

Contractual Data			LOOP DETAILS			
Capacity	[US gpm	350	Job Number	2006-0646201	Suction Nozzle [inch]	4
T.D.H.	[ft]	140	Customer	SUNCOR ENERGY	Discharge Nozzle [inch]	3
Speed	[RPM]	3545	P.O.	4500086160	Torque	Torquemeter
Abs. Power	[HP]	20.8	Item	03-P-106-B	Atm. Pressure [m]	10.3
Efficiency	[%]	59.6	PumpType	3 HPX 8 A	Water Temp. [°C]	26
NPSH	[ft]	10.6	Pump S.N.	D66512	Vap.Pressure [m]	.342
S.G.		1	Imp. Drawing	DDM903111	K NPSH [m]	0
Viscosity	[cSt]	10	Imp. Material	CA6NNMB	Flowmeter Device	0
Liquid		HYDROCARBON	Imp. Diameter	6.7 [inch]		
Temperature	°F	300	Specs	DE 3512.012 / 013		

Recorded Data				Calculated values							Values Converted to the contractual speed							3545	RPM
RPM	Flow	Discharge	Suction	Abs. Power	Flow	Kin	TDH	Power	NPSH	Flow	TDH	Power	NPSH	Eff	Vibration				
	[cum/h]	[m]	[m]	[kW]	[cum/h]	[m]	[m]	[kW]	[m]	US gpm	[ft]	[HP]	[ft]	[%]	DEH	NDEV	NDEH	NDEA	
3540	102.5	29	-5	15.4	102.5	1.35	30.85	15.4	0	451.9	101.5	20.73	0	55.9	N.R.	N.R.	N.R.	N.R.	
3540	90.3	37.8	.3	15.1	90.3	1.05	38.55	15.1	0	398.1	126.8	20.33	0	62.7	N.R.	N.R.	N.R.	N.R.	
3540	79.4	43	.65	14.5	79.4	.81	43.16	14.5	0	350.0	141.9	19.52	0	64.3	N.R.	N.R.	N.R.	N.R.	
3540	52.8	51.6	1.6	12.4	52.8	.36	50.36	12.4	0	232.8	165.6	16.69	0	58.3	N.R.	N.R.	N.R.	N.R.	
3540	27.7	55.5	2.15	9.95	27.7	.09	53.44	9.95	0	122.1	175.8	13.39	0	40.5	N.R.	N.R.	N.R.	N.R.	
3540	0	56.5	2.35	7.61	0	0	54.15	7.61	0	0	178.1	10.24	0	0	N.R.	N.R.	N.R.	N.R.	
3540	102.5	22.8	-5.8	0	102.5	1.35	29.95	0	4.78	451.9	98.54	0	15.7	0	N.R.	N.R.	N.R.	N.R.	
3540	90.3	29.6	-6.8	0	90.3	1.05	37.45	0	3.64	398.1	123.1	0	11.9	0	N.R.	N.R.	N.R.	N.R.	
3540	79.4	33.8	-7.35	0	79.4	.81	41.96	0	2.98	350.0	138.0	0	9.81	0	N.R.	N.R.	N.R.	N.R.	
3540	52.8	40.7	-7.85	0	52.8	.35	48.91	0	2.27	232.8	160.8	0	7.48	0	N.R.	N.R.	N.R.	N.R.	
3540	27.7	44	-7.8	0	27.7	.08	51.89	0	2.20	122.1	170.7	0	7.24	0	N.R.	N.R.	N.R.	N.R.	

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Test Date : 04/12/2006	Date of Issue : 4/12/2006			
Brg. Temperature	DE	95 °F	NDE	84 °F
Ambient		70 °F		
Notes : EFF.CY WIT WATER=64%(CE=0.93)-ABS POWER=14.38KW(19.55 HP)				
Operator : Worthington S.p.A. TEST ROOM DEPT.				
Quality Assurance : Flowserve - Worthington S.p.A. Quality Assurance Dept				



Ingersoll-Dresser Pumps

Certified Performance

Worthington S.p.A.
Via Rossini 90/92
Desio (MI) - Italy

Tested :

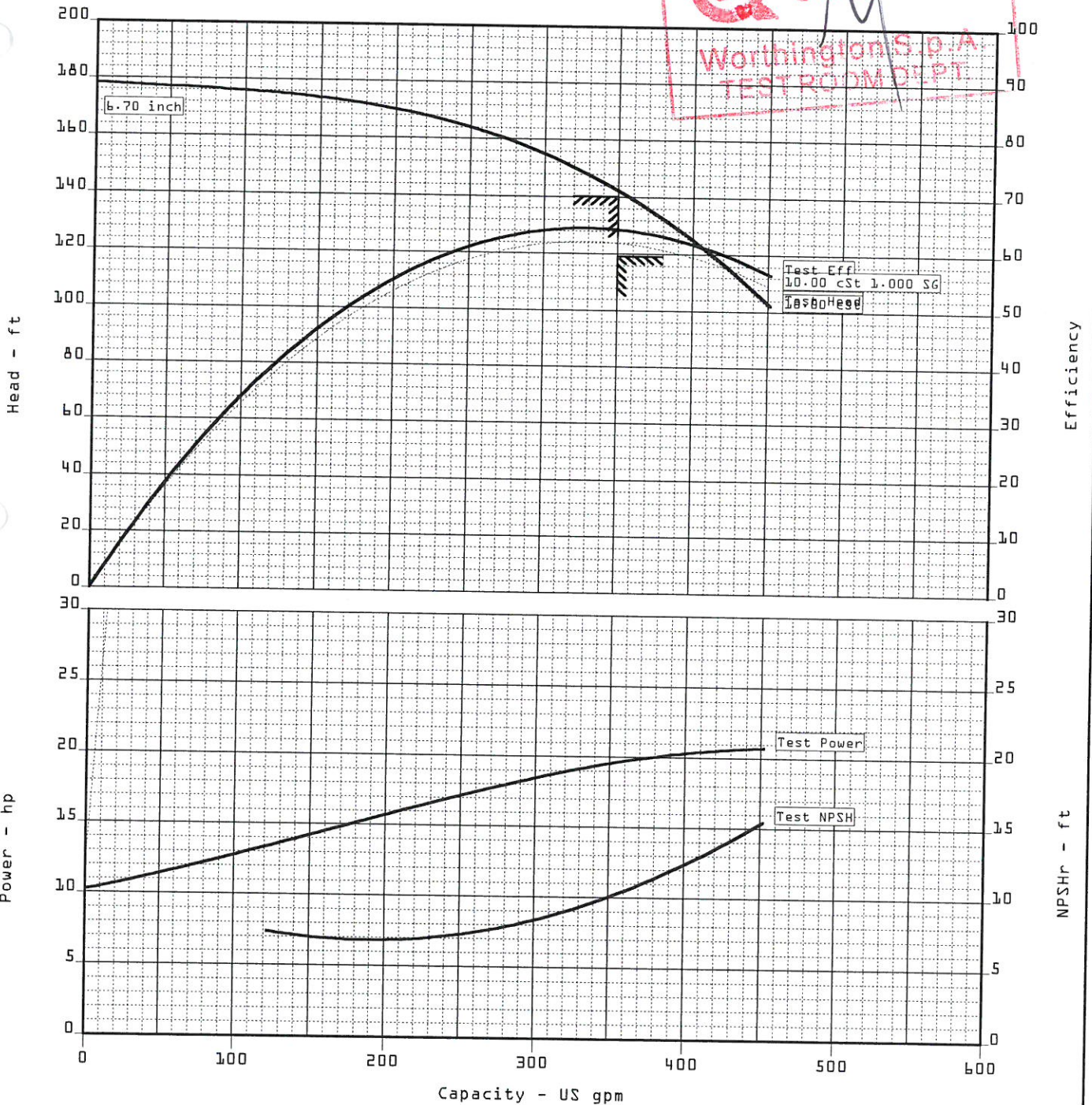
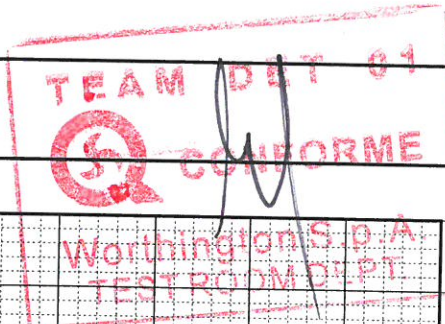
Certified :

Information

IDP Order : 2006-0646201
IDP Item :
Pump size & type : 3 HPX 8 A
Customer : SUNCOR ENERGY
Customer Item : 03-P-106-B
Test Date : Dec 04, 2006
Pump Serial No. : D66512
Curve number : SC146_06
Imp Pattern :
Imp Drawing No. : DDM903111
Case Pattern :
Case Drawing No. :

Rated Point

Capacity : 350.0 US gpm
Head : 140.0 ft
NPSHr : 10.6 ft
Efficiency : 59.6 %
SG : 1.000
Viscosity : 10.0 cSt
Running speed : 3545 rpm
Maximum Imp : 8.40 inch
Minimum Imp : 6.50 inch





Pump Division, formerly IDP

Worthington Spa

TEST CERTIFICATE No. SC146_06

Customer	SUNCOR ENERGY	Curve No.	
Purchaser		Test Date	04/12/2006
Purchase Order No.	4500086160	FPD Job No.	2006-0646201
Item No.	03-P-106-B	Certified By	
Pump Serial No.	D66512	Witnessed by	
Size and Type	3 HPX 8 A		
No. of Stages			

Hydraulic Performance

	Rated Viscous	H ₂ O	Tested	Actual Deviation + / - %	Acceptance Tol. + / - %
Flow US gpm	350		350.09	+0.2	---
Head ft	140		141.98	+1.41	-2/+5
Power BHP	20.8	19.55	19.52	-	+4
NPSHR 3% ft	10.6		9.81	-7.37	0
Shut off Head ft	175.8		178.11	+1.31	-10/+10
Speed RPM	3545		3540	-1.5	-3/+3

Pump Construction Data

Stage 1		Series Stages	
Impeller Diameter	6.7 inch	Impeller Diameter	inch
Impeller Pattern No.	DDM903111	Impeller Pattern No.	
No. of Vanes		No. of Vanes	
Volute / Diffuser		Volute / Diffuser	
Pattern No.		Pattern No.	
Blade Tip Clearance	%	Blade Tip Clearance	%

Mechanical Performance

Maximum Vibration Levels recorded within specified flow region

		Rated Flow		Preferred Operating Region		Allowable Operating Region	
		Tested	Specified	Tested	Specified	Tested	Specified
Housing Velocity :							
Drive End :	Overall	0.059	0.1181	0.063	0.1181	0.071	0.1535
	Filtered	0.051	0.078	0.055	0.078	0.063	0.1023
Non - Drive End :	Overall		3.0		3.0		3.9
	Filtered		2.0		2.0		2.6
Shaft Displacement :							
Drive End :	Overall						
	Filtered						
Non - Drive End :	Overall						
	Filtered						

Bearing Temperatures

Pressurized Lubrication Systems	Ring Oil or Splash Systems
Ambient Temp.	Ambient Temperature <input type="text" value="70"/> °F
Oil Temp. Rise	Oil Temp. Rise (Bearing Temp. Rise)
Oil Outlet Temp.	DE: <input type="text" value="25"/> °F NDE: <input type="text" value="14"/> °F
Max. Bearing Metal Temp.	Oil Sump Temp. (Brg. Housing Temp.)
Drive End Journal	DE: <input type="text" value="95"/> °F NDE: <input type="text" value="84"/> °F
Non Drive End Journal	
Thrust Bearing	

