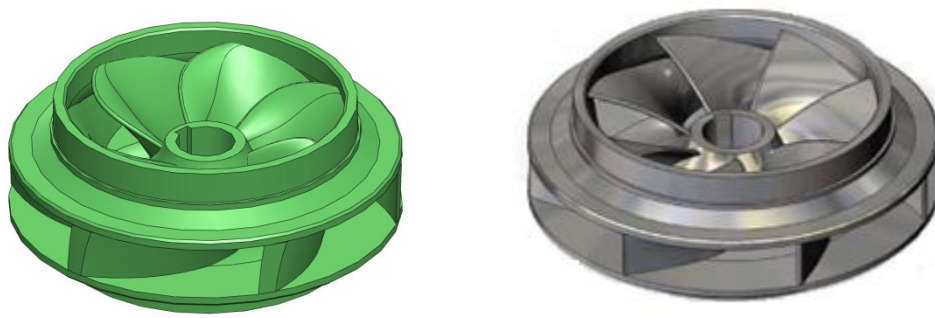
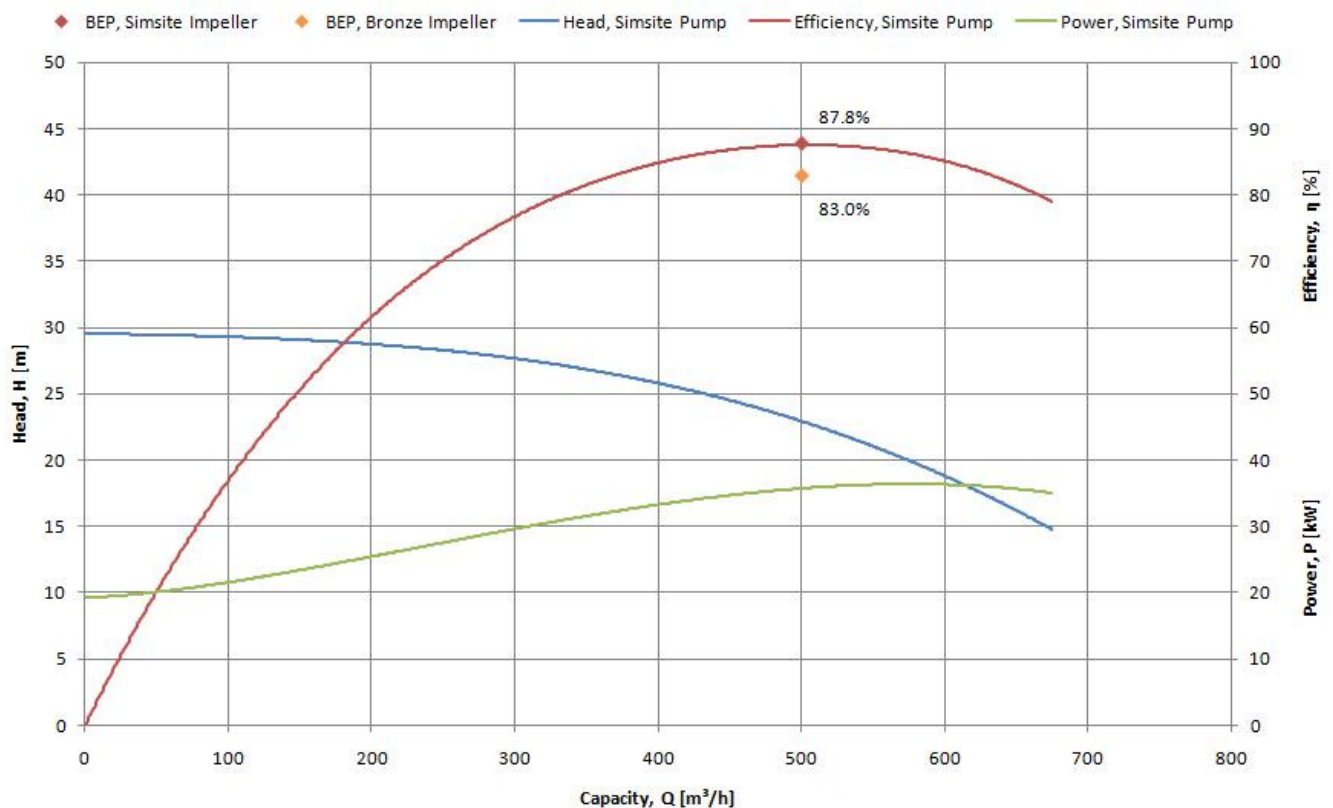


Simsite® Impeller Surpasses Bronze Impeller Efficiency



Upon the request to redesign an impeller for a German based Rutschi Pumpen pump, **Sims** took on the task to make a few modifications to improve the performance of the impeller. The **Simsite®** impeller (left) exhibits an increase in efficiency from 83% from the bronze impeller (right) to 87.8%!

Rutschi Pumpen, CN250-200-315, 5373A





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 Fax ++41 (0)56 / 460 55 05

**PRÜFPROTOKOLL
 CERTIFICATE OF TEST
 PROCES VERBAL D'ESSAI**

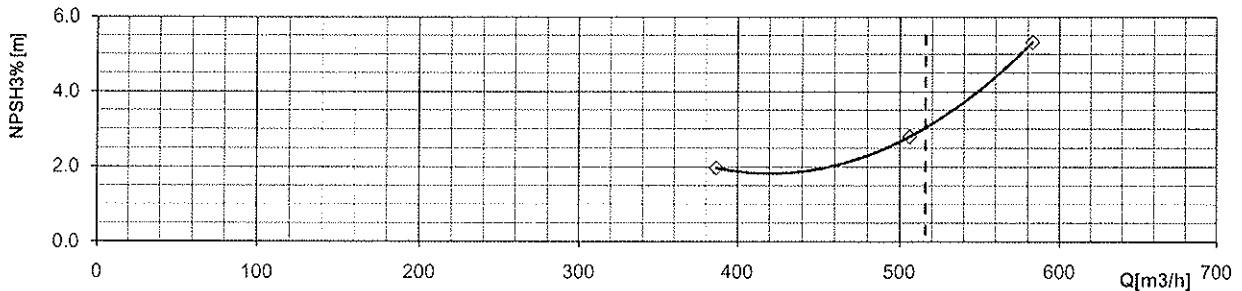
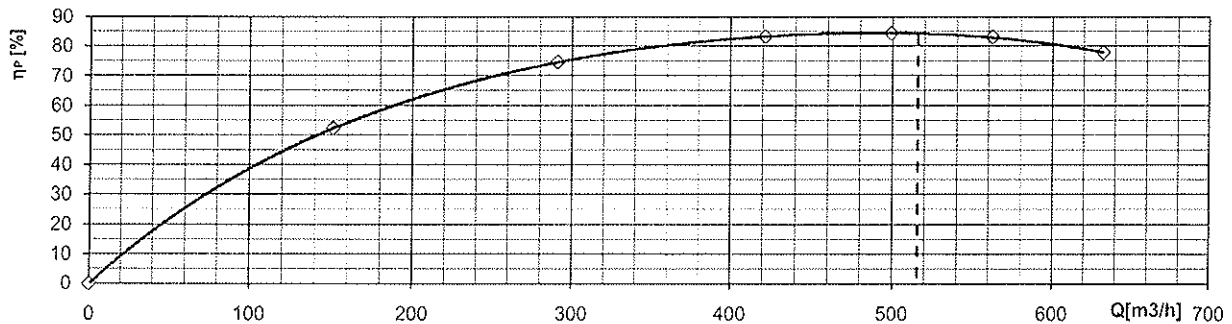
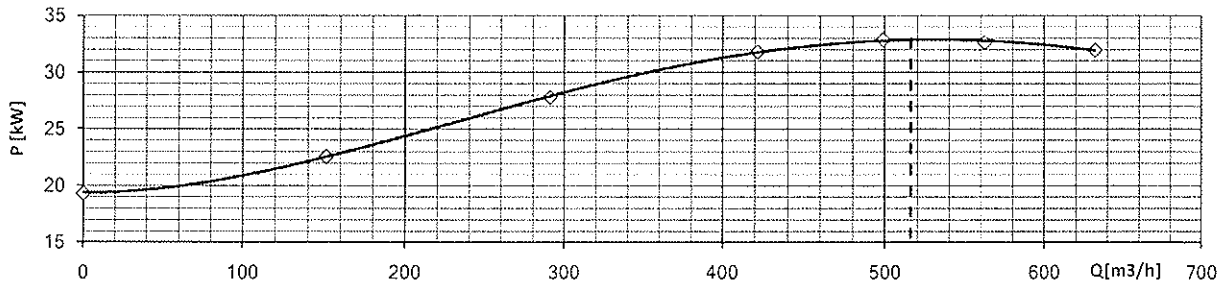
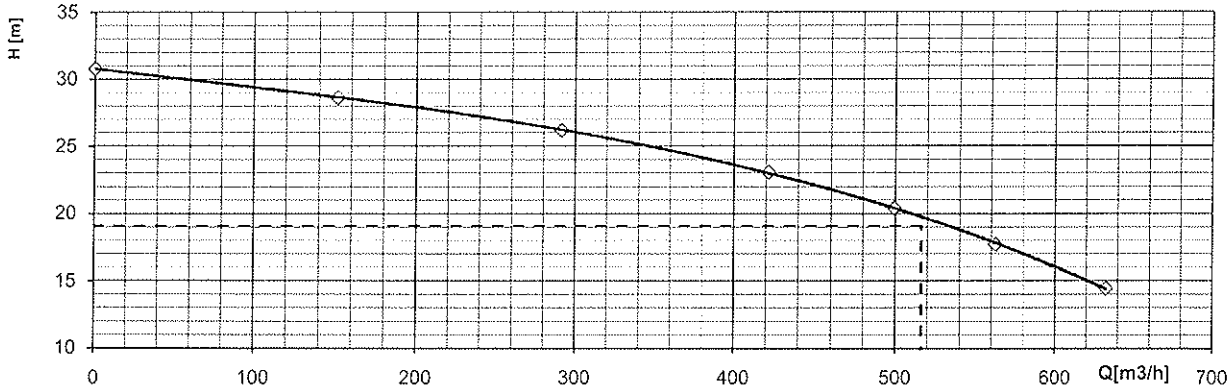
PRÜF NR. L09023F
 TEST NO.
 NO. D'ESSAI
 SEITE/VON 2/4
 PAGE/OF
 PAGE/DE

COMPONENT : SEA COOLING WATER PUMP

KUNDE CUSTOMER SIMS International GmbH	ANLAGE PLANT	PUMPENTYP TYP OF PUMP MST 250-200-315/306
CLIENT	SITE, ITEM	TYPE DE POMPE
KOMP.NR. COMP.NO.	KLASSE CLASS	AUSWERTUNG DER DATEN NACH SPEZ. NR. TEST VALUES ACC. TO SPEC. NO. ISO 9906/Grade 2
REPERE FONCT.	CLASSE	CARACT. EVALUEES SELON SPEC. NO.
KUNDENAUFTRAGSNR. CUSTOMER ORDER NO.	FABR. NO. PRM : 9'603'701 RFAG : 39.501.080	PRÜFTAG TEST DATE 27.08.2009
NO. DU CONTRAT DU CLIENT		DATE DE L'ESSAI

KENNLINIEN DER PUMPE PUMP CURVES COURBES DE LA POMPE

ρ [kg/m³] = 1000 n [min⁻¹] = 1450 v [10⁻⁶ m²/s] = 1.00 GEHÄUSE : 9.21.2070 LFRD : 5373A Ø [mm] : 306



GEPRÜFT / CHECKED / VERIFIE		KUNDE / CUSTOMER / CLIENT		INSPEKTOR / A. I. / INSPECTEUR	
NAME	M. Frei	NAME		NAME	
DATE	27.08.2009	DATE		DATE	



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**PRÜFPROTOKOLL
CERTIFICATE OF TEST
PROCES VERBAL D'ESSAI**

PRÜF NR.
TEST NO. **L09023F**
NO. D'ESSAI
SEITE/VON
PAGE/OF
PAGE/DE **3/4**

COMPONENT : **SEA COOLING WATER PUMP**

KUNDE CUSTOMER SIMS International GmbH CLIENT	ANLAGE PLANT SITE, ITEM	PUMPENTYP TYP OF PUMP TYPE DE POMPE MST 250-200-315/306
KOMP.NR. COMP.NO. REPERE FONCT.	KLASSE CLASS CLASSE	AUSWERTUNG DER DATEN NACH SPEZ. NR. TEST VALUES ACC. TO SPEC. NO. ISO 9906/Grade 2 CARACT. EVALUEES SELON SPEC. NO.
KUNDENAUFTRAGSNR. CUSTOMER ORDER NO. NO. DU CONTRAT DU CLIENT	FABR. NO. PRM : 9'603'701 RFAG : 39.501.080	PRÜFTAG TEST DATE DATE DE L'ESSAI 27.08.2009

LEISTUNGSPRÜFUNG PERFORMANCE TEST ESSAI HYDRAULIQUE

LAUFRAD Z.NR. IMPELLER DRAW. NO. 5373A PLAN DE LA ROUE A AUBE	LAUFRAD-Ø IMPELLER Ø D2*= 306 mm Ø DE LA ROUE A AUBE	GEHÄUSE / LEITRAD Z.NR. CASING / DIFFUSOR DRAW. N. 9.21.2070 PLAN DU CORPS / DIFFUSEUR
SAUGSTUTZEN-Ø SUCTION NOZZLE Ø DN ASPIRATION 250	DRUCKSTUTZEN-Ø DISCHARGE NOZZLE Ø DN REFOULEMENT 200	$\Delta y = 0.0$ [m]
FÖRDERFLÜSSIGKEIT PUMPED LIQUID (TEST) FLUIDE D'ESSAI WATER / EAU	DICHTE DENSITY DENSITE 1000 kg/m3	TEMPERATUR TEMPERATURE TEMPERATURE 25.0 °C

MOTOR MOTEUR

HERSTELLER MANUFACTURER CONSTRUCTEUR VEM/L&U	TYP TYPE TYPE K21R 250 M 6-4	MOTOR NR. MOTOR NO. MOTEUR NO. 090560/0002 H	NENNLEISTUNG RATED POWER PUISS. NOMINALE 50.0 kW
SPANNUNG ³ Y VOLTAGE 400 V TENSION	NENNSTROM MOTOR CURRENT INTENSITE NOMINALE 92.5 A	FREQUENZ FREQUENCY FREQUENCE 50 Hz	DREHZAHL SPEED VITESSE 1478 min-1
MOTORKENNLINIE CURVE OF MOTOR COURBE DE MOTEUR			
	P_2 kW	11.17 17.63 24.10 30.56 37.02	MOTOR SHAFT POWER
	η_{Mot} %	90.4 93.7 94.0 94.8 94.0	MOTOR EFFICIENCY

MESSWERTE / MEASURED VALUES / VALEURS MESUREES

MEASURING POINT			1	2	3	4	5	6	7	8	9	10
TEST SPEED	n	min ⁻¹	1486	1485	1485	1486	1488	1490	1492	-	-	-
SUCTION HEAD	H _s	m	1.00	1.70	2.10	2.70	3.30	3.80	4.00	-	-	-
PRESSURE HEAD	H _d	m	15.2	19.5	22.9	26.5	30.7	34.0	36.6	-	-	-
VELOCITY HEAD	$\Delta c^2/2g$	m	0.99	0.78	0.61	0.44	0.21	0.06	0.00	-	-	-
POWER READING I	Watt I	-	12.20	12.40	12.50	12.10	10.60	8.63	7.46	-	-	-
POWER READING III	Watt II	-	12.50	12.70	12.80	12.40	10.90	8.94	7.75	-	-	-
POWER READING III	Watt III	-	11.80	12.10	12.20	11.80	10.30	8.39	7.23	-	-	-
INPUT POWER	P ₁	kW	36.50	37.20	37.50	36.30	31.80	25.96	22.44	-	-	-
TENSION READING	U	-	228.2	229.7	229.2	229.2	228.7	229.5	229.4	-	-	-
TENSION	U	V	395	398	397	397	396	398	397	-	-	-
CURRENT READING R	I _R	-	65.4	66.0	66.5	64.5	57.8	48.8	43.9	-	-	-
CURRENT READING S	I _S	-	65.2	66.1	66.5	64.5	57.6	48.8	43.8	-	-	-
CURRENT READING T	I _T	-	62.5	63.5	63.7	61.8	55.2	46.5	41.6	-	-	-
CURRENT MEAN VALUE	I	A	64.4	65.2	65.6	63.6	56.9	48.0	43.1	-	-	-
CAPACITY	Q	m ³ /h	648.0	576.0	511.2	432.0	298.8	155.5	0.0	-	-	-
		l/s	180.0	160.0	142.0	120.0	83.0	43.2	0.0	-	-	-
TOTAL HEAD	H	m	15.19	18.6	21.4	24.2	27.6	30.3	32.6	-	-	-
SHAFT POWER	P	kW	34.43	35.07	35.34	34.25	30.07	24.51	21.09	-	-	-
EFFICIENCY PUMP	η_{pump}	%	77.9	83.2	84.4	83.3	74.8	52.3	0.0	-	-	-
TOTAL EFFICIENCY	η_{tot}	%	73.5	78.4	79.5	78.6	70.7	49.4	0.0	-	-	-

UMGERECHNETE WERTE / CONVERTED VALUES / VALEURS CALCULEES

n = <input type="text" value="1450"/> min ⁻¹	Q	m ³ /h	632.3	562.4	499.2	421.5	291.2	151.3	0.0	-	-	-	
		l/s	175.6	156.2	138.7	117.1	80.9	42.0	0.0	-	-	-	
	ρ = <input type="text" value="1000"/> kg/m ³	H _{man}	m	14.46	17.71	20.42	23.08	26.22	28.65	30.79	-	-	-
		P	kW	31.99	32.65	32.90	31.82	27.82	22.58	19.36	-	-	-
	η_{pump}	%	77.9	83.2	84.4	83.3	74.8	52.3	0.0	-	-	-	

BEMERKUNGEN

REMARKS D2max=316, casing hydraulic drawing nr. 9.08.094, NPSH3% conversion with exponent x=1.46
REMARQUE

GEPRÜFT / CHECKED / VERIFIE	KUNDE / CUSTOMER / CLIENT	INSPEKTOR / A. I. / INSPECTEUR
NAME M. Frei DATE 27.08.2009	NAME DATE	NAME DATE