OT

SELF PRIMING PUMPS

RAPID ALLWEILER PUMPS

WE HAVE ALL THE TICKS

- FOUNDED IN 1932
- LEADING PROVIDER OF TOP QUALITY PRODUCTS
- LOCAL MANUFACTURE
- ACCREDITED PUMP REPAIR/SERVICE WORKSHOP
- TAILOR MADE PUMPING SOLUTIONS
- STATE OF ART TRAINING CENTRE
- CBS: QUALITY MANAGEMENT SYSTEM
- BEE ACCREDITED
- DEEP APPLICATION KNOWLEDGE

Version 1 - OT: Rapid Allweiler Pumps

COLFAX Fluid Handling
ALLWEILER

OT
SELF PRIMING PUMPS

APPLICATION

- Sewage
- Water Treatment
- Sugar
- Pulp and Paper Industry
- Civil Engineering
- Agriculture
- Raw water

RA Pump Range	Minimum Flow (m^3/h)	Maximum Flow (m^3/h)	Minimum Head (m)	Maximum Head (m)	Maximum Temperature
OT	5	1200	3	40	80°C

DESIGN & CONSTRUCTION

- The pump casings are manufactured from high grade Cast Iron and have sufficient overall volume for reliable priming and re-priming without the need for external priming equipment.
- Replaceable wear plates in the event that abrasive applications occur.
- Back pull out arrangement which allows the entire rotating assembly to be removed without disturbing the suction and discharge pipe work or the electric motor, provided a spacer coupling is incorporated.
- Semi open type impellers which allow for the passing of large solids (up to 76mm).
- Sizes available from 50mm up to 300mm all based on the principal of self-priming which will exceed 6 meters at sea level.

Shaft Seal

- Mechanical Seal: Silicon-Silicon/Viton.

Flanges

- B.S. 4504 flanges are rated for 10 bar and drilled to EN 1092.1 (DIN 2532).

MATERIALS OF CONSTRUCTION

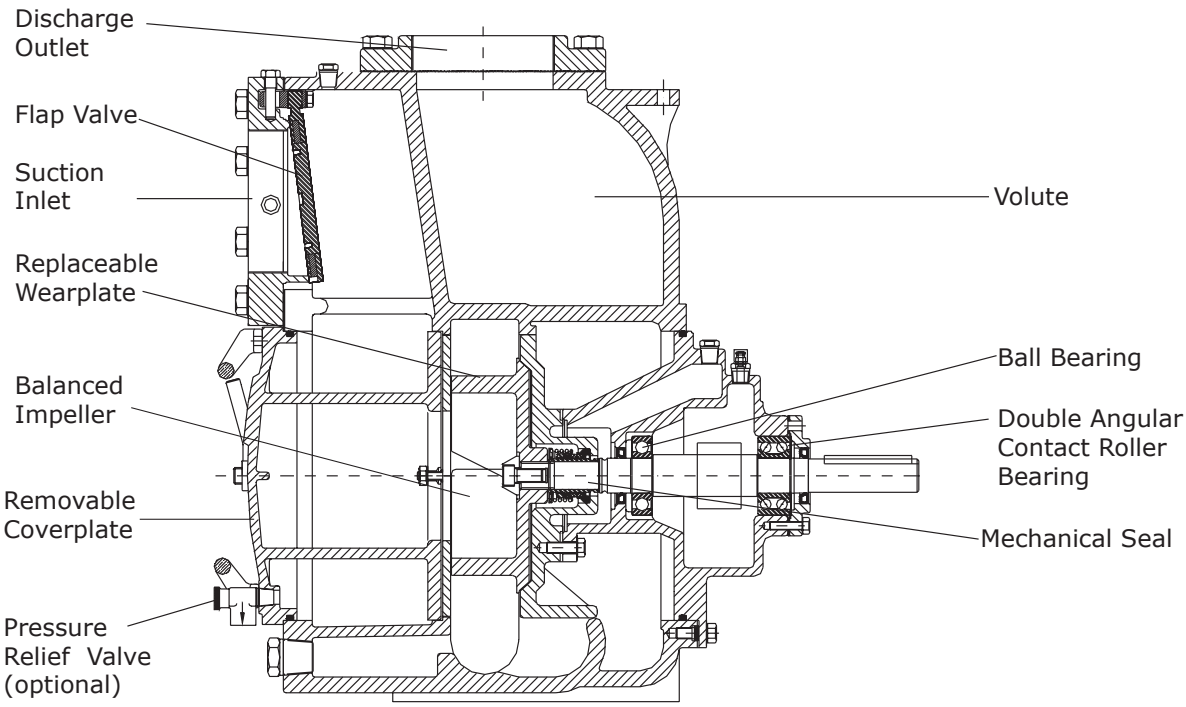
Casing:	Cast Iron
Impeller:	Ductile Iron, Bronze, Stainless Steel
Wear Plate:	Ductile Iron, Bronze, Stainless Steel
Shaft:	Carbon Steel 1045
	Stainless Steel 304
	Stainless Steel 316

MODEL DESCRIPTION

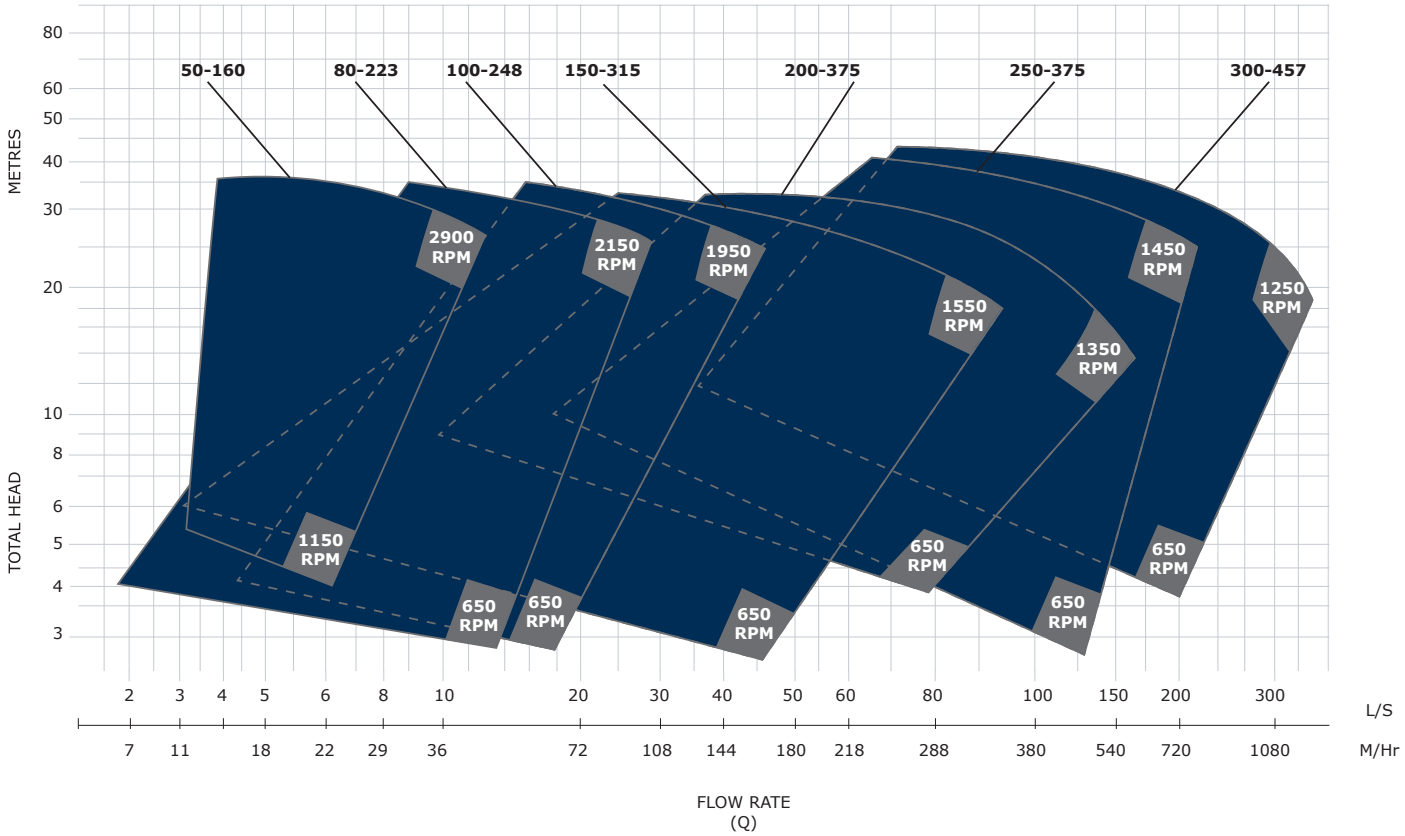
OT-80-223-CI-BR-SS

- Shaft Material
- Impeller and Wear Plate Material
- Casing Material
- Impeller Nominal Size (mm)
- Suction and Discharge Size (mm)
- Self Priming Centrifugal Sewage Pump

SECTIONAL DRAWING

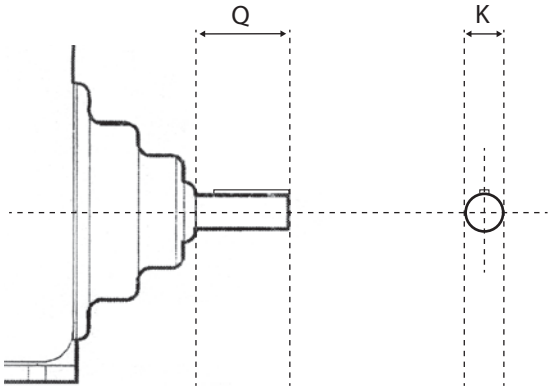


TOMBSTONE CURVE

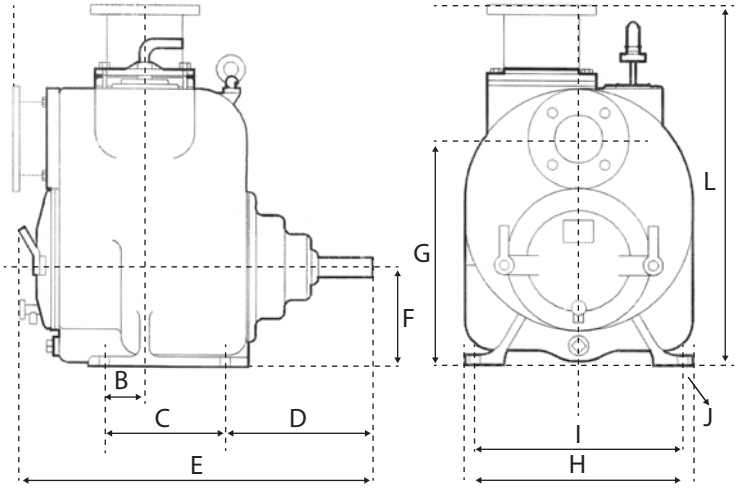


DIMENSIONS

Shaft

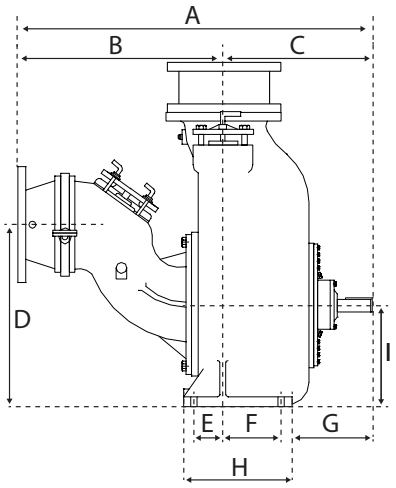


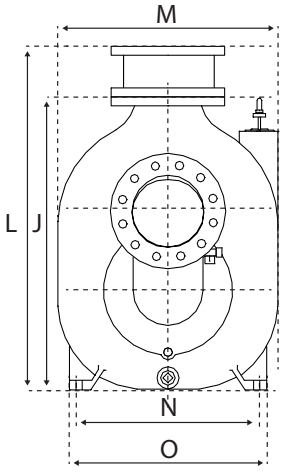
Models: OT50-160, OT80-223, OT100-248, OT150-315 and OT200-375



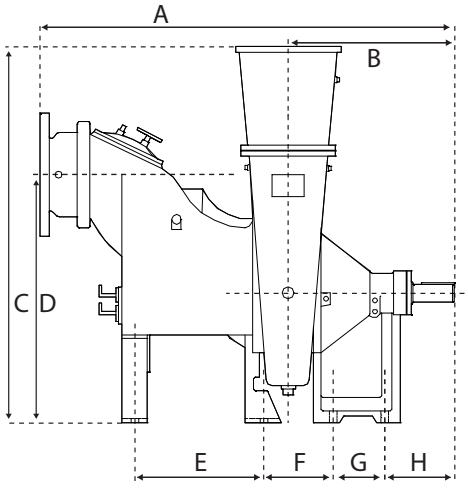
Model	Pump Dimension									Shaft End	
	B	C	D	H	I	E	F	G	L	K	Q
OT50-160	54	163,2	275	308,3	281	547	151,5	318	523	38,1	101,6
OT80-223	76,2	228,6	284,2	431,8	393,7	668,3	190,5	431,8	687	38,1	101,6
OT100-248	77,8	279,4	293,7	501,7	457,2	768,4	222,2	495,3	743	38,1	127
OT150-315	77,8	279,4	293,7	577,9	527	801,7	257,2	568,3	896	38,1	127
OT200-375	101,6	304,8	407,1	704,9	635	1023,1	330,2	723,9	1068,3	44,5	169,9

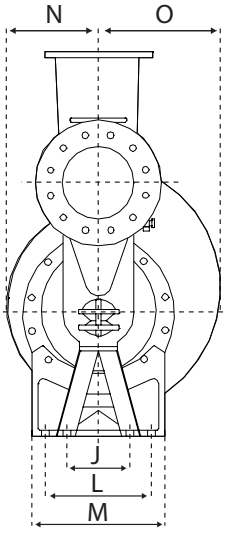
Model: OT250-375





Model: OT300-457





Model	Pump Dimension													Shaft End	
	G	E	F	H	O	N	J	L	M	A	B	C	D	K	Q
OT250-375	320,8	102	203,2	381	704	635	1047,8	-	785,9	1244,6	720,9	524	639,8	44,5	122,2
OT300-457	203	508	270	272,5	467	346	242,8	242	508	1621,5	650	1474,7	971,5	69,9	160

CHARACTERISTIC CURVE

OT-80-223

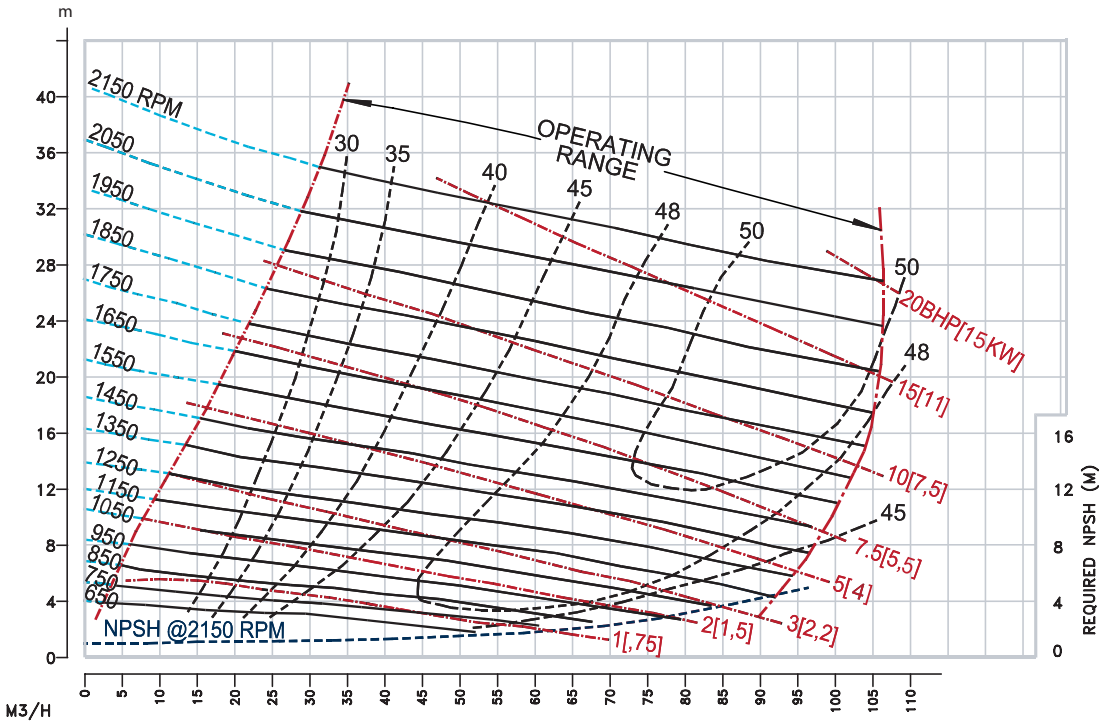
650 - 2150rpm

Issue Date **September 2012**

Suction Diameter **80mm**

Discharge Diameter **80mm**

Based on water density 1000 kg/m3 and viscosity 1 cSt.
Head, capacity and efficiency according to ISO Standard 2548



CHARACTERISTIC CURVE

OT-50-160

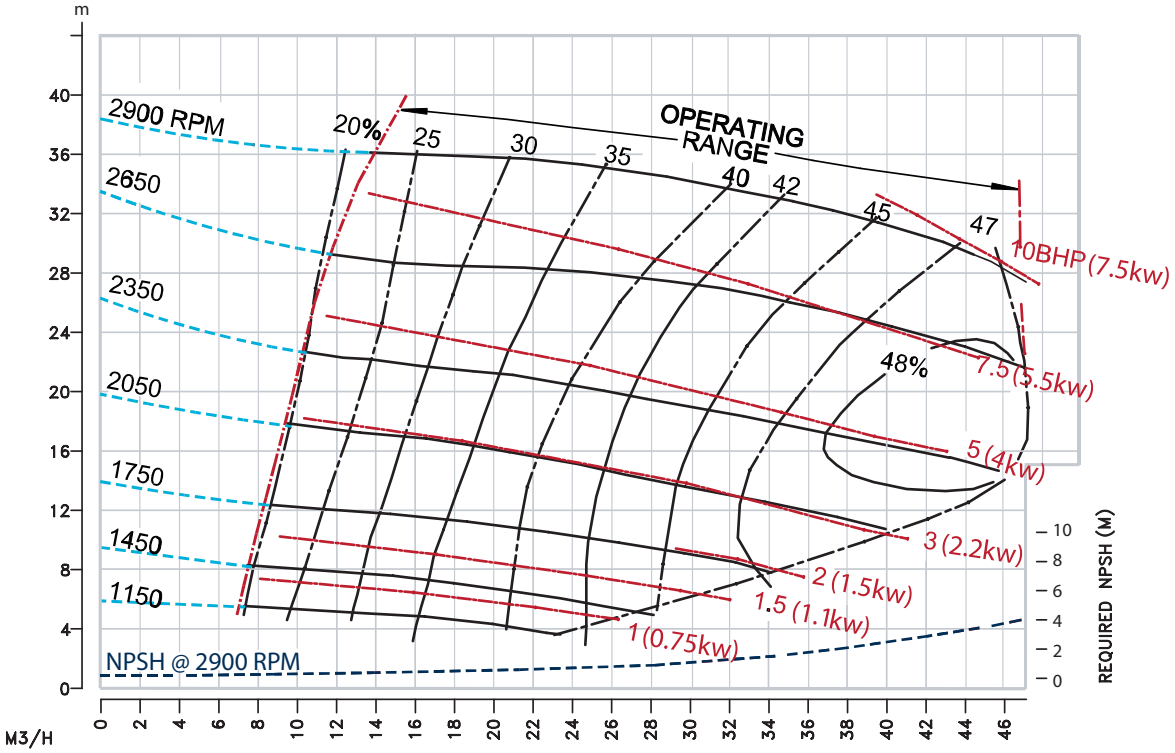
1150 - 2900rpm

Issue Date **September 2012**

Suction Diameter **50mm**

Discharge Diameter **50mm**

Based on water density 1000 kg/m3 and viscosity 1 cSt.
Head, capacity and efficiency according to ISO Standard 2548



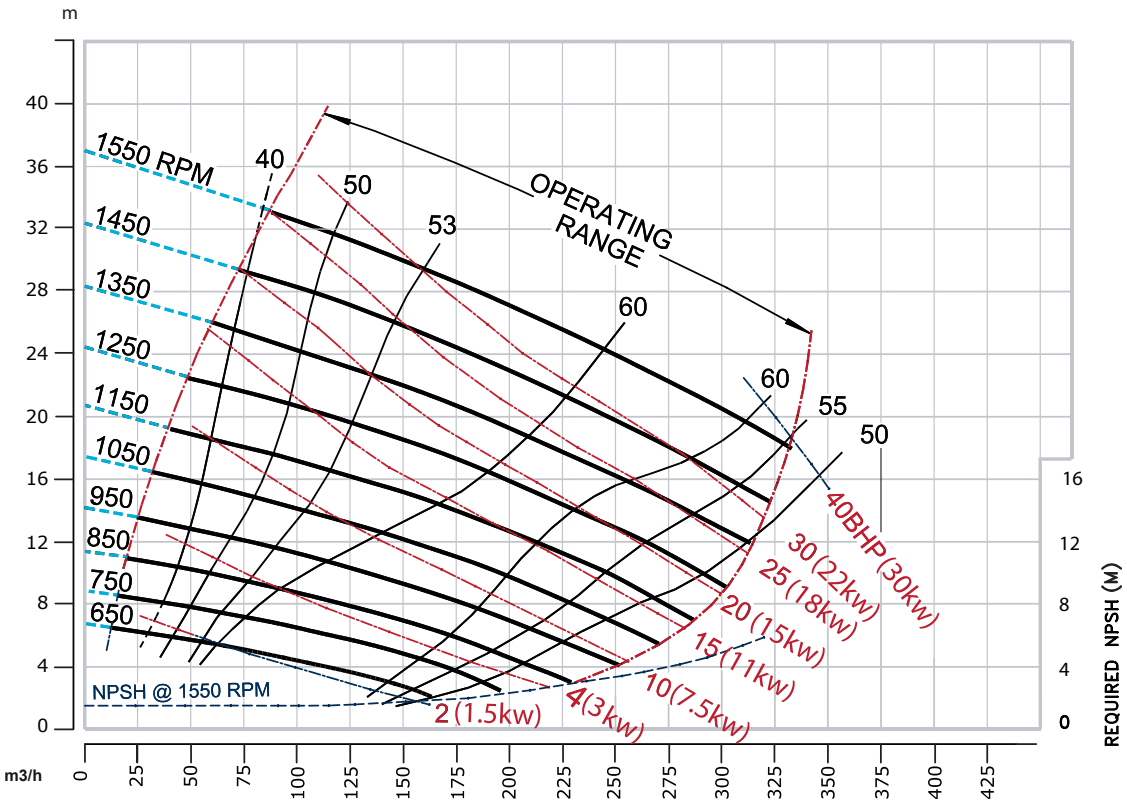
CHARACTERISTIC CURVE

Issue Date	Suction Diameter	Discharge Diameter
September 2012	150mm	150mm

Based on water density 1000 kg/m3 and viscosity 1 cSt.
Head, capacity and efficiency according to ISO Standard 2548

OT-150-315

650 - 1550rpm



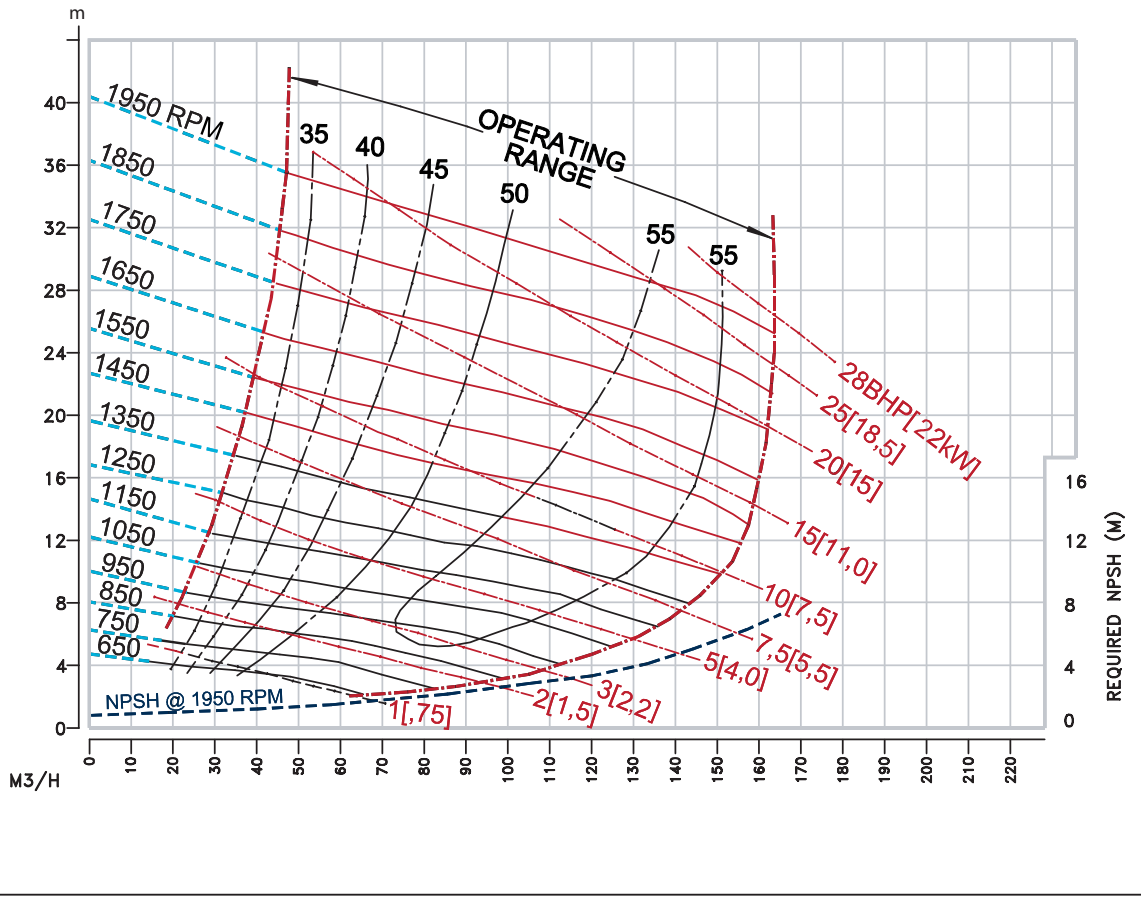
CHARACTERISTIC CURVE

Issue Date	Suction Diameter	Discharge Diameter
September 2012	100mm	100mm

Based on water density 1000 kg/m3 and viscosity 1 cSt.
Head, capacity and efficiency according to ISO Standard 2548

OT-100-248

650 - 1950rpm



CHARACTERISTIC CURVE

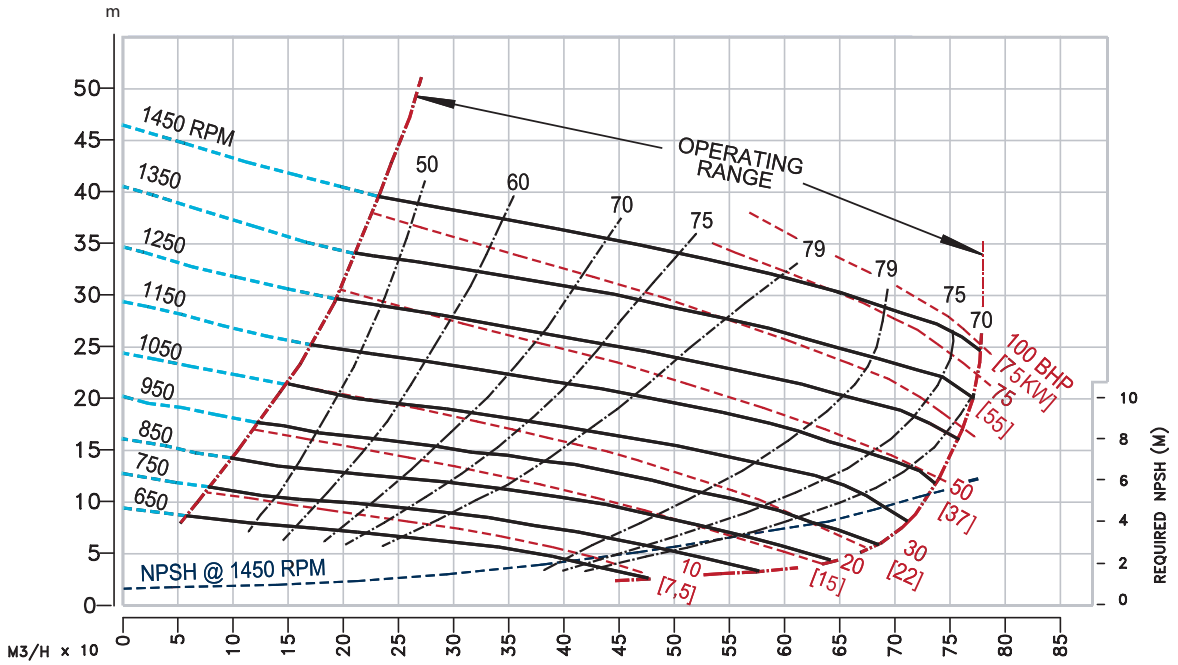
Issue Date	Suction Diameter	Discharge Diameter
September 2012	250mm	250mm

Based on water density 1000 kg/m3 and viscosity 1 cSt.
Head, capacity and efficiency according to ISO Standard 2548

OT-250-375

650 - 1450rpm

RAPID ALLWEILER PUMPS



CHARACTERISTIC CURVE

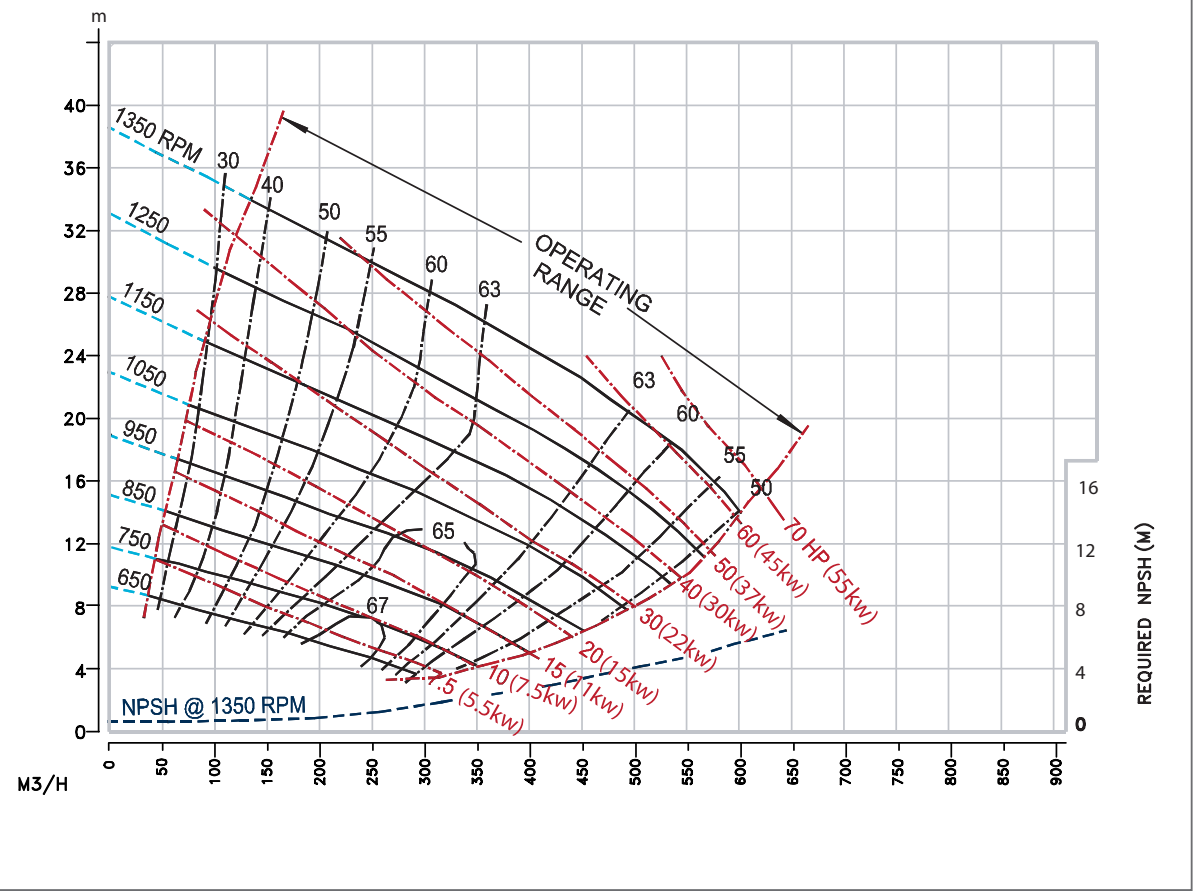
Issue Date	Suction Diameter	Discharge Diameter
September 2012	200mm	200mm

Based on water density 1000 kg/m3 and viscosity 1 cSt.
Head, capacity and efficiency according to ISO Standard 2548

OT-200-375

650 - 1350rpm

RAPID ALLWEILER PUMPS



CHARACTERISTIC CURVE

OT-300-457

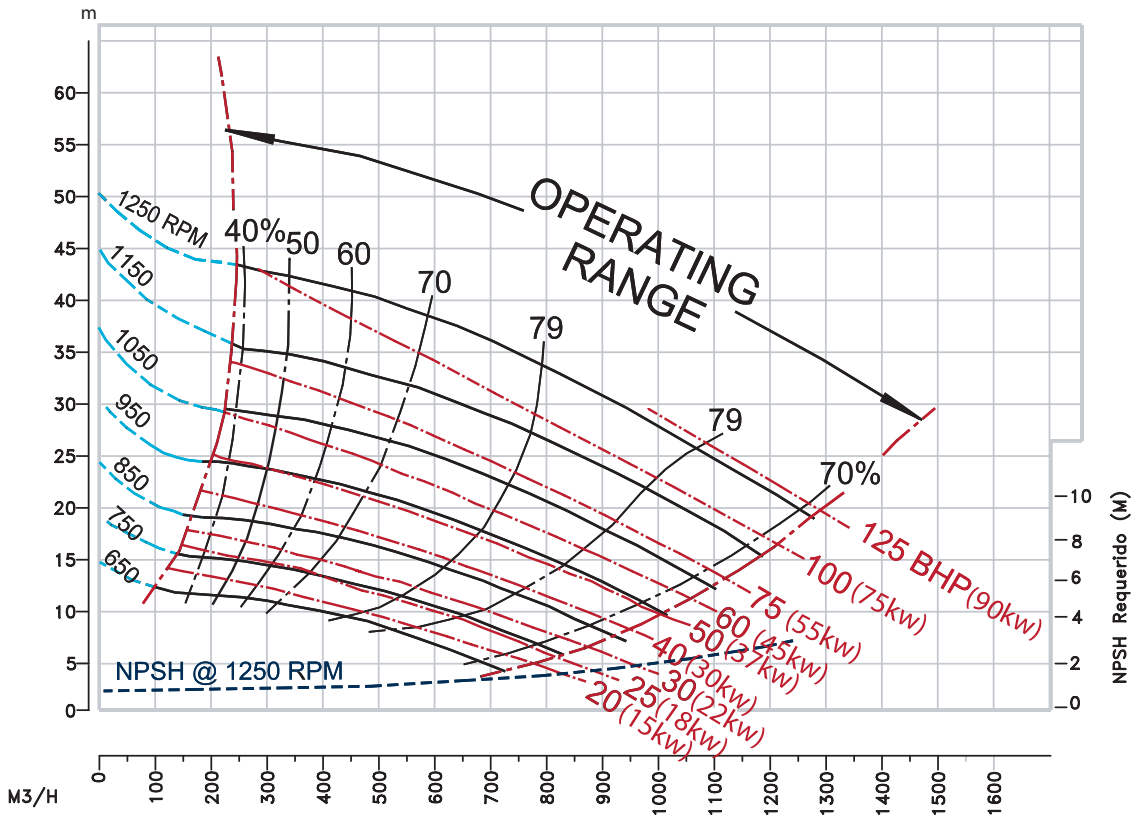
650 - 1250rpm

Issue Date September 2012

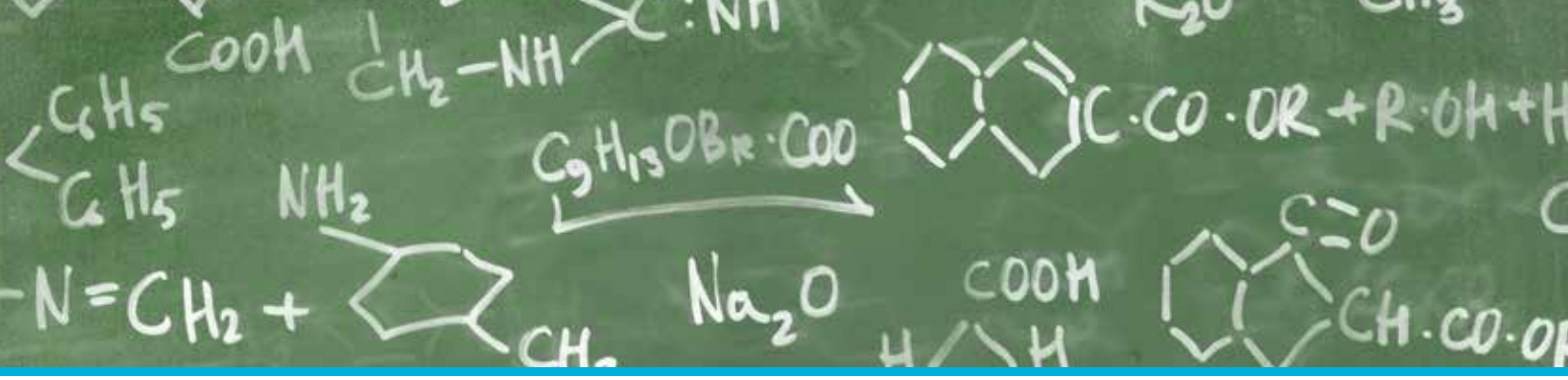
Suction Diameter 300mm

Discharge Diameter 300mm

Based on water density 1000 kg/m3 and viscosity 1 cSt.
Head, capacity and efficiency according to ISO Standard 2548



Notes



BASIC FORMULAS

H= Head(m) Q = Flow(m^3/h) Eff = Pump Eff% Density = SG

Capacity

l/sec x 3.6 = m^3/h	m^3/h ÷ 3.6 = l/sec
Imp gpm x 0.2271 = m^3/h	m^3/h x 4.403 = Imp gpm
US gpm ÷ 0.246 = l/min	l/min x 0.246 = US gpm
10000 kg/hr =	$\frac{10 m^3 h}{\text{Density(SG)}}$

Head/Pressure

Ft ÷ 3.28 = m	m x 3.28048 = Ft
Bar x 100 = kpa	
m x 9.805 = kpa	kpa x 0.102 = m
m x 0.098 = Bar	Bar x 10.19 = m
m x 1.45 = psi	
psi x 6.895 = kpa	

Power

hp x 0.746 = kw	kw x 1.340483 = hp
kw abs =	$\frac{Q \times H \times SG}{367 \times Eff(\%)}$
kw =	$\frac{\text{Amps} \times \text{Volts} \times \text{Power Factor} \times 1.732}{1000}$
RPM =	$\frac{Hz \times 120}{\text{No of Poles}}$
Hz =	$\frac{\text{RPM} \times \text{No Of Poles}}{120}$
Velocity m/sec =	$\frac{Q \times 353.63}{(\text{Pipe Dia})^2}$

Efficiency

EFF(%) = $\frac{Q \times H \times SG}{367 \times kw(abs)}$

Temperature

Deg.C = (deg.F-32) x 0.556

Deg.F = (1.8 x deg.C) + 32

Peripheral Speed

Peripheral Speed(Impeller) = $\frac{\text{imp.dia.(mm)} \times \pi \times \text{N(Rpm)}}{60 \times 1000}$

Viscosity

vis Viscous Liquid

w Water

Given: Qvis in m^3/h kinematic viscosity v in mm^2/s

Hvis in m pvis in kg/dm^3

Qw = $\frac{Qvis}{CQ}$

Hw = $\frac{Hvis}{CH}$

Qw = C% x %w

Pvis = $\frac{Qvis \times Hvis \times Pvis}{367 \times Eff(\%) \text{ vis}}$

Centrifugal and Axial Flow Pump Affinity Laws:

Speed changes & impeller diameter remains the same:

$Q1/Q2 = N1/N2$

$H1/H2 = (N1/N2)^2$

$P1/P2 = (N1/N2)^3$

Impeller diameter changes and speed remains the same:

$Q1/Q2 = D1/D2$

$H1/H2 = (D1/D2)^2$

$P1/P2 = (D1/D2)^3$

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