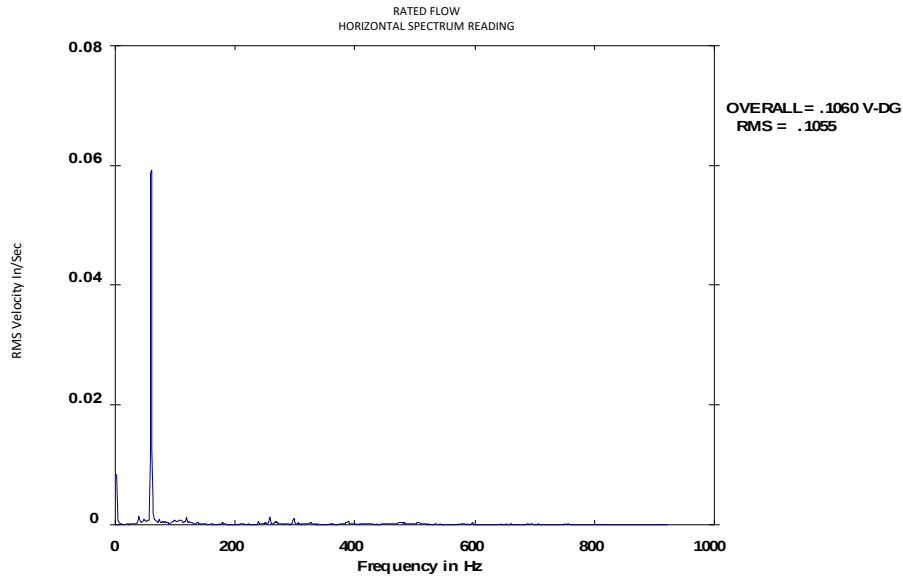


F-BP-004

SULZER CONFIDENTIAL

100488873-0020
3x4x13-1 OHH
508.70 USGPM
3567 RPM

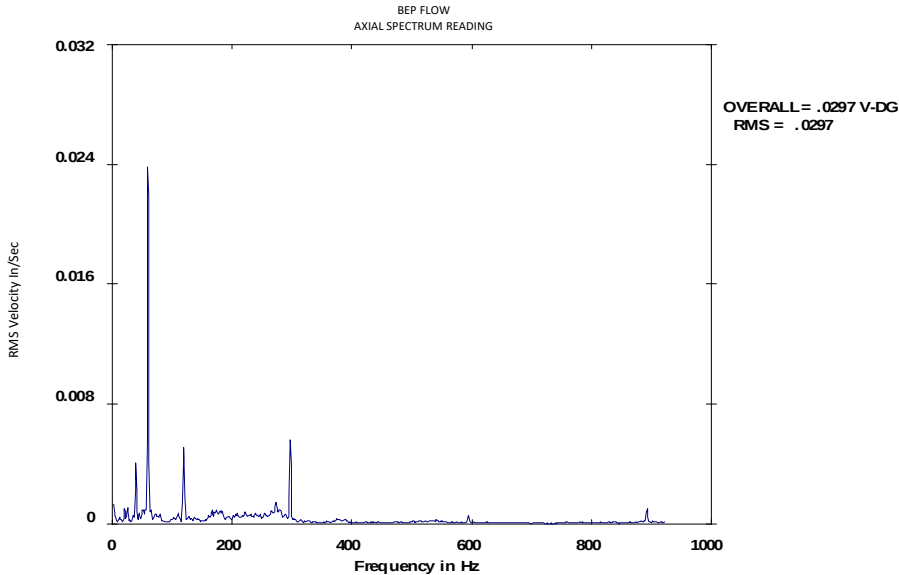
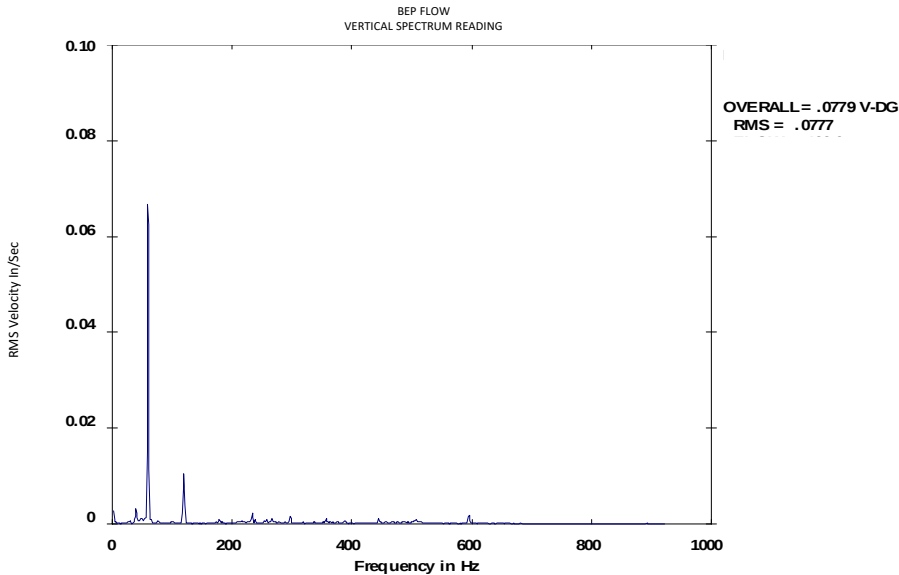
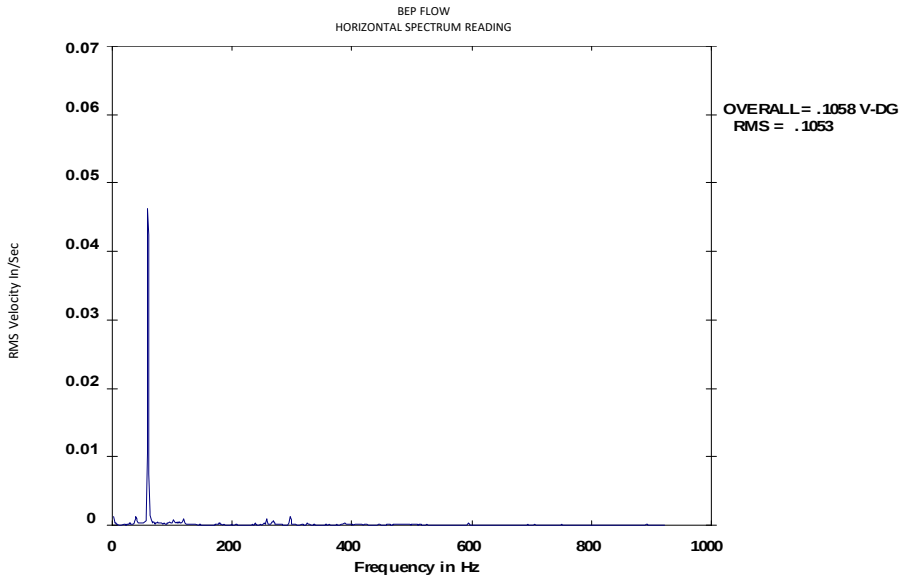
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F-BP-004

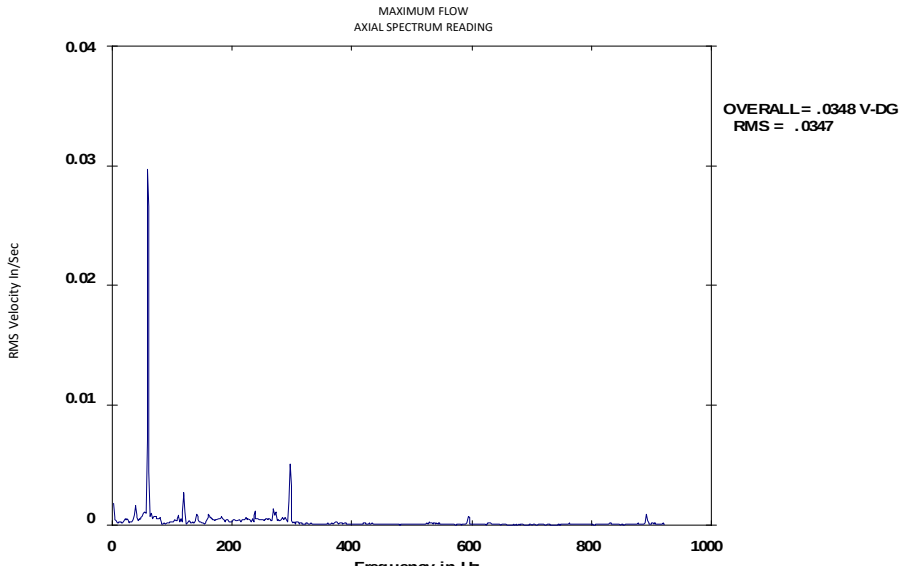
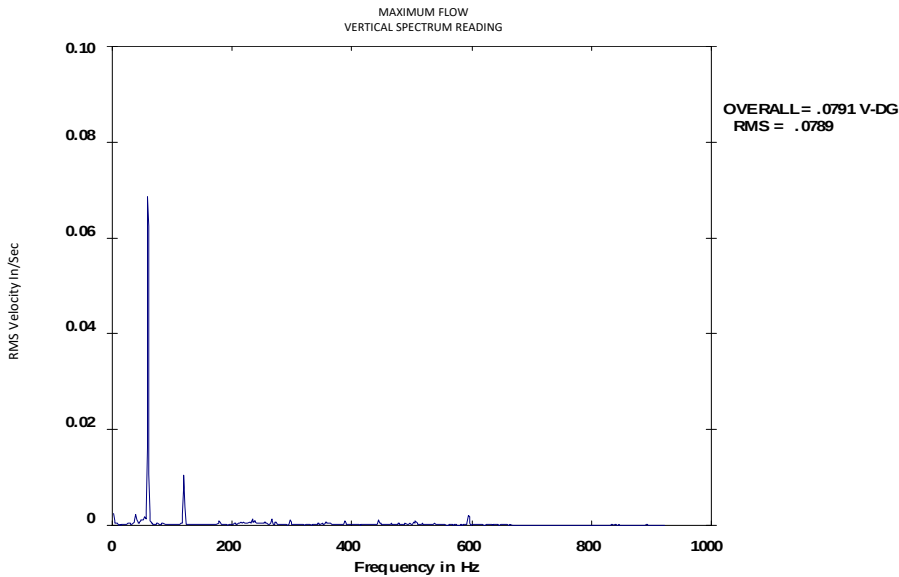
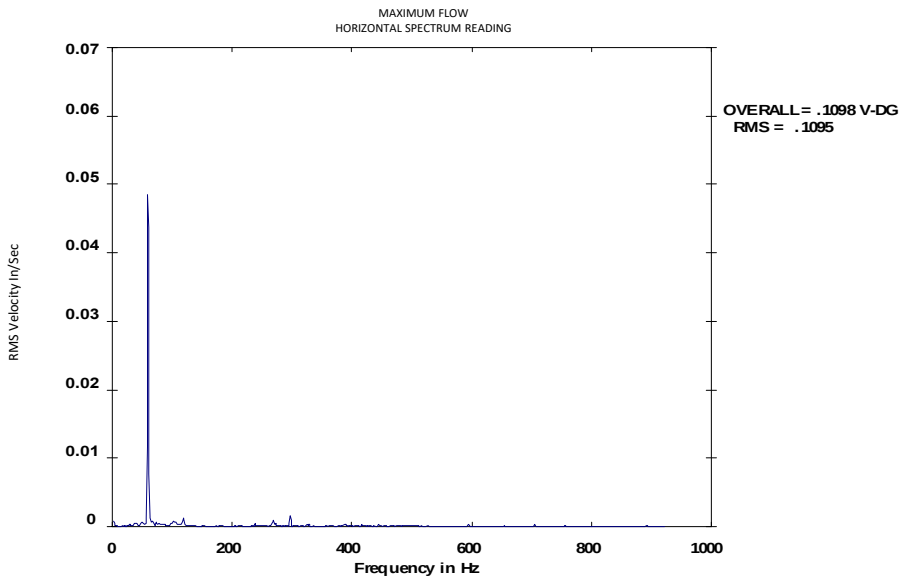
SULZER CONFIDENTIAL

100488873-0020
3x4x13-1 OHH
604.31 USGPM
3564 RPM

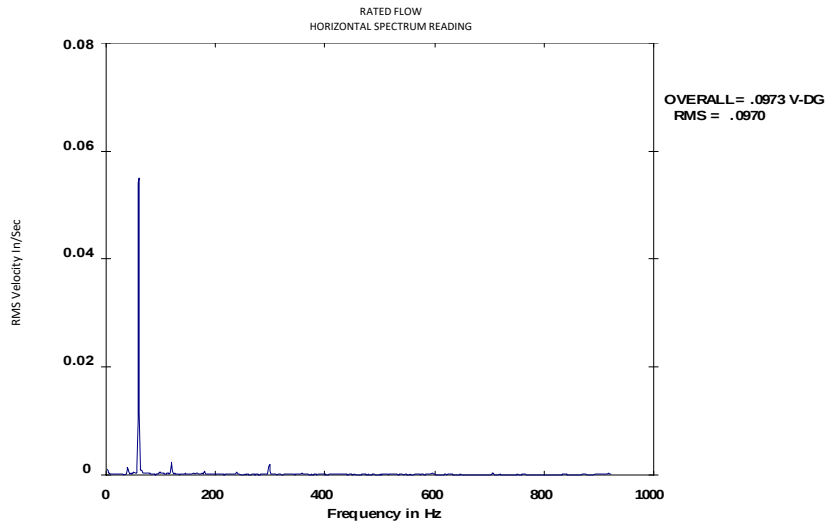


F-BP-004

100488873-0020
3x4x13-1 OHH
703.67 USGPM
3557 RPM



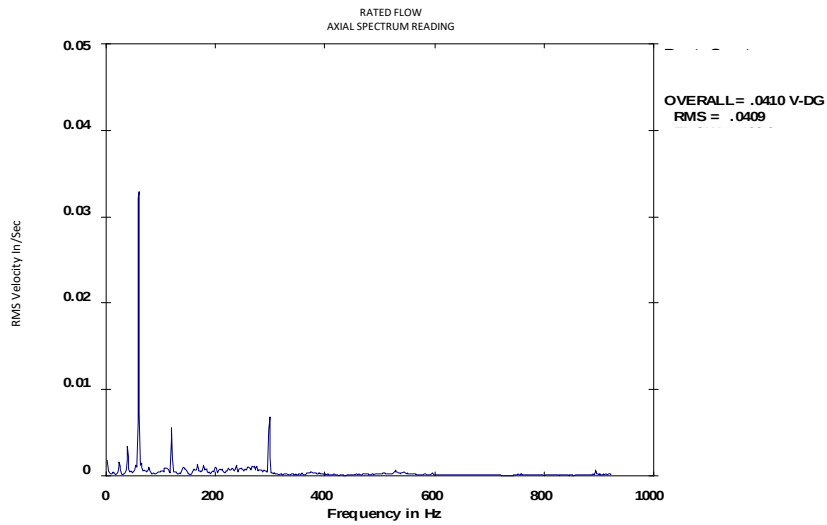
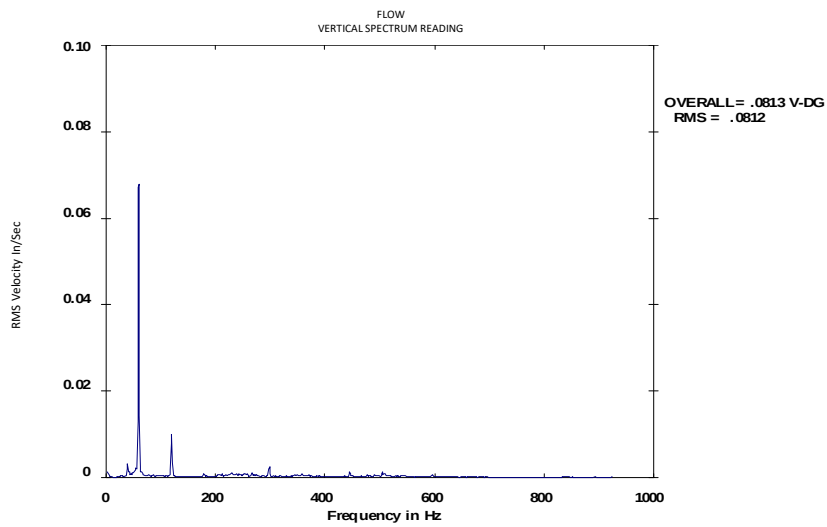
F-BP-004



100488873-0020
3x4x13-1 OHH
508.70 USGPM
3567 RPM

MECHANICAL RUN AT
14:00 HRS

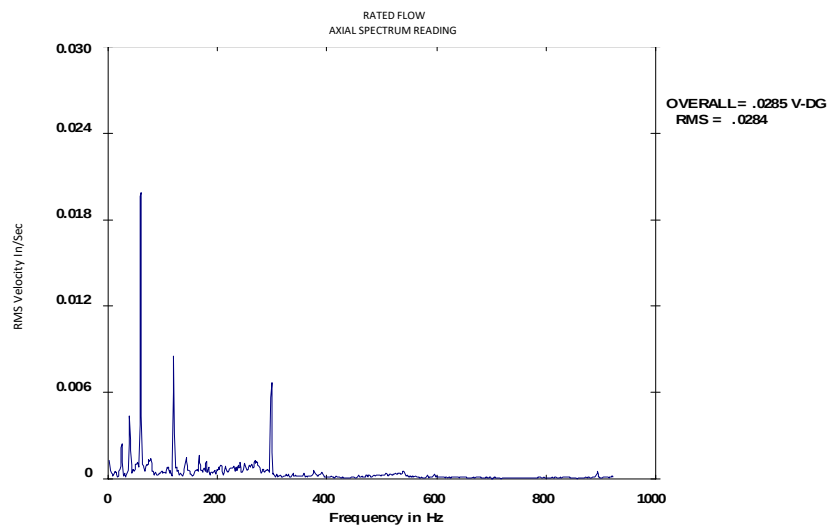
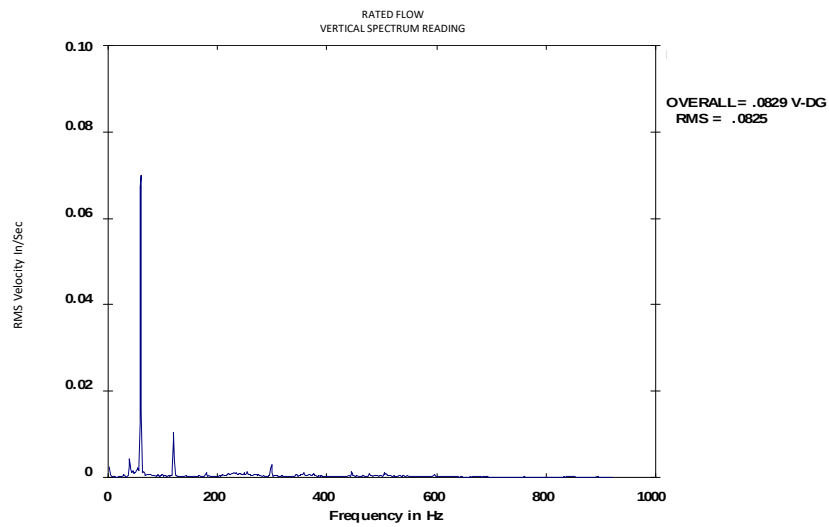
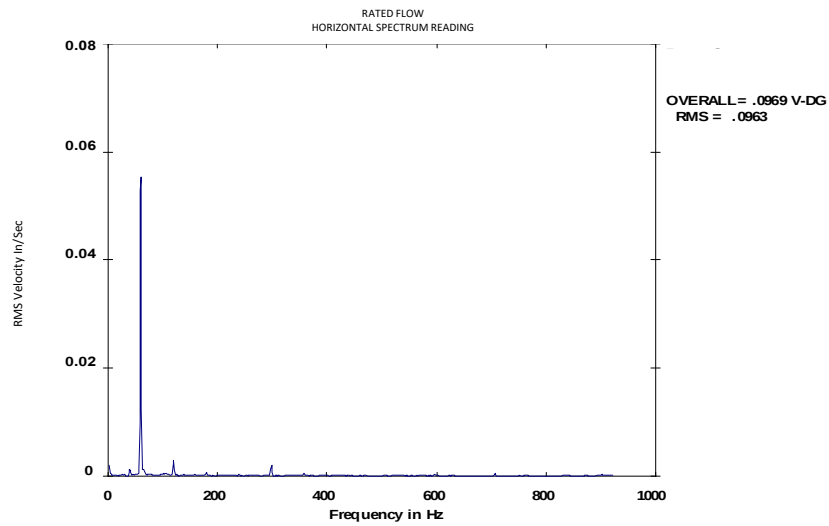
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F-BP-004

100488873-0020
3x4x13-1 OHH
508.70 USGPM
3567 RPM

MECHANICAL RUN AT
14:10 HRS



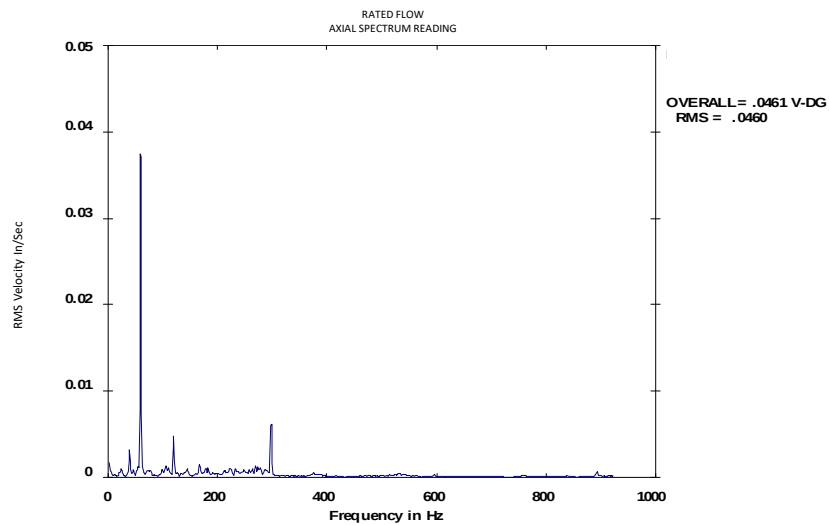
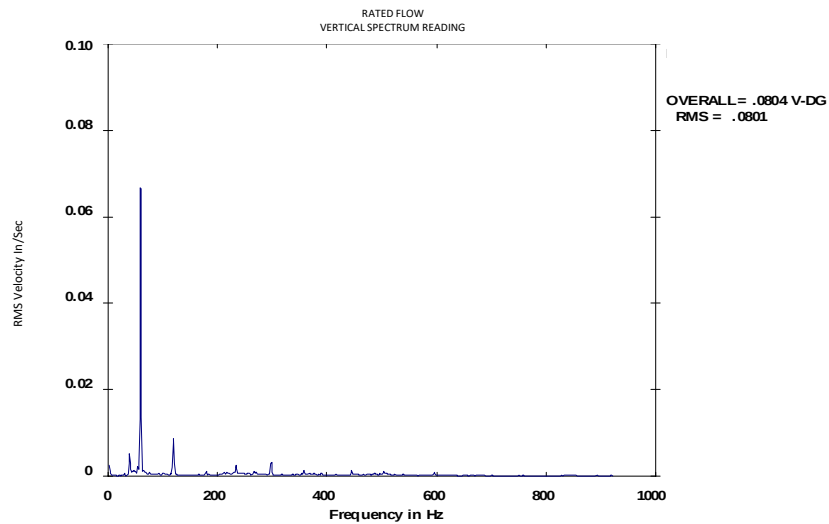
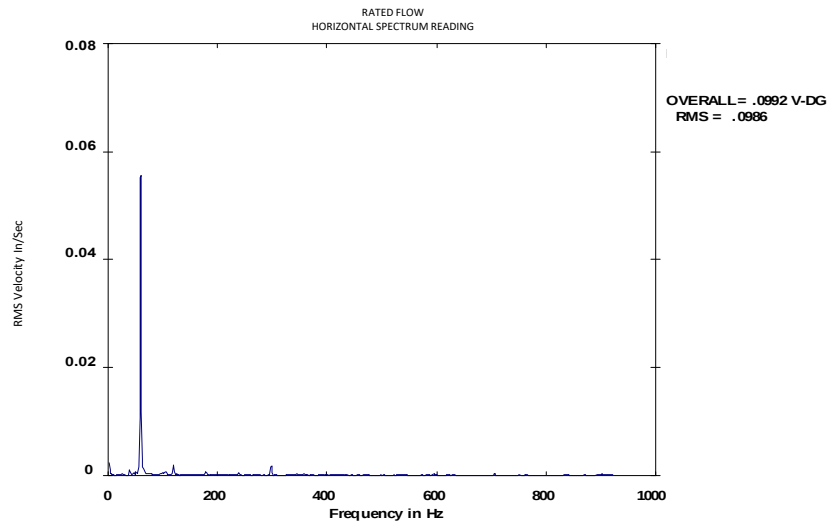
F-BP-004

SULZER CONFIDENTIAL

100488873-0020
3x4x13-1 OHH
508.70 USGPM
3567 RPM

MECHANICAL RUN AT
14:20 HRS

[Handwritten signatures]



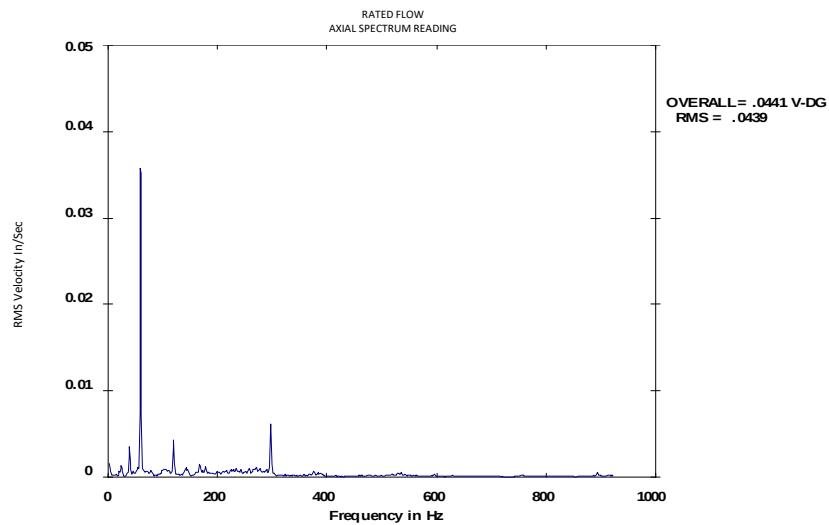
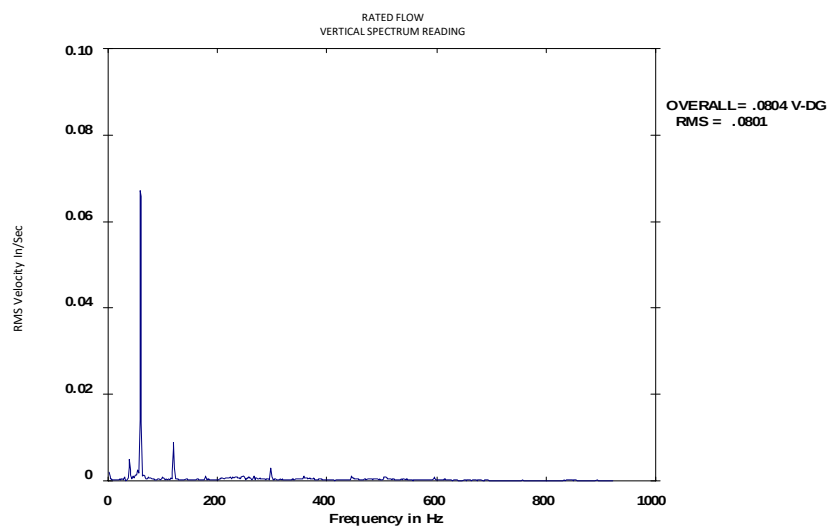
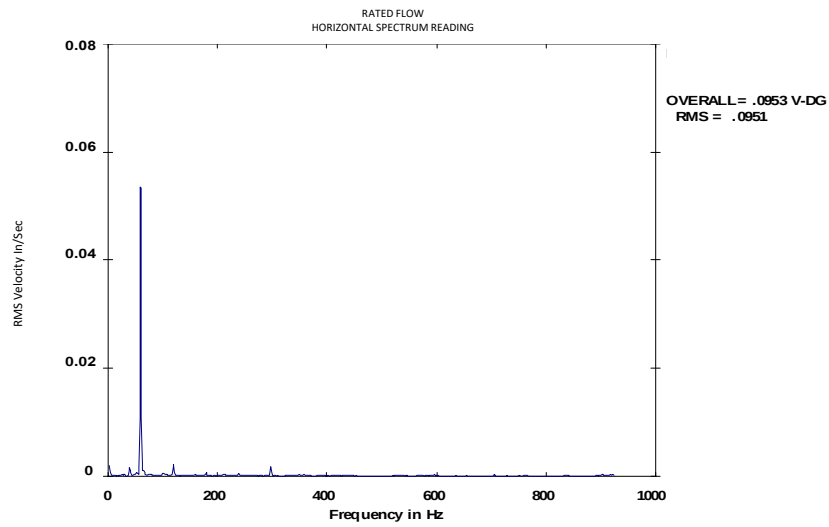
F-BP-004

SULZER CONFIDENTIAL

100488873-0020
3x4x13-1 OHH
508.70 USGPM
3567 RPM

MECHANICAL RUN AT
14:30 HRS

[Signature] *[Signature]*



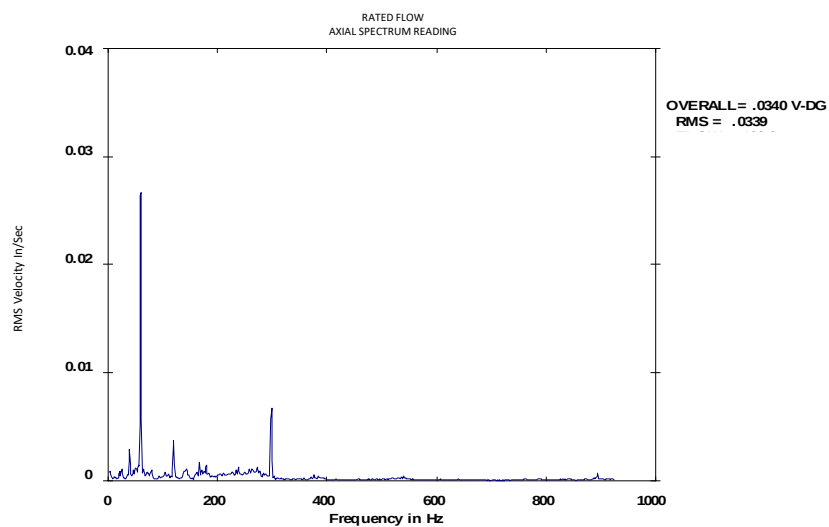
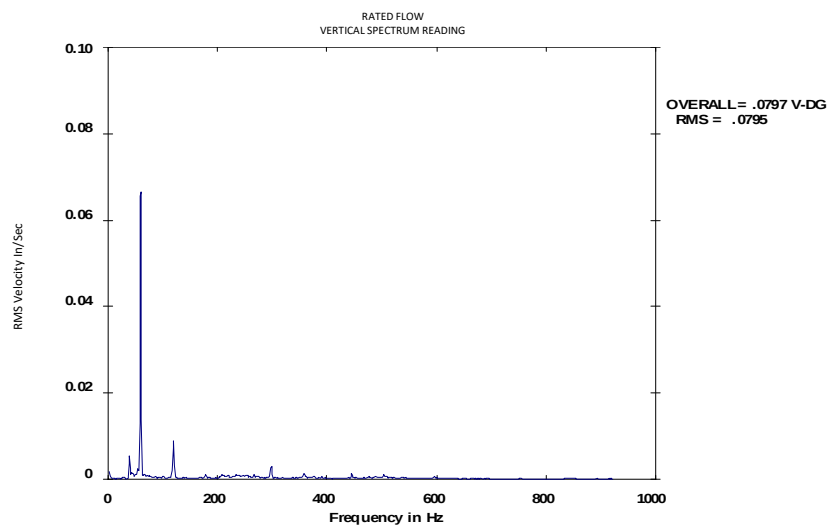
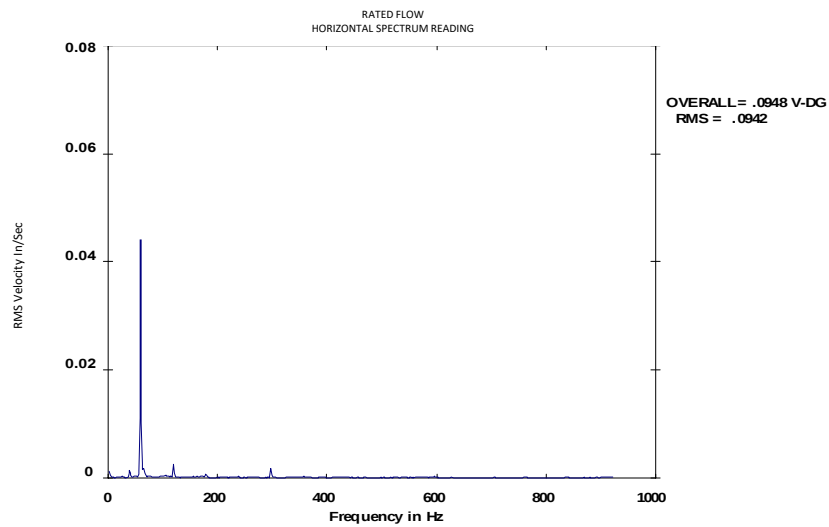
F-BP-004

SULZER CONFIDENTIAL

100488873-0020
3x4x13-1 OHH
508.70 USGPM
3567 RPM

MECHANICAL RUN AT
14:40 HRS

[Handwritten signatures]



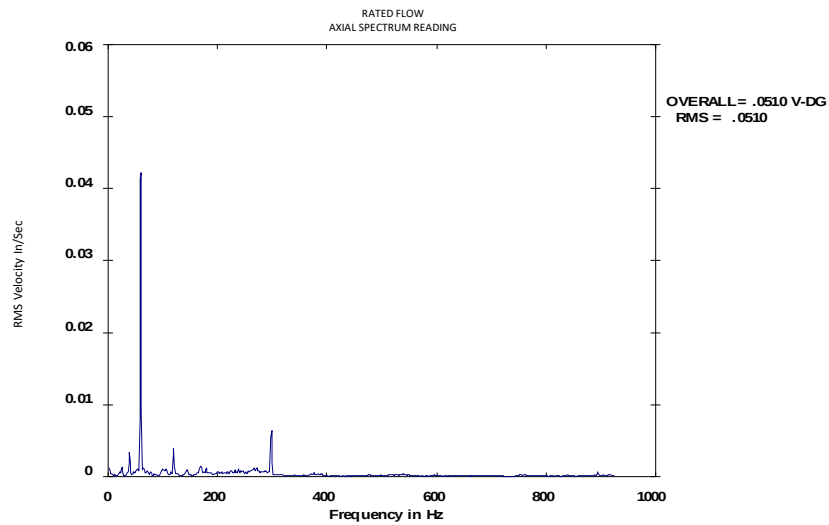
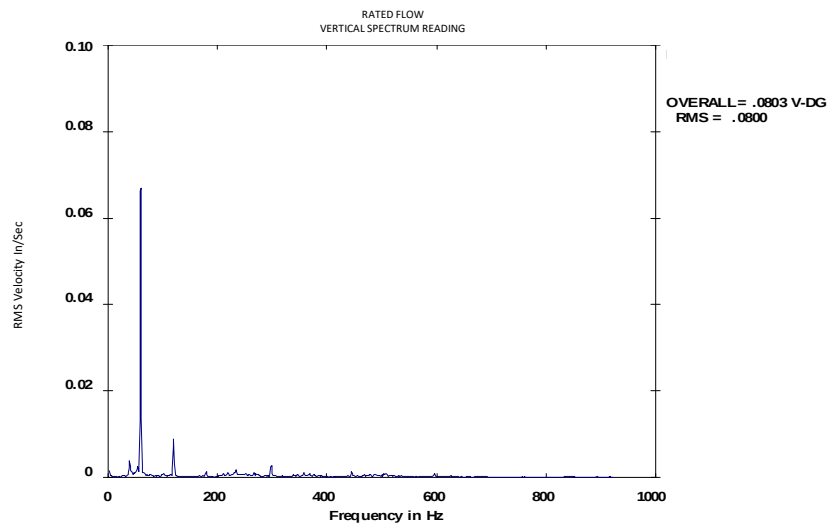
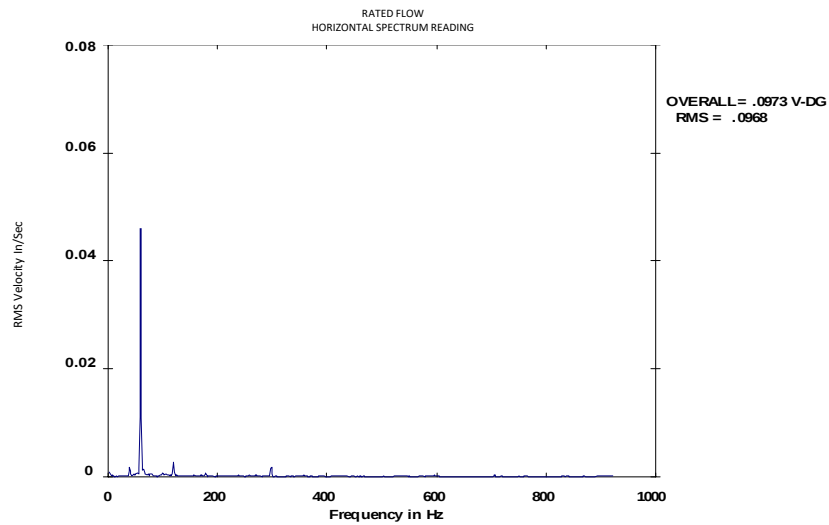
F-BP-004

SULZER CONFIDENTIAL

100488873-0020
3x4x13-1 OHH
508.70 USGPM
3567 RPM

MECHANICAL RUN AT
14:50 HRS

[Handwritten signatures]



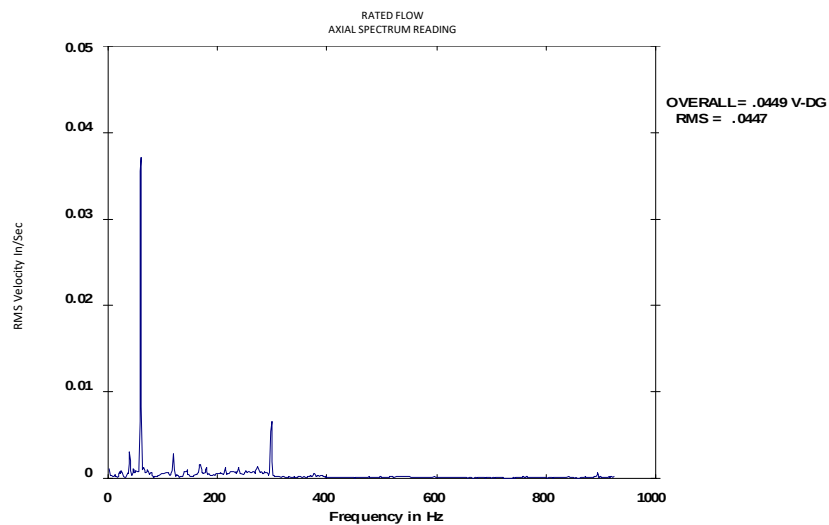
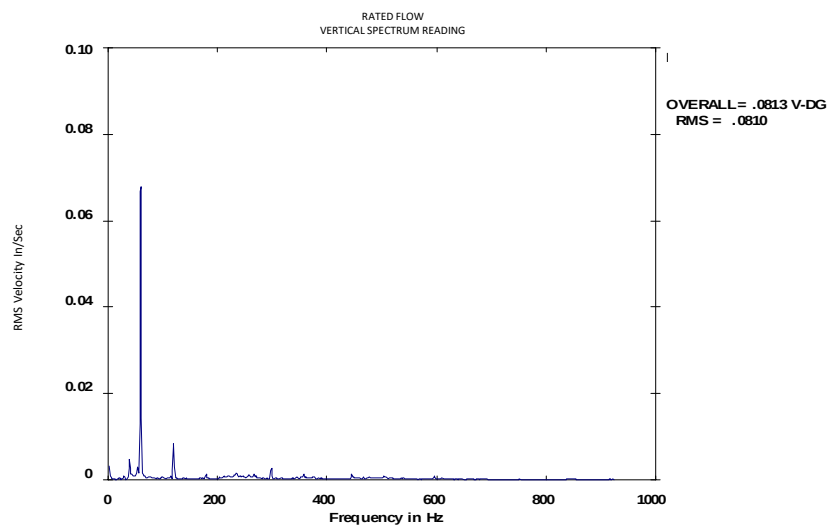
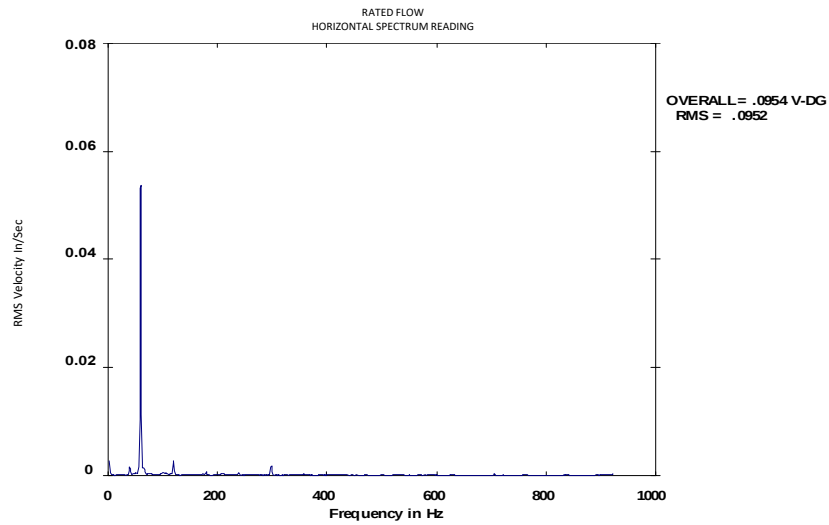
F-BP-004

SULZER CONFIDENTIAL

100488873-0020
3x4x13-1 OHH
508.70 USGPM
3567 RPM

MECHANICAL RUN AT
15:00 HRS

[Handwritten signatures]



F-BP-004

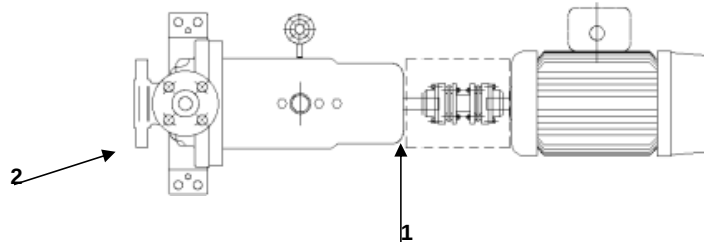
SULZER CONFIDENTIAL

NOISE REFERENCE DATA

SULZER

Tipo:	3x4x13-1 OHH	No. De Orden:	100488873-0020-01
Type:		Order Number:	
Item Cliente No:		No. de Serie:	
Client's Item No:	18-P-1812	Sulzer Serial. No.:	656619
Cliente/Destino:		Probado por:	
Client/Destination:	AIR PRODUCTS AND CHEMICALS	Tested by:	Brandon Arias 

TOP VIEW



NOTE: NOISE DATA TAKEN 1.0m FROM THE PUMP AT LOCATIONS 1 & 2, AND IS FOR INFORMATION ONLY; NO ATTEMPT HAS BEEN MADE TO ISOLATE THE PUMP FROM DE BACKGROUND NOISE.

NOTA: DATOS DE RUIDO TOMADOS A 1.0m DE LA BOMBA EN LOS PUNTOS 1 Y 2, Y SOLO ES PARA INFORMACION, NO SE HA INTENTADO AISLAR LA BOMBA DEL RUIDO DEL AMBIENTE.

			SOUND PRESSURE IN DECIBELS (BY FREQUENCY) PRESION DE SONIDO EN DECIBELES (POR FRECUENCIA)										
LOCATION LOCALIZACION	FLOW FLUJO	dB(A)	16	31.5	63	125	250	500	1000	2000	4000	8000	16000
	USGPM												
1	508.70	86.2	8.8	26.3	55.9	63.2	71.3	81.6	81.7	77.6	73.0	65.5	54.5
2	508.70	85.5	3.9	24.7	52.1	60.1	70.3	79.1	81.1	80.5	72.2	63.1	51.9
BACKGROUND / AMBIENTE		80.4											

F-BP-005

SULZER

Reporte Prueba No.:
Test Report No.: **128/23**

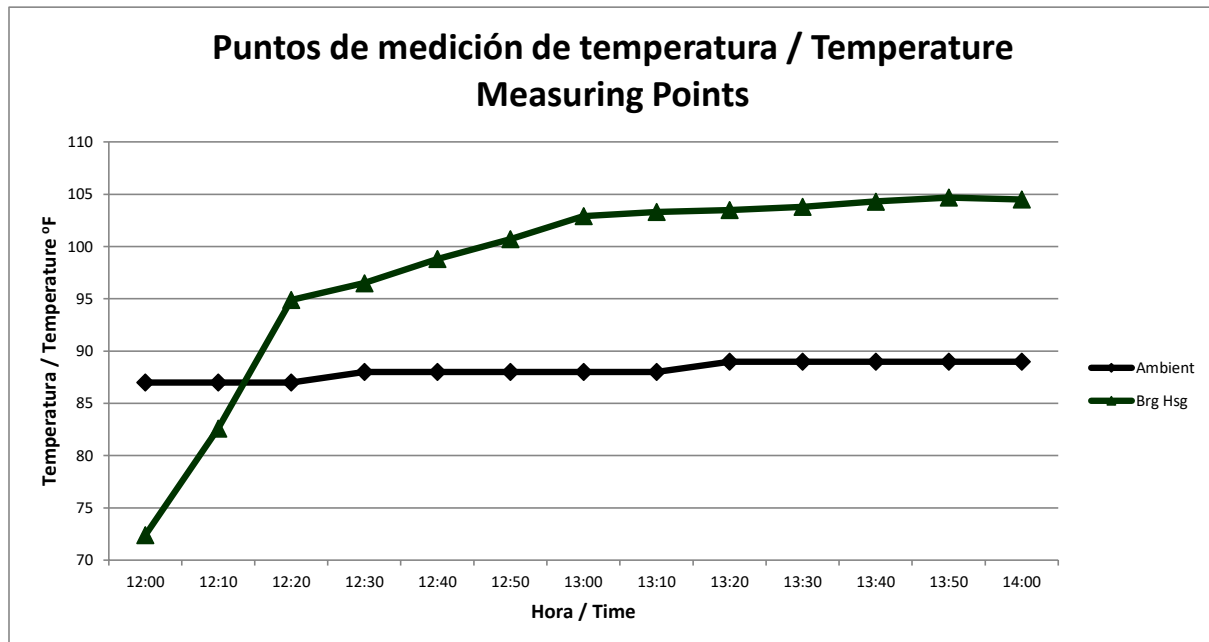
Tipo: 3x4x13-1 OHH
Item Cliente No:
Client's Item No: **18-P-1812**
Cliente/Destino: **AIR PRODUCTS AND CHEMICALS**

No. de Orden:
Order No: **100488873-0020-01**
No. de Serie:
Sulzer Serial. No.: **656619**
Curva No:
Curve No: **M-13603**

Puntos de medición de temperatura		
Temperature Measuring Points		
	Ambiente	Soporte de Rodamiento
	Ambient	Bearing Housing
Hora: Time:	°F	°F
12:00	87	72.4
12:10	87	82.6
12:20	87	94.9
12:30	88	96.5
12:40	88	98.8
12:50	88	100.7
13:00	88	102.9
13:10	88	103.3
13:20	89	103.5
13:30	89	103.8
13:40	89	104.3
13:50	89	104.7
14:00	89	104.5

PERFORMANCE
AND NPSH

MR 1 HRS



Probado por:
Tested by: **Brandon Arias**
Fecha:
Date: **15.06.2023**

Testificado
por:
Witnessed
by:
Fecha:
Date:

F-BP-006