SULZER

Reporte de prueba 50/24
Test Report No.

Tipo: / Type	6X8x18B BBTD	No. de Orden: / Order No.	100462910-0060-01
Item Cliente No.: / Client's Item No.	18-P-359A	No. de Serie: / Sulzer Serial. No.:	650963
Cliente/Destino: / Client/Destination	Air Products and Chemicals Inc.	Curva de prueba: / Test Curve:	**M-13810**

Datos de punto de operación
Data at guarantee point

Q_N	2460.8	USGPM
H_N	1925.7	ft
P_N	1033.0	BHP
η_N	65.9	%
ρ_N	0.569	SG
n_N	3576	rpm
NPSH	26.7	ft
ϑ_N	450.0	°F

Diametros de succion y descarga p_s / p_d

8	6
in	in

Presión Barometrica: / mean barometric press. 11.18 p.s.i.

Drive / Motor:	1-ML-81	No./ Nr.:	1-ML-81		
1st gear drive / 1. Getriebe:		No./ Nr.:			
2st gear drive / 2. Getriebe:		No./ Nr.:			
Tacometro	Tachometer	PEPPERL+FLUSCHS	Nr. No.:	1-ML-159	
Medidor de potencia	Power measuring	G&E	Nr. No.:	1-ML-133	
Medidor de flujo	Pump capacity meter	EH 0-1200 m3/hr Loop4	Nr. No.:	1-ML-147 8" Loop4	
Medidor de Ps	Inlet pressure meter	Rosemount -14.7-150PSI SUCT	Nr. No.:	1ML-141	
Medidor de Pd	Outlet pressure meter	Rosemount 0-1250PSI Disch	Nr. No.:	1-ML-138	
Sensor Temp. de liquido	Temp.sensing test liquid	TEMP LOOP4	Nr. No.:	1-ML-171	

No. De Pasos	No. Stages	2	Dia.Maximo Impulsor	Imp. Max Dia.	18 in
No. De Venas	No. Vanes	3-5			
Modelo Impulsor	Impeller Pattern	0613BBTD-21	Dia.Impulsor Prueba	Imp. Test Dia.	17.16 in

Measurement no.	Lecturas No.			1	2	3	4	5	6	7	8	9	10	11
Motor speed	Velocidad de Motor	n_M	rpm	3562.2	3564.8	3564.5	3562.7	3563.3	3564.2	3561.5	3563.3	3565.4	3562.9	3571.6
Pump speed	Velocidad de Bomba	n_P	rpm	3562.2	3564.8	3564.5	3562.7	3563.3	3564.2	3561.5	3563.3	3565.4	3562.9	3571.6
Outlet pressure	Presión de Descarga	p_d	p.s.i.	840.71	792.83	870.07	819.73	907.69	857.19	955.14	904.62	1079.93	1022.68	1194.35
Inlet pressure	Presión de Succión	p_s	p.s.i.	35.6	-1.5	34.1	-3.1	34.5	-4.3	34.0	-5.1	36.3	-6.0	35.0
Chamber pressure DE	Presión de Sello DE	p_{ito1}	p.s.i.	40.06		38.52		38.73		37.87		39.61		37.93
Chamber pressure NDE	Presión de Sello NDE	p_{ito2}	p.s.i.	49.46		48.06		48.34		47.72		49.64		48.22
Velocity head difference	Hv Dif. de velocidades	$(v_d^2-v_s^2)/2g$	ft	8.531	8.495	7.915	7.929	7.069	7.135	5.942	5.889	2.870	2.948	0.634
Pressure head outlet	Presión de carga de salida	H_d	ft	1949.52	1838.21	2017.81	1900.28	2106.22	1986.65	2216.71	2096.12	2506.76	2368.98	2773.04
Pressure head inlet	Presión de carga de entrada	H_s	ft	82.51	-3.47	79.19	-7.19	80.02	-10.00	78.83	-11.81	84.26	-13.79	81.32
Pump head	Carga total	H	ft	1875.63	1850.26	1946.62	1915.48	2033.34	2003.87	2143.91	2113.89	2425.45	2385.80	2692.43
Net. Pos. Suct. Head	Carga Net. Pos. Succ.	NPSH	ft		28.92		24.95		21.81		19.44		16.05	
Pump capacity	Capacidad de la Bomba	Q	USGPM	2547.95	2542.50	2454.27	2456.37	2319.30	2330.08	2126.37	2117.00	1477.94	1497.79	694.34
Efficiency	Eficiencia	η	%	68.51		69.89		70.71		71.36		67.44		48.67
Electric power	Potencia Electrica	P_{el}	BHP	1834.52		1796.97		1751.37		1676.28		1393.32		1009.79
Motor efficiency	Eficiencia de motor	η_{Mot}	%	95.53		95.56		95.60		95.66		95.71		95.41
Motor power output	Potencia de salida del Motor	P_{Mot}	BHP	1752.57		1717.24		1674.30		1603.52		1333.61		963.41
Pump input	P Entrada a la Bomba	P	BHP	1752.57		1717.24		1674.30		1603.52		1333.61		963.41
Values converted to n_N and i stages		Valores corregidos n_N =		3576.0										
Efficiency	Eficiencia	η	%	68.51		69.89		70.71		71.36		67.44		48.67
Pump capacity	Capacidad de la Bomba	Q	USGPM	2557.82	2550.46	2462.20	2465.56	2327.55	2337.79	2135.04	2124.54	1482.36	1503.30	695.20
Pump head	Carga Din. Tot.	H	ft	1890.19	1861.87	1959.22	1929.85	2047.83	2017.14	2161.42	2128.99	2439.95	2403.39	2699.13
Net. Pos. Suct. Head	Carga Net. Pos. Succ.	NPSH	ft		29.10		25.14		21.95		19.58		16.17	
Pump input at ρ_N	P Entrada a Bomba ρ_N	P	BHP	1015.47		993.24		969.93		930.60		771.71		554.83

Probado por: / Tested by — Brandon Arias
Fecha: Date 08.03.2024

Atestiguado por: / Witnessed by

Fulkrum Technical Resources
Fecha: 08.03.2024 ☐ Reviewed ☐ Monitored
Date ☑ Witnessed
X

Observaciones: / Remarks

Temperatura de Soporte: / Bearing temperature:
110.50 °F Brg Hsg DE
123.30 °F Brg Hsg NDE

RATED POINT

F-BP-001

PCP100462910060-01_Z22_000_0105ttt di-gep-3 REYESBE 2024-03-20T12:08:58 1.000 NP

SULZER CONFIDENTIAL

SULZER

Reporte de prueba 50/24
Test Report No.

Tipo: / Type	6X8x18B BBTD	No. de Orden: / Order No.	100462910-0060-01
Item Cliente No.: / Client's Item No.	18-P-359A	No. de Serie: / Sulzer Serial. No.:	650963
Cliente/Destino: / Client/Destination	Air Products and Chemicals Inc.	Curva de prueba: / Test Curve:	**M-13810**

Datos de punto de operación
Data at guarantee point

Q_N	2460.8	USGPM
H_N	1925.7	ft
P_N	1033.0	BHP
η_N	65.9	%
ρ_N	0.569	SG
n_N	3576	rpm
NPSH	26.7	ft
ϑ_N	450.0	°F

Diametros de succion y descarga p_s / p_d

8	6
in	in

Presión Barometrica: / mean barometric press. 11.18 p.s.i.

Drive / Motor:	1-ML-81	No./ Nr.:	1-ML-81		
1st gear drive / 1. Getriebe:		No./ Nr.:			
2st gear drive / 2. Getriebe:		No./ Nr.:			
Tacometro / Tachometer	PEPPERL+FLUSCHS	Nr. No.:	1-ML-159		
Medidor de potencia / Power measuring	ZES ZIMMER TM39	Nr. No.:	1-ML-33		
Medidor de flujo / Pump capacity meter	EH 0-1200 m3/hr Loop4	Nr. No.:	1-ML-147 8" Loop4		
Medidor de Ps / Inlet pressure meter	Rosemount -14.7-150PSI SUCT	Nr. No.:	1ML-141		
Medidor de Pd / Outlet pressure meter	Rosemount 0-1250PSI Disch	Nr. No.:	1-ML-138		
Sensor Temp. de liquido / Temp.sensing test liquid	TEMP LOOP4	Nr. No.:	1-ML-171		
No. De Pasos / No. Stages	2	Dia.Maximo Impulsor	Imp. Max Dia.	18 in	
No. De Venas / No. Vanes	3-5				
Modelo Impulsor / Impeller Pattern	0613BBTD-21	Dia.Impulsor Prueba	Imp. Test Dia.	17.16 in	

Measurement no.	Lecturas No.			12	13
Motor speed	Velocidad de Motor	n_M	rpm	3573.1	3571.8
Pump speed	Velocidad de Bomba	n_P	rpm	3573.1	3571.8
Outlet pressure	Presión de Descarga	p_d	p.s.i.	1140.10	1184.46
Inlet pressure	Presión de Succión	p_s	p.s.i.	-5.9	24.5
Chamber pressure DE	Presión de Sello DE	p_{ito1}	p.s.i.		27.22
Chamber pressure NDE	Presión de Sello NDE	p_{ito2}	p.s.i.		37.31
Velocity head difference	Hv Dif. de velocidades	$(v_d^2-v_s^2)/2g$	ft	0.645	0.000
Pressure head outlet	Presión de carga de salida	H_d	ft	2640.02	2742.08
Pressure head inlet	Presión de carga de entrada	H_s	ft	-13.63	56.73
Pump head	Carga total	H	ft	2654.38	2685.43
				15.14	85.35
Pump capacity	Capacidad de la Bomba	Q	USGPM	700.51	0.28
Efficiency	Eficiencia	η	%		0.03
Electric power	Potencia Electrica	P_{el}	BHP		724.15
Motor efficiency	Eficiencia de motor	η_{Mot}	%		94.13
Motor power output	Potencia de salida del Motor	P_{Mot}	BHP		681.64
Pump input	P Entrada a la Bomba	P	BHP		681.64
Values converted to n_N and i stages		Valores corregidos n_N =		3576.0	
Efficiency	Eficiencia	η	%		0.03
Pump capacity	Capacidad de la Bomba	Q	USGPM	701.08	0.28
Pump head	Carga Din. Tot.	H	ft	2658.68	2691.76
Net. Pos. Suct. Head	Carga Net. Pos. Succ.	NPSH	ft	15.16	
Pump input at ρ_N	P Entrada a Bomba ρ_N	P	BHP		391.34

Probado por: / Tested by Brandon Arias
Fecha: Date 08.03.2024

Atestiguado por: / Witnessed by
Fulkrum Technical Resources
☐ Reviewed ☐ Monitored
Fecha: 08.03.2024 / Date
☒ Witnessed
X

Observaciones: / Remarks

Temperatura de Soporte: / Bearing temperature:
110.50 °F Brg Hsg DE
123.30 °F Brg Hsg NDE

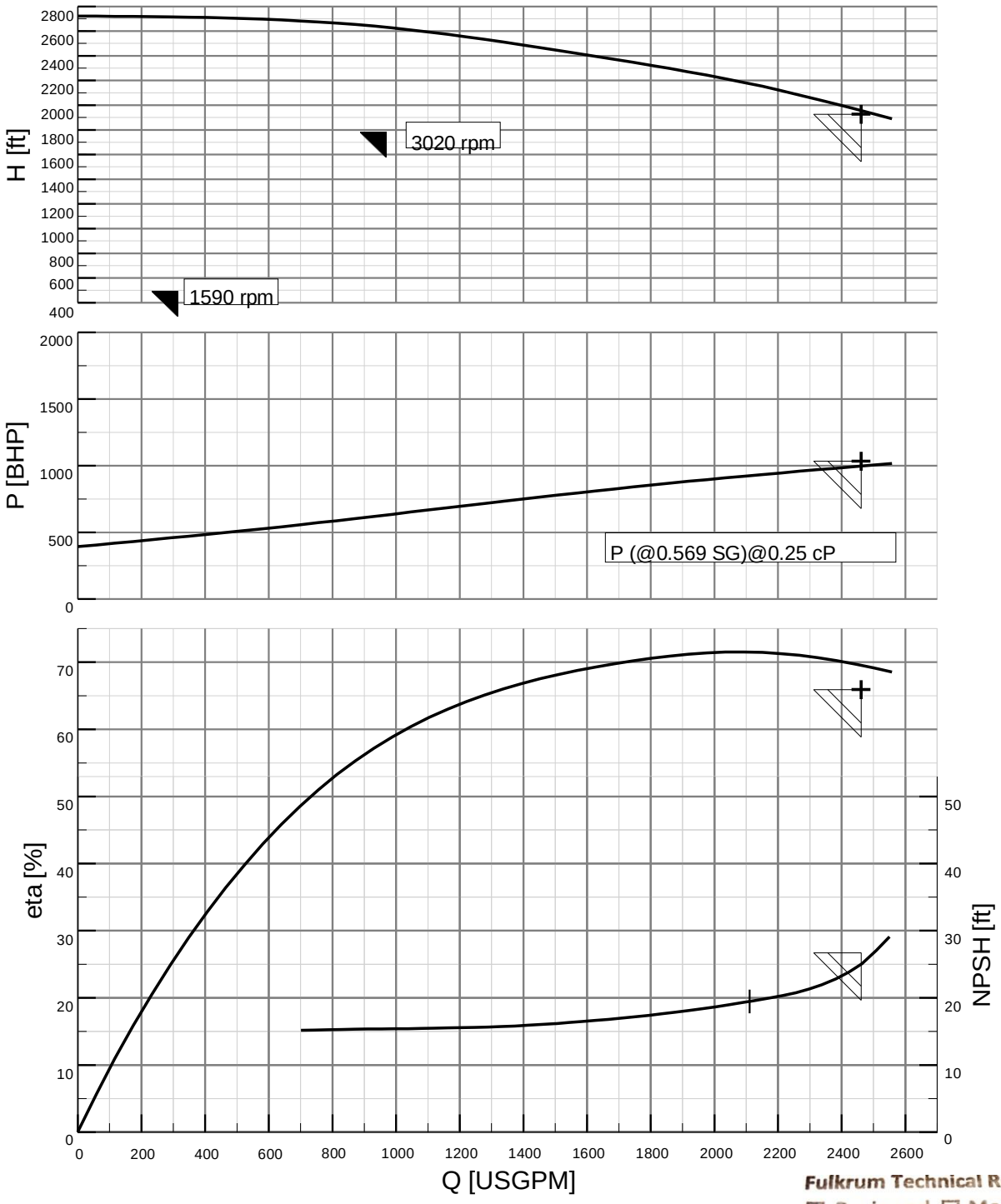
RATED POINT

F-BP-001

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SULZER CONFIDENTIAL

SULZER		1er Paso 1st Stage	Series Series	No. Or 100462910-0060-01
Curva de prueba ***M-13810*** Test Curve	Impulsor Impeller	EY10434 ...	EY10435...	Sulzer Comm.Nr.
Cliente Customer Air Products and Chemicals Inc.	Modelo Pattern	0613BBTD-21	0613BBTD-19	Tipo Type 6X8x18B BBTD
Orden Compra 4505610423	Difusor Diffuser	204508662/63...	204508664...	
No. Identif. Ident No. 18-P-359A	Modelo Pattern	614BBTD-05 w/-07 lip mod		
No. Serie. Item No. 650963	D2 Diseño. D2 design.	ø17.16 in	Venas Vane ø17.16 in	Reporte No. Test Report No. 50/24
Nombre Name Brandon Arias	D2 min. D2 min.	ø14.38 in		n= 3576 1/min. i= 2 Stufen Stages
Fecha Date 2024-03-08	D2 max. D2 max.	ø18.00 in		DN_s 8 in DN_d 6 in



Fulkrum Technical Resources
☐ Reviewed ☐ Monitored
☒ Witnessed
F-BP-002

PCP100462910060-01_Z22_000_0105ttt di-gep-3 REYESBE 2024-03-20T12:08:58 1.000 NP