KSB Aktiengesellschaft
Engineered Pumps Division

Inspection Report

Customer:	KSB POMPA			Serial no.:	4-G21-200 210
Type / size	HGM 4	no. of stages	5	Frankenthal,	26.02.2004
DN_S	150 mm	DN_D	98 mm	D_2 1st stage	332/11.7 mm
		ausgefeilt		D_2 following stages	332/11.7 mm
				D_2 1st stage	- mm
				D_2 following stages	- mm
Tolerances to:	ISO 9906 /2			Revaluation of efficiency acc. to Karassik:	ja

Technical Data of Purchase Order:

Duty point 1						Duty point 2					
Q*	211	n	2982 1/min	t	116 °C	Q*		n	1/min	t	°C
H	726 m	H_O	- m	s. g.	946 kg/m³	H	m	P_P	kW	s. g.	kg/m³
η	76.7 %	P_P	514.7 kW	Q_{min}*	45	η	%	P_M	kW		
NPSH	5.1 m	P_M	- kW	H_{min}	903 m	NPSH	m				

Torsion rod / Torque indicator	2 kNm	Constant	--	IDM*	A1/54701	t 27.0 °C Test field water	s. g. 996.6 kg/m³
Test motor	400 kW	Gear	----	max. pressure gauge reading suction side	6 bar	discharge side 160 bar	speed measurement T30FN
ambient temperature	21.0 °C	atmosph. pressure	.995 bar	measuring point difference y	0.00 m	*inductive flow measurement Q = m3/h	Files: 260204.0x0

Measuring results at test speed

$n_{1/min}$	Q*	P_D bar	P_S bar	$\frac{\Delta c^2}{2g}$ m	H m	Md Nm	NPSH m	P_P kW	η_{cold} %	Q_E m³/h
2982.	44.70	92.7	4.02	.11	905.1	854.6	----	266.9	41.16	3.83
2982.	100.90	91.2	3.29	.58	897.8	1195.6	----	373.4	65.87	3.67
2900.	148.40	80.6	2.71	1.25	796.3	1423.7	----	432.4	74.20	3.46
2732.	193.30	62.1	2.01	2.11	615.6	1502.0	----	429.7	75.18	3.12
2696.	206.80	57.0	1.76	2.42	566.5	1520.0	----	429.1	74.10	2.89

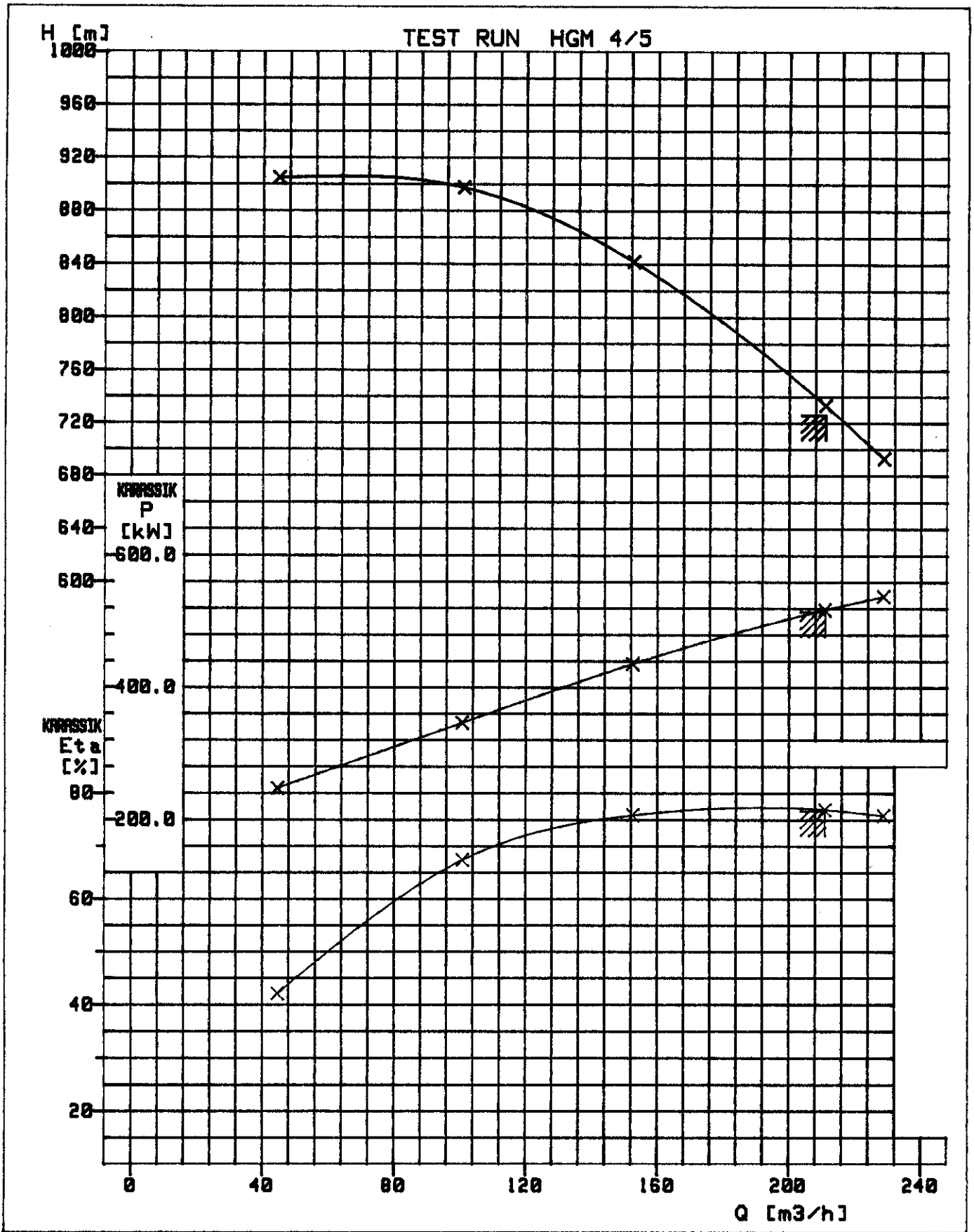
Conversion to Operating Conditions

Q*	H m	NPSH m	P_{cold} kW	P_{warm} kW	η_{cold} %	η_{warm} %
44.70	905.1	----	266.9	247.3	41.16	42.16
100.90	897.8	----	373.4	346.0	65.87	67.47
152.60	842.0	----	470.1	435.7	74.20	76.00
210.99	733.5	----	558.8	517.9	* 75.18	77.01
228.74	693.0	----	580.7	538.2	74.10	75.90

Signatures:

Inspector: J. [illegible] | Customer:

KSB-Form 500 133-E/1



KSB	Code :		Type/No.of stages:HGM 4 / 5	
	Customer: KSB POMPA		D_2 (1. stage) [mm] D_2 normal:332/11.7	D_2 trimm:-
	Works No.: 4-G21-200 210		D_2 (2...n stage) [mm] D_2 normal:332/11.7	D_2 trimm:-
	Date: 26.02.2004	speed [1/min] :2902	Temperature [°C] :116	Density [kg/m3] :946
Copyright acc. to DIN 34.1E	Name: R. KÖNIG		Dept.: V 1124	No.: A / 350 549 /1