

METSO HM200 CENTRIFUGAL SLURRY PUMP



General factors

Motor safety factor = 1.15

Liquid data

Density liquid = 998 kg/m³
 Dynamic viscosity = 0.00101 Pa.s
 Kinematic viscosity = 1.01 mm²/s
 Vapour pressure = 0.2 m wc
 Liquid temperature = 20 °C
 pH - value = 7.0

General

Date = 2009-09-10
 Client =
 Enquiry reference =
 Item number =
 Equipment number =
 Application =

Site conditions

Altitude = 55.0 m
 Max ambient temperature = 20 °C
 Voltage = 400 V
 Frequency = 50 Hz

Inlet side conditions

Inlet head = 0.0 m lc
 NPSH available = 10.0 m lc

Outlet side conditions

Duty data

Duty classification = Mildly abrasive (Class 1)

Summary

Total differential head = 75.0 m lc

Slurry flow rate = 225.0 l/s



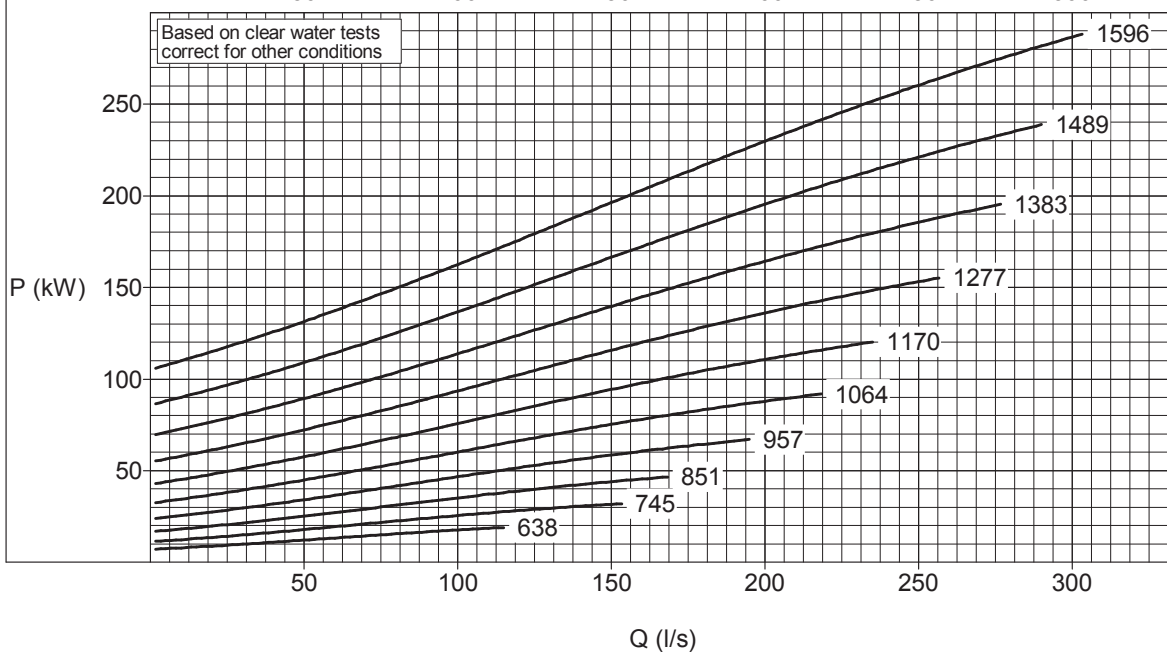
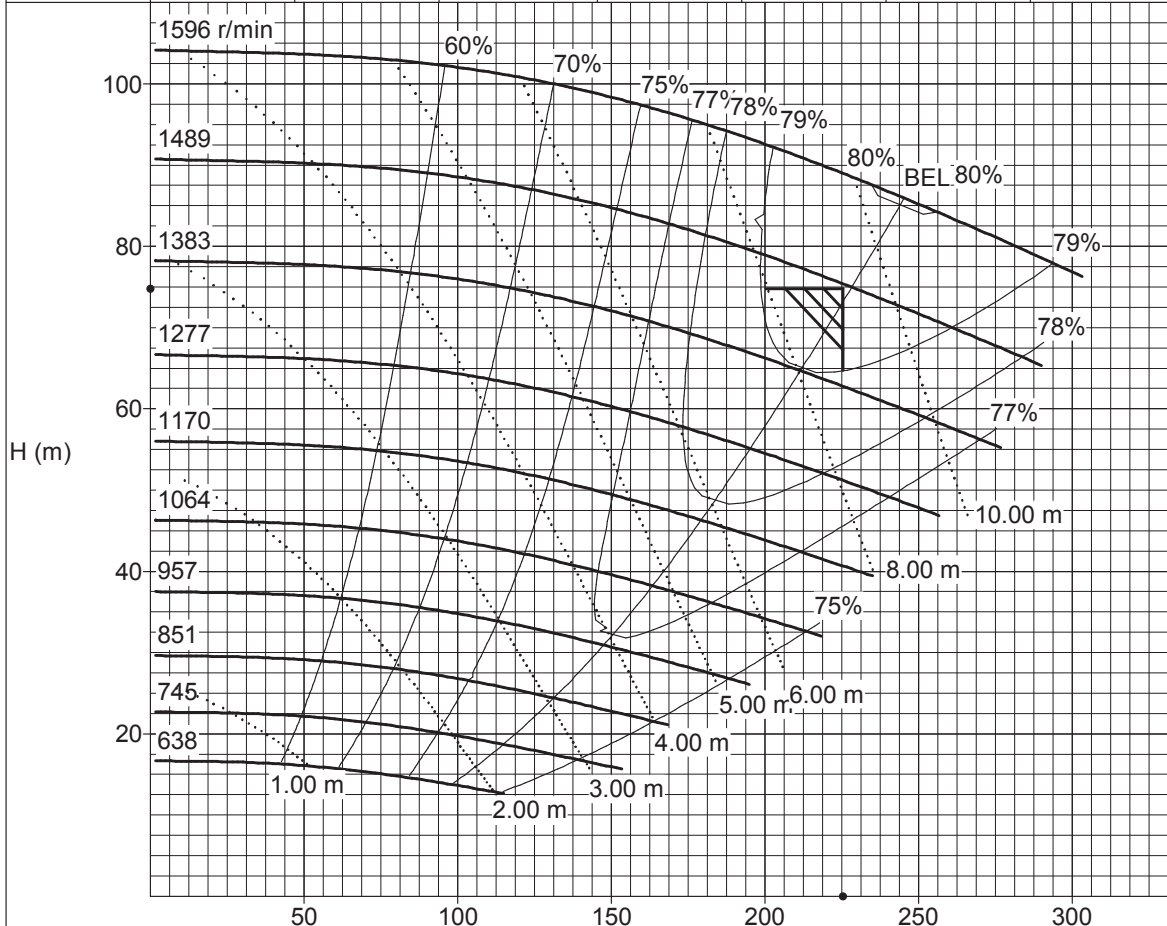
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Part No./Build No.	= PDWC5141200D94		
Pump type	= HM		
Pump size	= 200		
Impeller	= Closed		
Impeller diameter	= Reduced size (D94) = 470.0 mm		
No. of vanes	= 5		
Inlet diameter	= 200.0 mm	gives velocity	= 7.2 m/s
Outlet diameter	= 150.0 mm	gives velocity	= 12.7 m/s
Inlet flange	= DN200 PN16		
Outlet flange	= DN150 PN16		
Liner material	= High Chrome		
Impeller material	= High Chrome		
Max sphere	= 60.0 mm		
Shaft sealing	= Expeller		
Note	= Max allowed inlet head (sump level) is 25.8 m lc		
Calculated pump speed	= 1484 rpm		
Calculated tip speed	= 36.5 m/s		
Actual speed	= 1484 rpm @ 50 Hz		
Critical speed range	= 4854 -- 7280 rpm		
Pump shutoff head:	= 90.4 m lc		
NPSH required	= 9.2 m lc	NPSH available	= 10.0 m lc
Slurry flow rate	= 225.0 l/s	<i>Water</i> 225.4 l/s	(Hydraulic Institute) HR = 100.0 %
Pump differential head	= 75.0 m lc	74.8 m lc	ER = 100.0 %
Efficiency	= 79.5%	79.5%	QR = 99.8 %
Power consumption	= 207.8 kW	207.8 kW	
Selected motor	= 250 kW; IEC 355S; 4-pole; 400V; 50Hz		
BEP flow	= 227.0 l/s	227.4 l/s	
Peak efficiency	= 79.5%	79.5%	
Axial load	= 0.5 kN		
Radial load	= 2.54 kN		
SFF factor (L ³ /D ⁴)	= 0.287 rec(mm)		
Shaft deflection at gland	= 0.02560 mm	Max allowed deflection 0.25000 mm	
Shaft deflection at impeller	= 0.06692 mm		
Bearing L10-life dry end	= >1000000 h		
Bearing L10-life wet end	= >1000000 h		
Drive			
General arrangement	= None		



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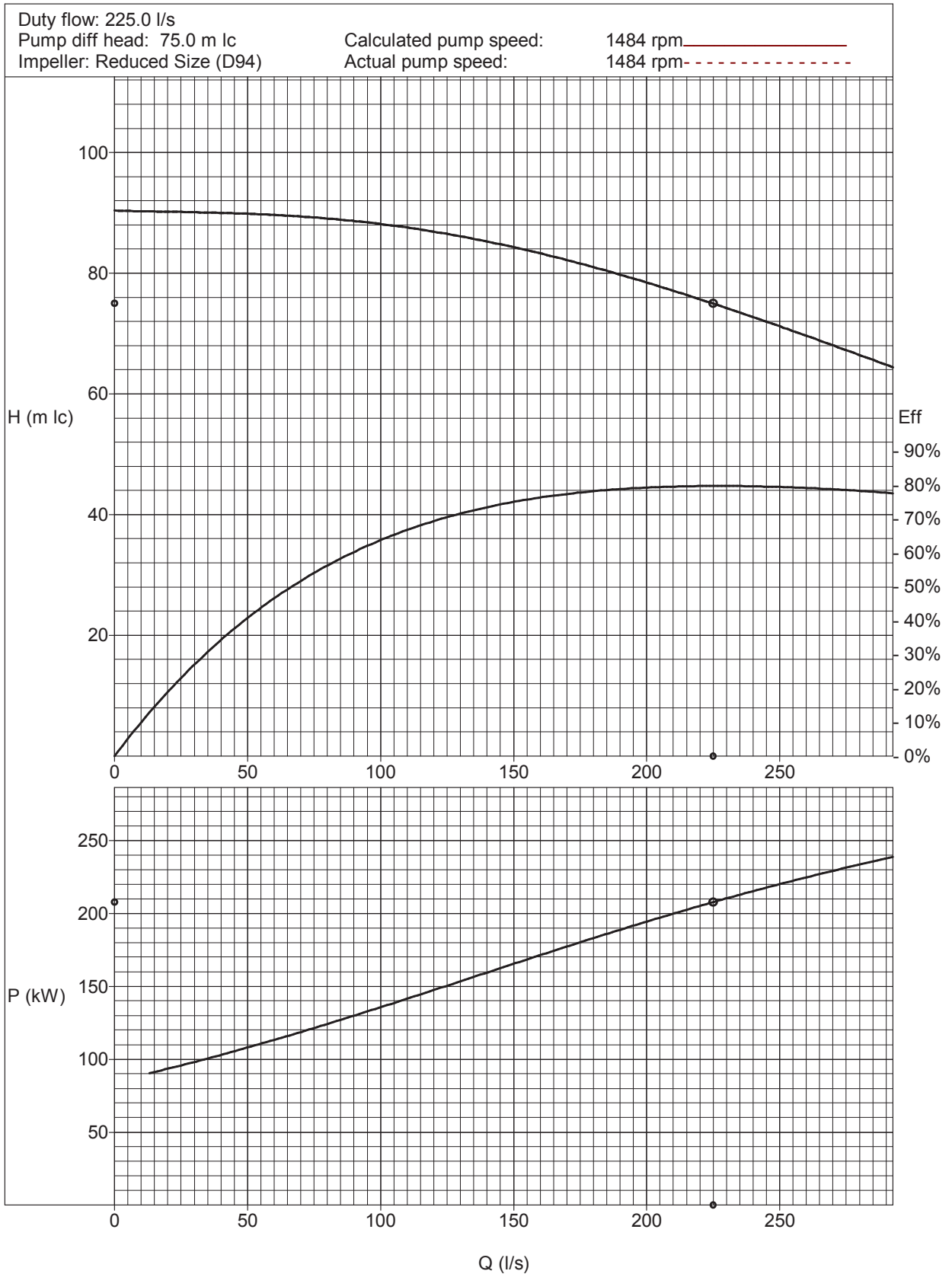
Full imp dia	Vane diameter	Vane config	Impeller type	No. of vanes	Max sphere	Imp material	Liner material
500 mm	470 mm	D94	Closed	5	60 mm	High Chrome	High Chrome



Based on clear water tests correct for other conditions



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