



HSC

HORIZONTAL SPLIT CASE 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 - HSC: Rapid Allweiler Pumps

Whilst all care has been taken to ensure the accuracy of the information contained in this Brochure was correct at the time of printing, please be advised we cannot be held responsible for any errors contained within and or changes that may have taken place. Dimensions contained within are for reference purpose only and should not be used for construction; certified drawings are available upon request. For confirmation of any information contained herewith please contact a member of our technical sales team.

COLFAX
Fluid Handling

ALLWEILER 

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APPLICATION

- Raw Water In-take Systems
- Power Generation
- Water Treatment Works
- General Industry
- Cooling Tower Applications

RA Pump Range	Minimum Flow (m ³ /h)	Maximum Flow (m ³ /h)	Minimum Head (m)	Maximum Head (m)	Maximum Temperature
HSC	70	20000	10	170	105°C

DESIGN & CONSTRUCTION

- These pumps are designed for general purpose throughout industry and feature double entry single stage impellers.
- The casing sections are axially split allowing removal of the entire rotating assembly without disturbing the suction and discharge pipe work and the electric motor.
- They are fitted with casing and impeller wear rings in a variety of materials.
- Standard assembly is for clockwise rotation when viewed from the drive end, however rotation can be changed if necessary.
- Impellers are dynamically balanced which results in reduced suction losses and low axial thrust loads.
- The impeller is situated between the bearings offering reliable and maintenance free operation.
- Double suction principal high efficiencies are obtained which results in economical operation in terms of power.
- Low requirements in terms of NPSH which adds to their suitability for various applications.
- Available in sizes from 80mm to 2400mm.

Shaft Seal

- Gland Packing or Mechanical Seal
- Standard mechanical seal: carbon-ceramic/viton, Carbon-Sic/Viton optional.

Flanges

- According to BS 4504 PN16 or ANSI B16.5.

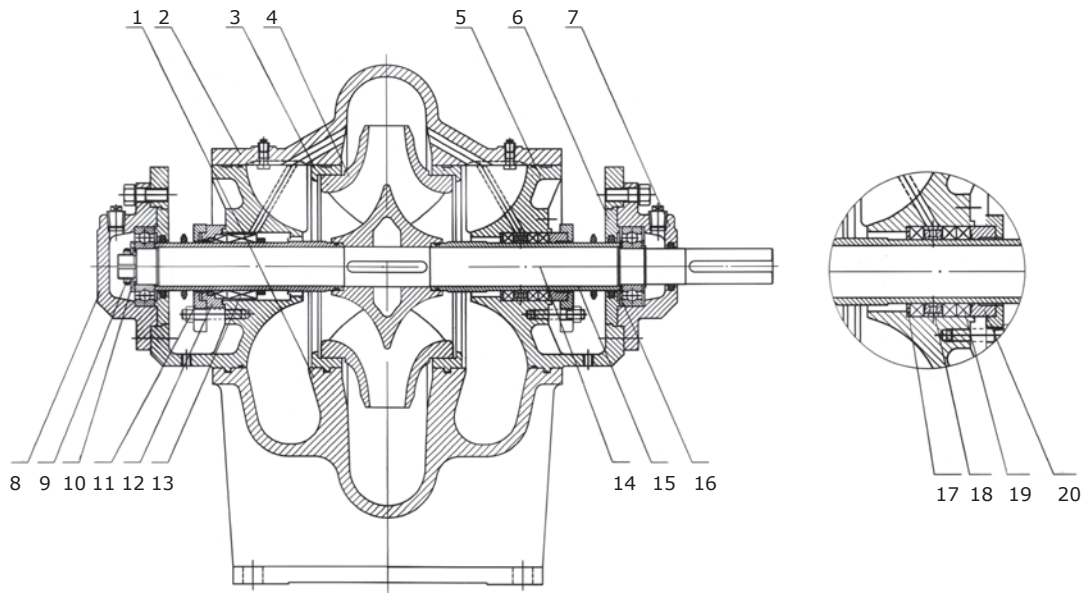
MATERIALS OF CONSTRUCTION

Casing:	Cast Iron, Ductile Iron, 304 Stainless Steel, 316 Stainless Steel
Impeller:	Cast Iron, Bronze, 304 Stainless Steel, 316 Stainless Steel
Shaft:	420 Stainless Steel (2Cr13), 304 Stainless Steel, 316 Stainless Steel

MODEL DESCRIPTION

HSC	80	-	270	CI	-	BZ	-	SS	-	MS
	Discharge Size (mm)		Impeller Nominal Size (mm)	Casing Material		Impeller Material		Shaft Material		Seal Type

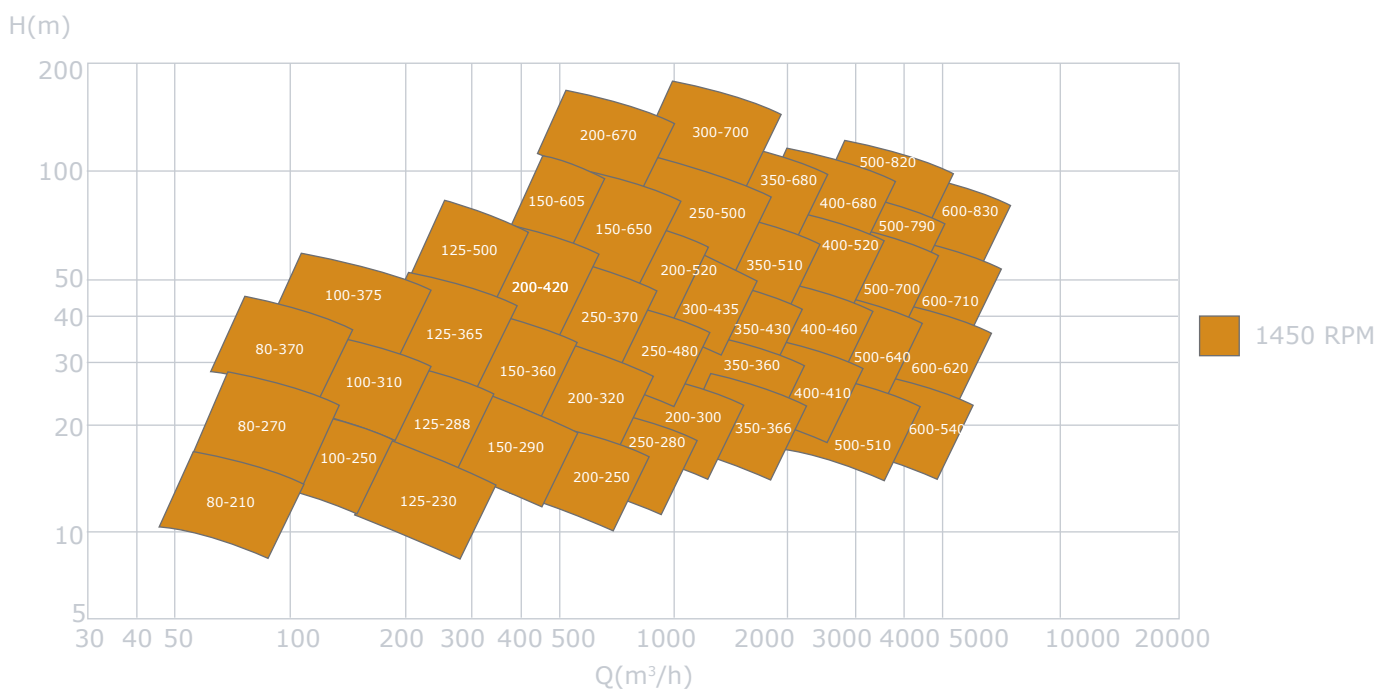
SECTIONAL DRAWING



PARTS LIST

1.	Casing	11.	Seal Plate
2.	Casing Cover	12.	Seal Cover
3.	Wear Ring	13.	Mechanical Seal
4.	Impeller	14.	Shaft
5.	Seal Housing	15.	Shaft Sleeve
6.	Bearing Cover	16.	Bearing Ring
7.	Drive End Bearing Housing	17.	Packing Ring
8.	Non-Drive End Bearing Housing	18.	Stuffing Box
9.	Lock Nut	19.	Gland Packing
10.	Bearing Baffle	20.	Gland Cover

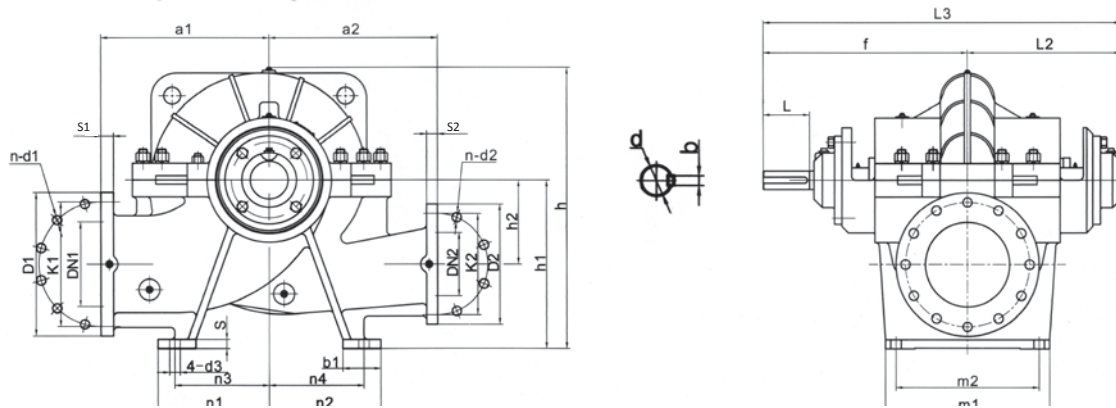
TOMBSTONE CURVE



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DIMENSIONAL DRAWING

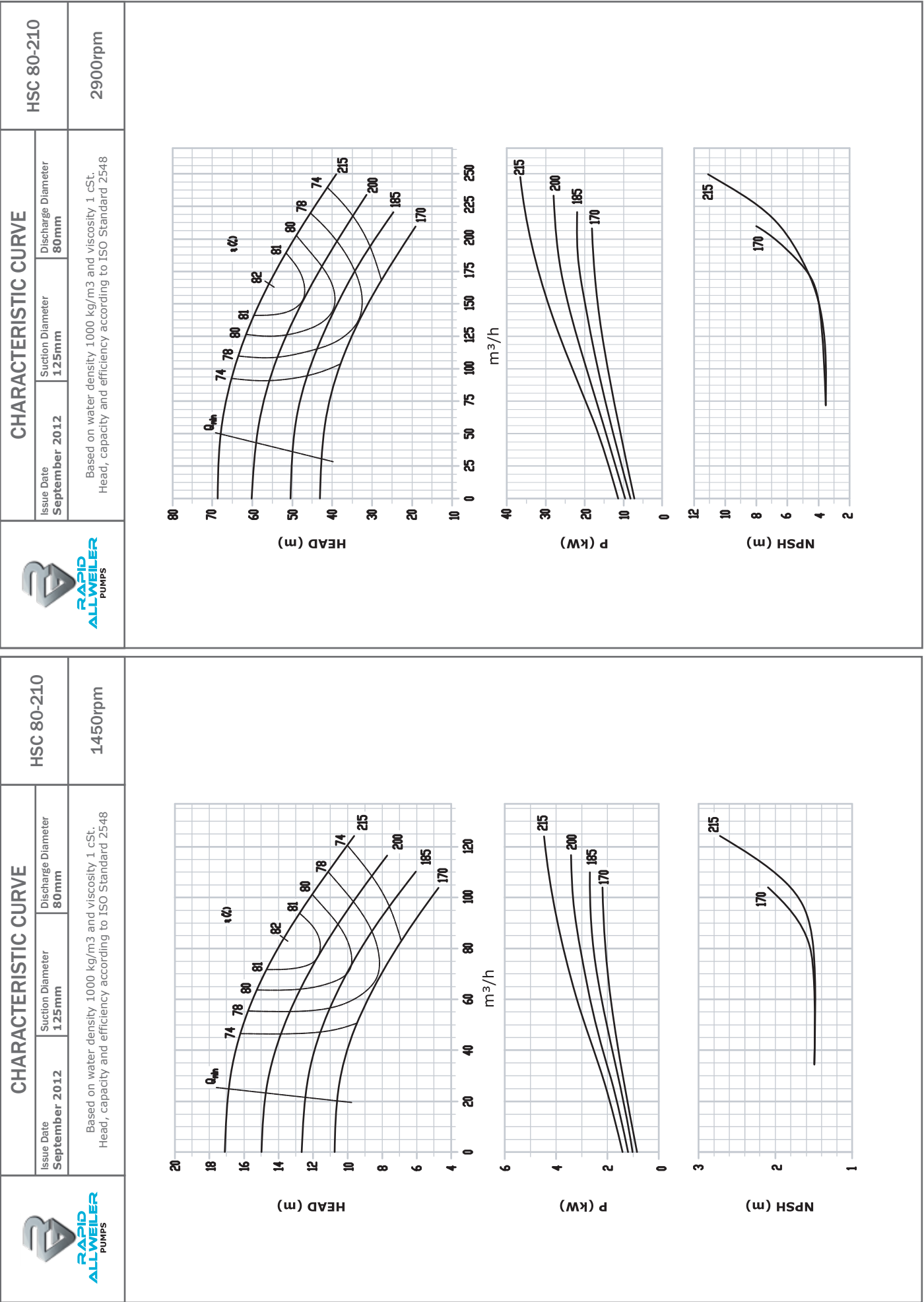


Flange Standard Dimensions												
DN1/DN2	80	100	125	150	200	250	300	350	400	500	600	700
K1/K2	160	180	210	240	295	355	410	470	525	650	770	840
D1/D2	200	220	250	285	340	405	460	520	580	715	840	910
S1/S2	22	24	26	26	30	32	34	38	40	46	54	54
n-d1/n-d2	8-φ17.5	8-φ17.5	8-φ17.5	8-φ22	12-φ22	12-φ26	12-φ26	16-φ26	16-φ30	20-φ33	20-φ36	24-φ36

MODEL	Flange		Pump Dimensions																		Shaft													
	DN1	DN2	a1	a2	f	L2	L3	h	h1	h2	m1	m2	n1	n2	n3	n4	b1	d3	s	d	b	L												
HSC 80-210	125	80	300	300	385	300	685	480	315	140	320	270	205	205	170	170	80	φ25	22	φ34	10	80												
HSC 80-270			505																															
HSC 80-370			540																															
HSC 100-250	150	100	330	330	385	300	685	545	355	170	320	270	235	235	200	200	80	φ25	22	φ34	10	80												
HSC 100-310			585																															
HSC 100-375			610																															
HSC 125-230	200	125	370	370	485	365	850	620	400	200	390	340	265	265	225	225	90	φ25	22	φ44	12	110												
HSC 125-290			635																															
HSC 125-365			660																															
HSC 125-500		715																																
HSC 150-290		655																																
HSC 150-360		670																																
HSC 150-460	150	450	450	485	365	850	710	400	200	390	340	265	265	225	225	90	φ25	22	φ44	12	110													
HSC 150-605		600	500				885																											
HSC 200-250		780																																
HSC 200-320	800																																	
HSC 200-420	820																																	
HSC 200-520	600	600	614				464															1078	920	560	300	490	400	400	350	350	100	φ28	28	φ64
HSC 200-670	650	550		110	35																													
HSC 250-280	500	500		940	600	480		100	φ30	28	φ64	18	140																					
HSC 250-370	300	250	500	500	695	515	1210	940	600	300	480	430	400	400	350	350	100	φ30	32	φ74	20	170												
HSC 250-480			550	550				950															600	520	110	35								
HSC 250-600			650	550				1050															630	350	110	35								
HSC 300-300	350	300	550	500	614	464	1078	1000	630	300	500	400	400	400	350	350	100	φ30	30	φ64	18	140												
HSC 300-435	400	300	650	550	695	515	1210	1050	670	350	600	620							525	525	475	475	110	φ30	32	φ74	20	170						
HSC 300-560			700	650	765	585	1350	1135	710	400	600														520	530	530		120	40	φ75	20		
HSC 300-700			750					1235	750				400	530	530	120																		
HSC 350-305	450	350	650	550	695	515	1210	1060	670			350	600	520	400	400	350	350	100	φ30	32	φ74	20	170										
HSC 350-360								1090											φ30		35	φ84	22											
HSC 350-430			750						1165	750					530	530					120	φ30	40		φ75	20								
HSC 350-510	400	350	700	650	765	585	1350	1185		620			525	525	475	475	110	φ30		40	φ75		20	170										
HSC 350-660	450		750					1255	780	400			530	530					φ30	40	φ75		20											
HSC 400-410	500		400	700	550	840	655	1495	1205	800		750	650	420	420	370	370			120	φ33	45	φ84		22	210								
HSC 400-460		650							1225					520	520	470	470	φ33						45			φ84	22	210					
HSC 400-520																														φ33	45	φ84	22	210
HSC 400-680	500	400	750	650	895	670	1565	1390	850		720		500	500	440	440	120		φ33	45	φ84	22	210											
HSC 500-510			600	500	850	750	940	755	1695	1490	950	475	900	780	560	560		500						500	120	φ33	45	φ84	22					
HSC 500-640																															φ33	45	φ84	22
HSC 500-700	600	500			1000	850	935	710	1645	1630	1050	550	790	660	720	720	660	660	120	φ33	45	φ84	22	210										
HSC 500-790					900	1078	810	1888	1760	1100	600	1000	900	710	710										φ33	45	φ84	22	210					
HSC 500-890					1050	950			1855	1150	650					650	650													φ33	45	φ84	22	210
HSC 600-540	700	600	1100	900	940	755	1695	1695	1100	560	910	790	705	705			120	φ33	45	φ84	22	210												
HSC 600-620			1000	1000	1025	800	1825	1725		545	950	850	725	725	665	665								φ33	45	φ84	22	210						
HSC 600-710					1100	1078	810	1888	1710	1050		1020	900	710	710	650							650							φ33	45	φ84	22	210
HSC 600-830					1100	1200	1130	855	1985	1850	1150	650	970	820																				

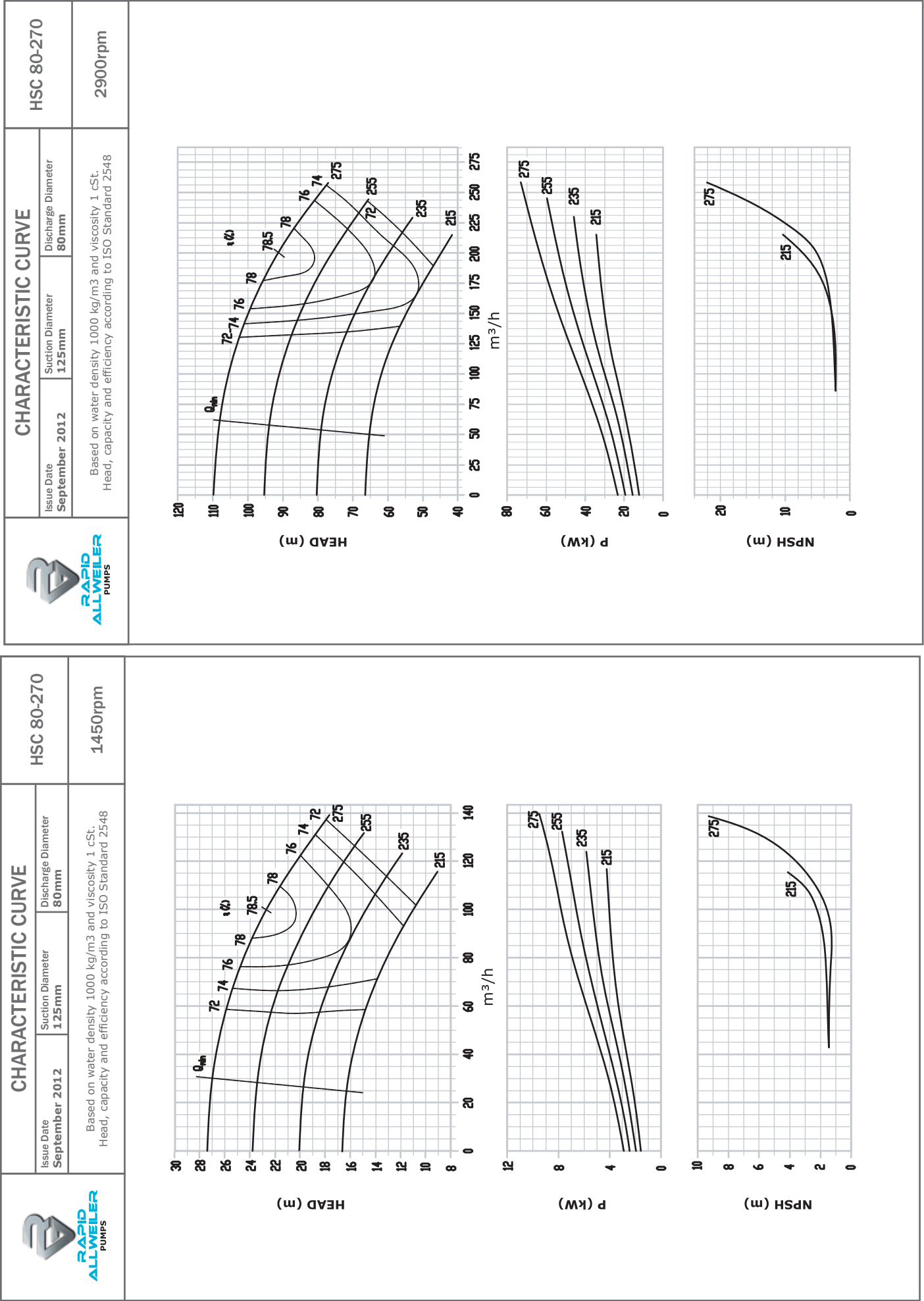
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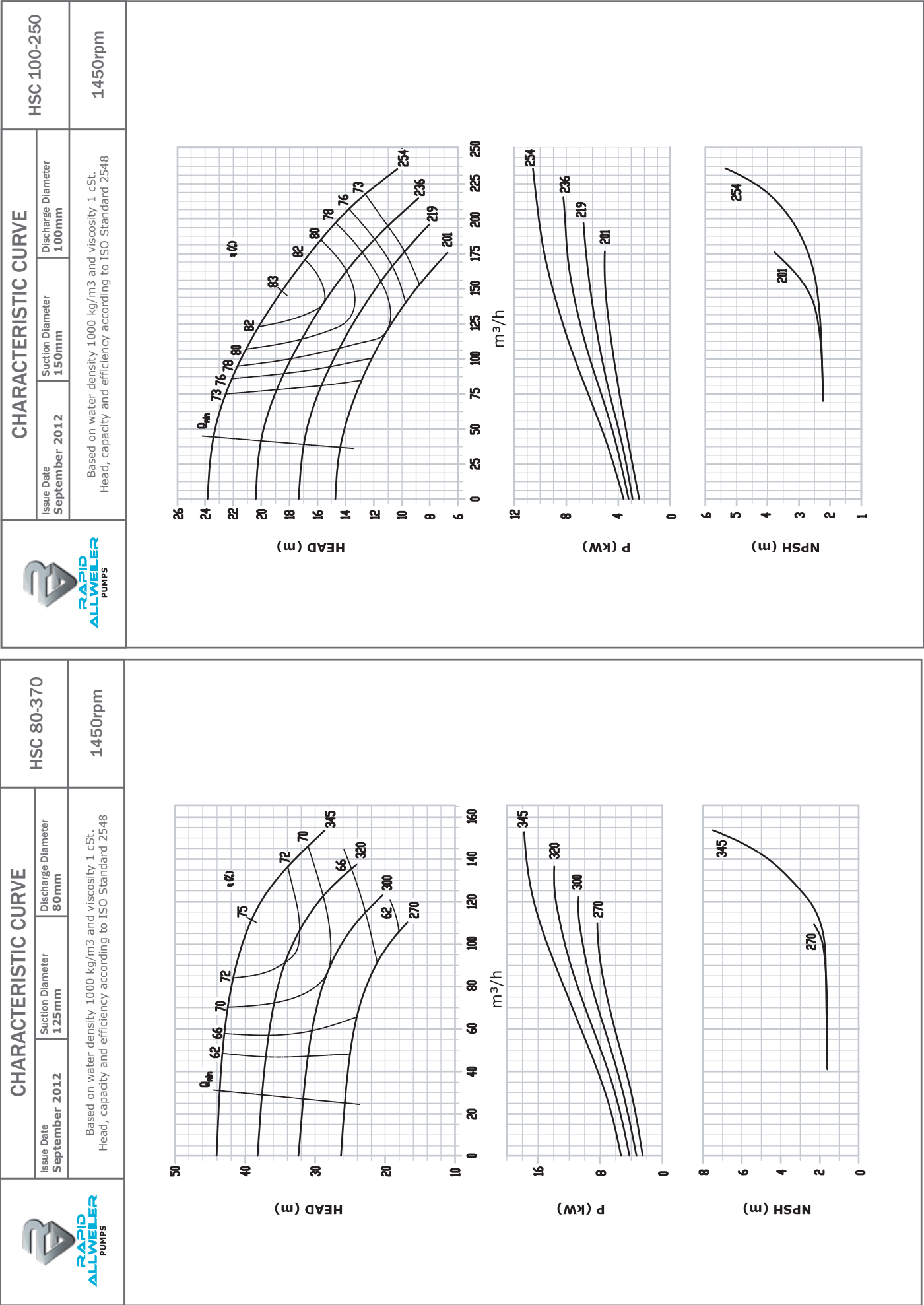
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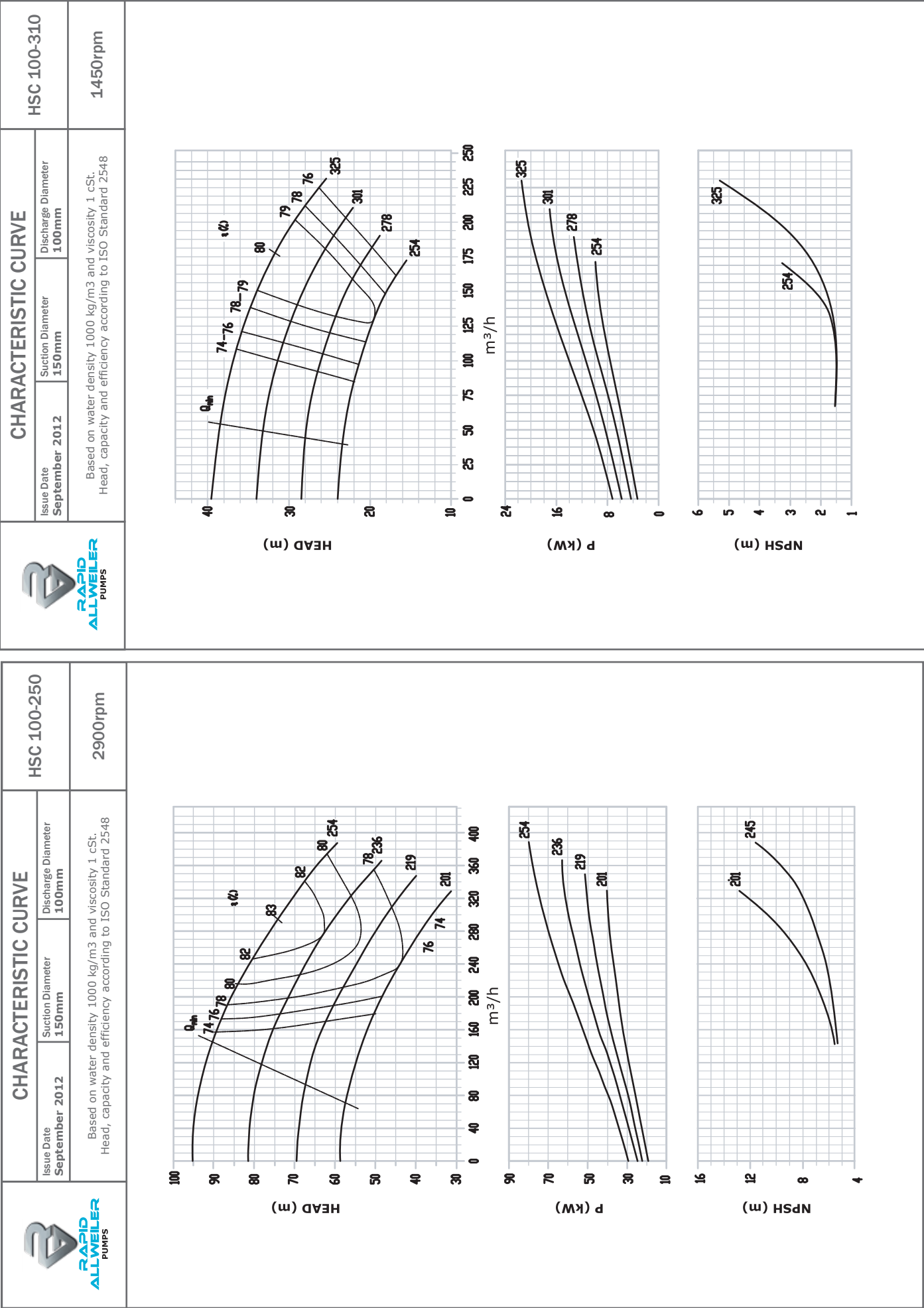
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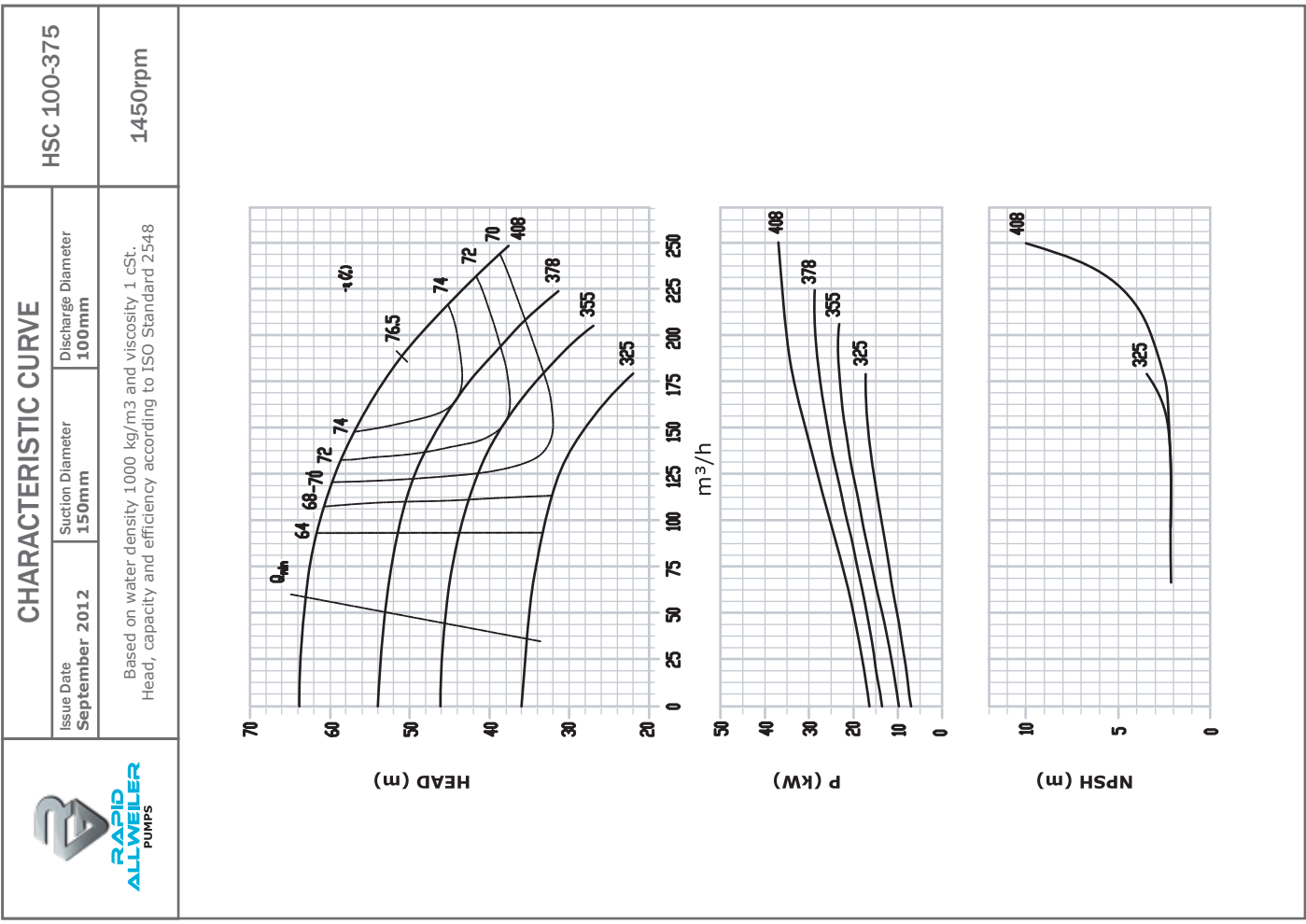
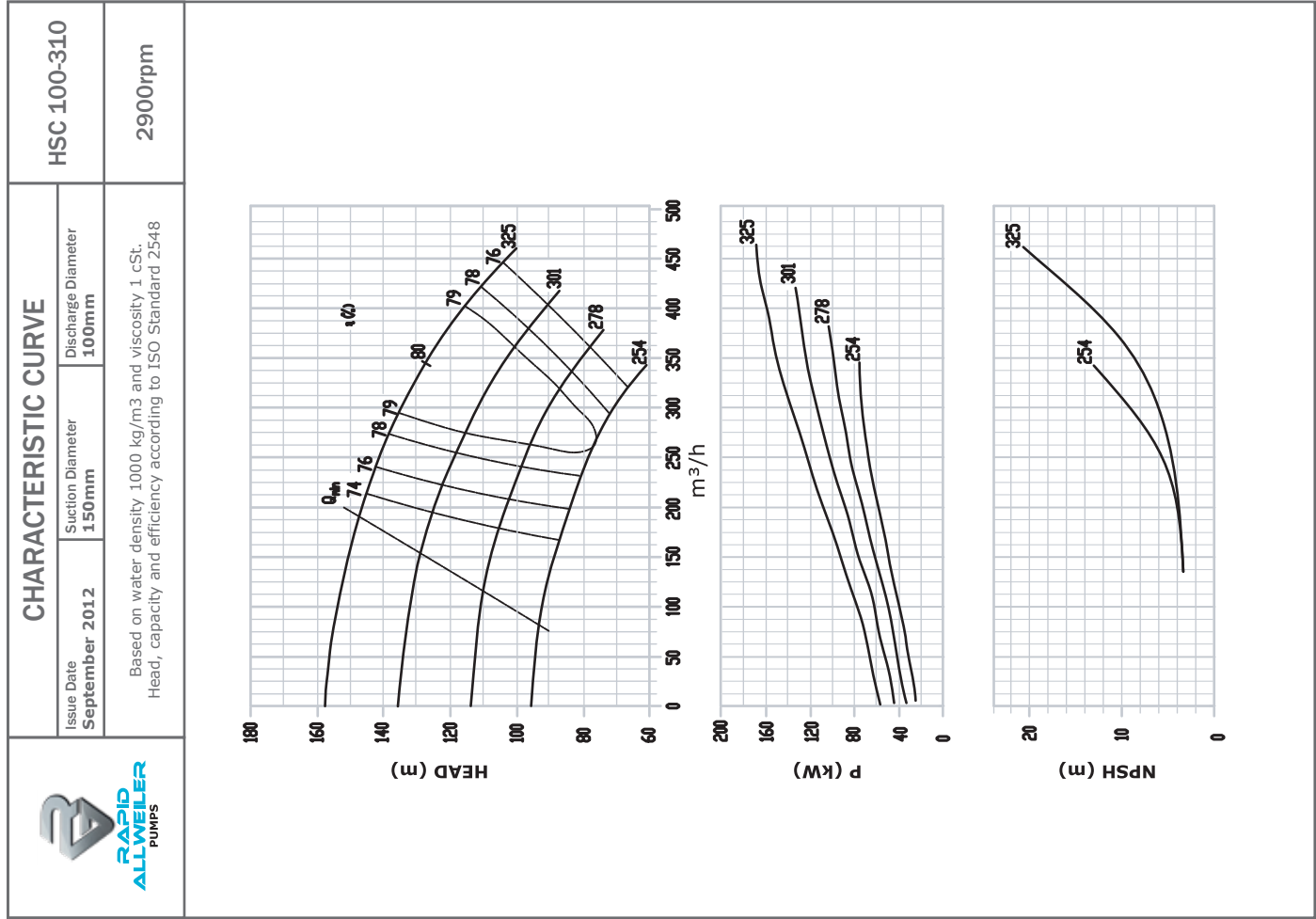
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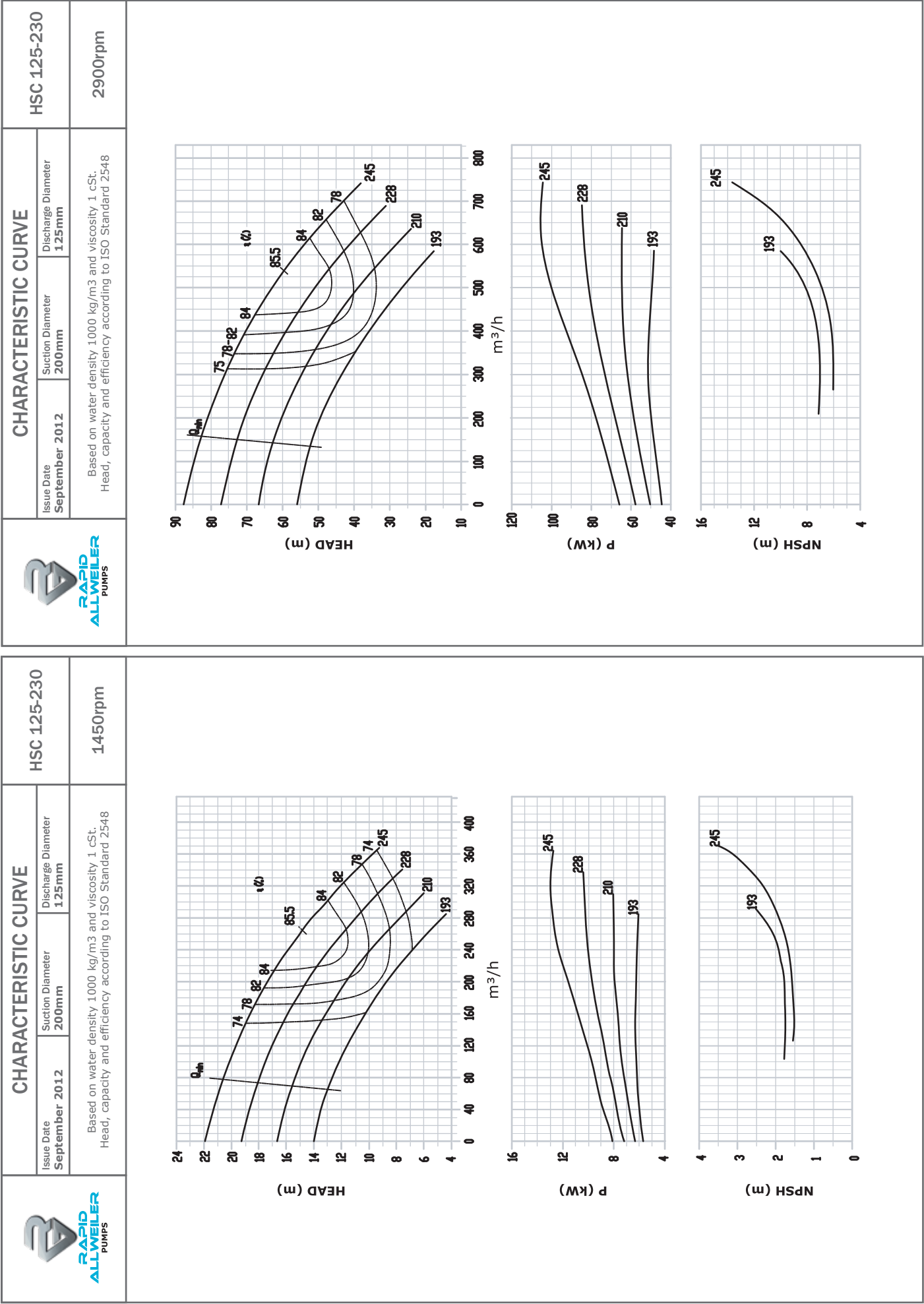
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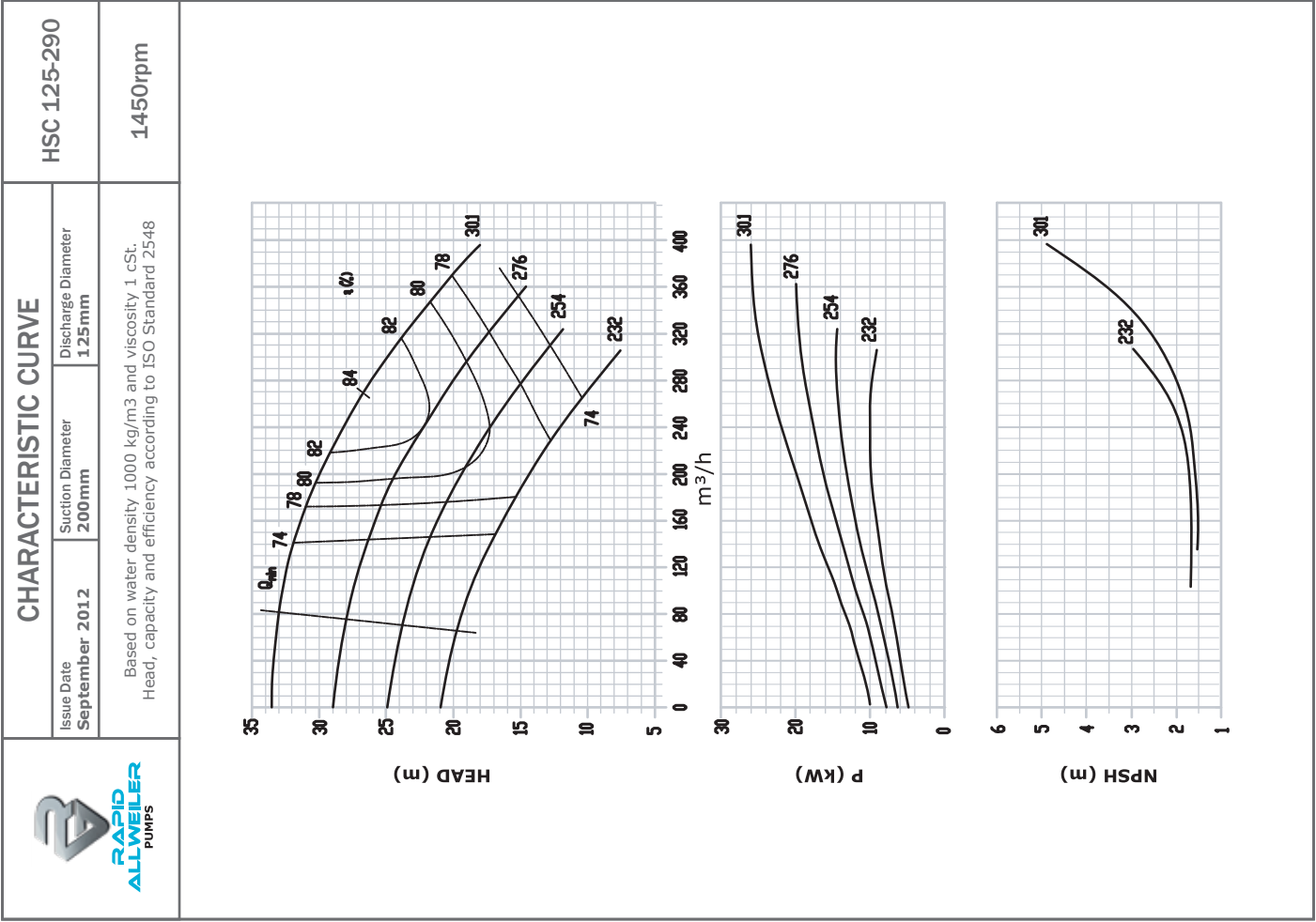
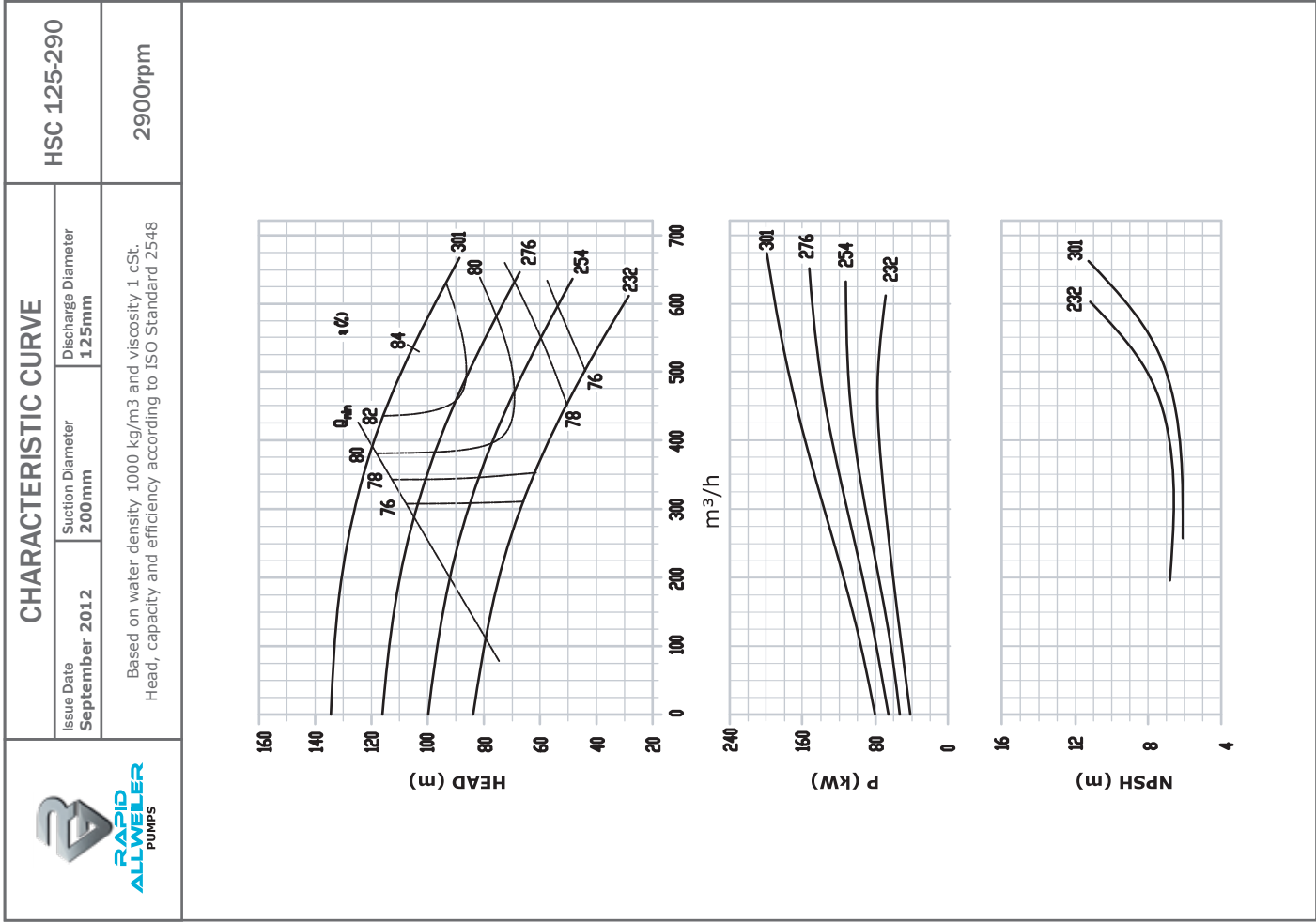
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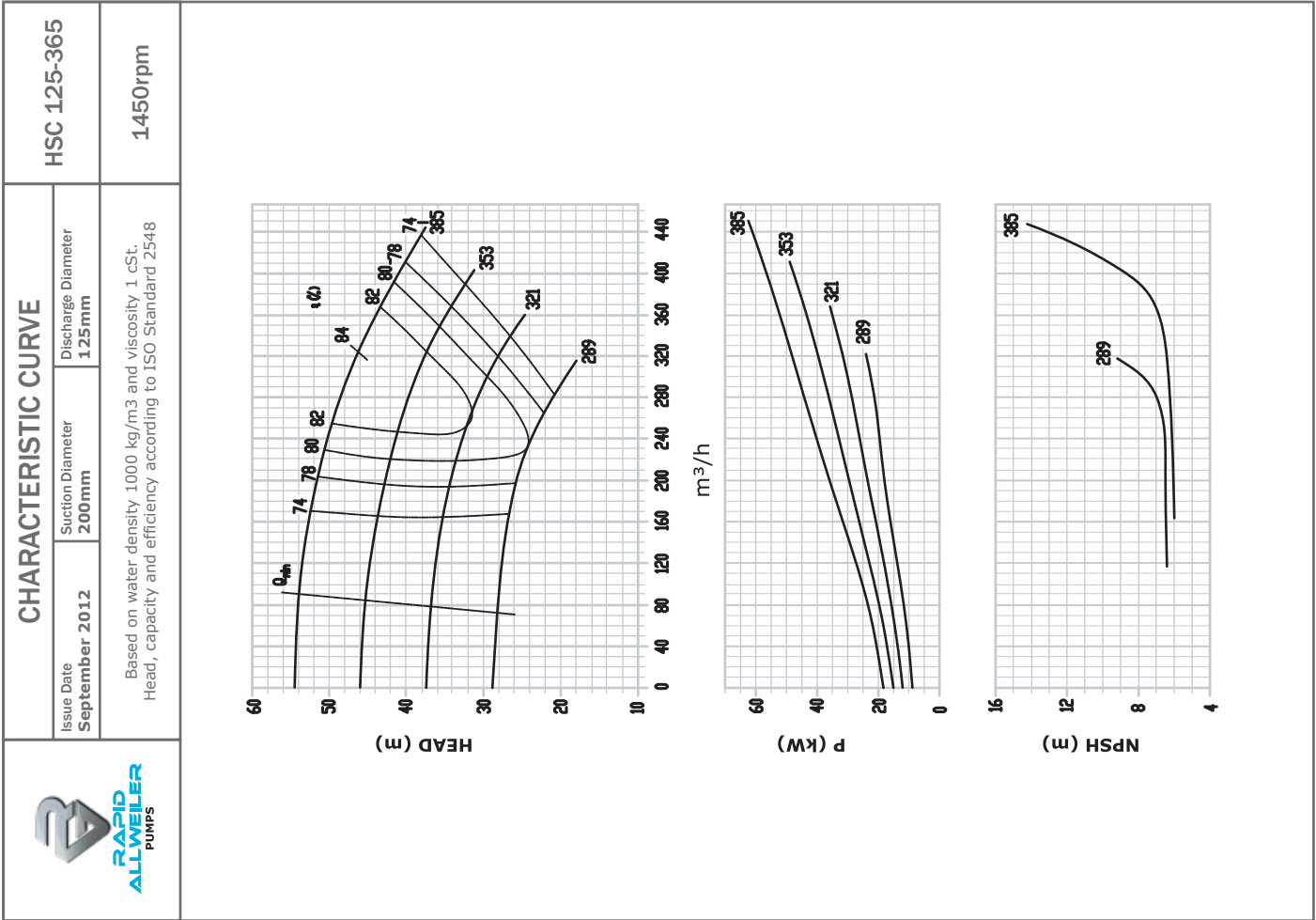
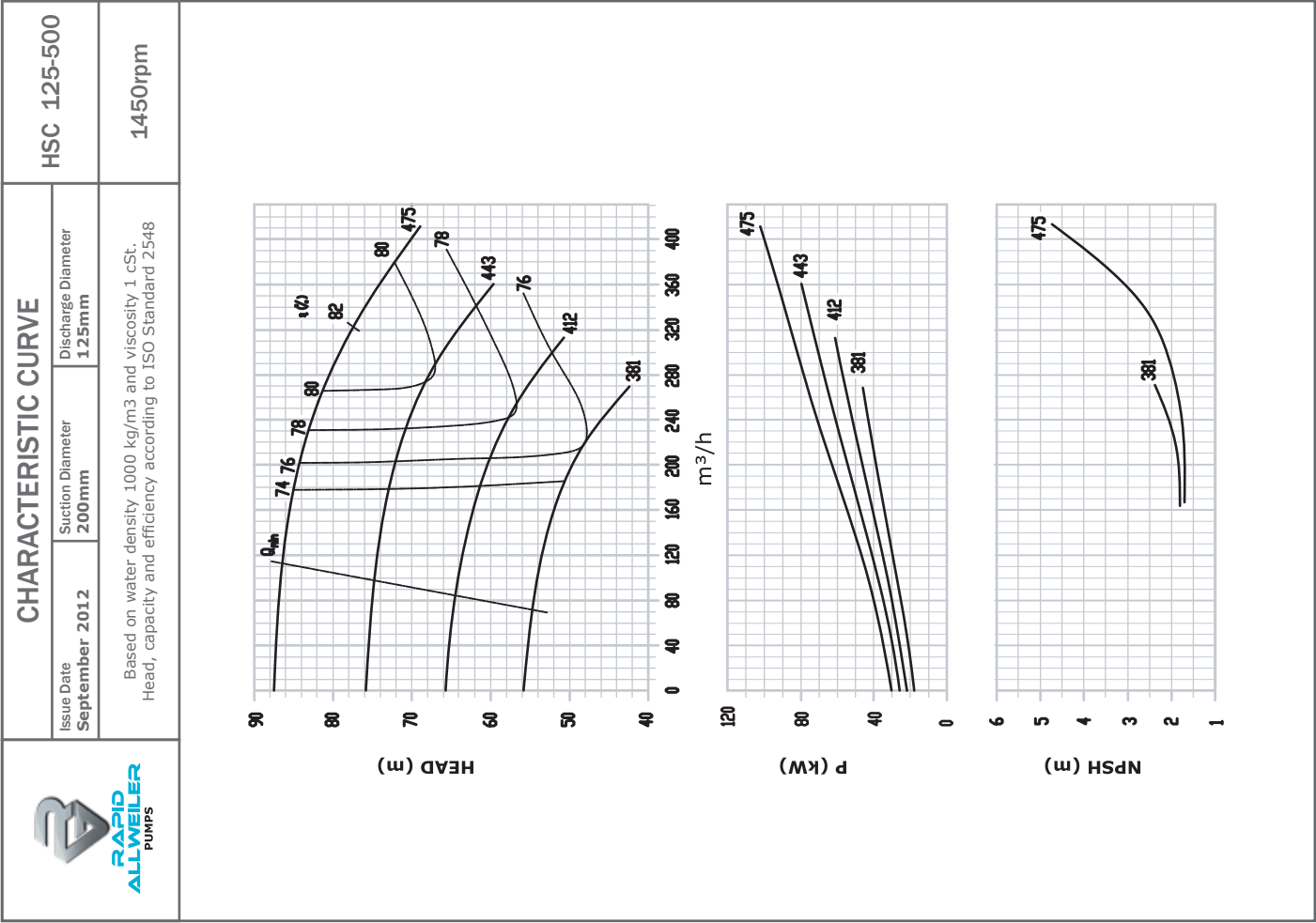
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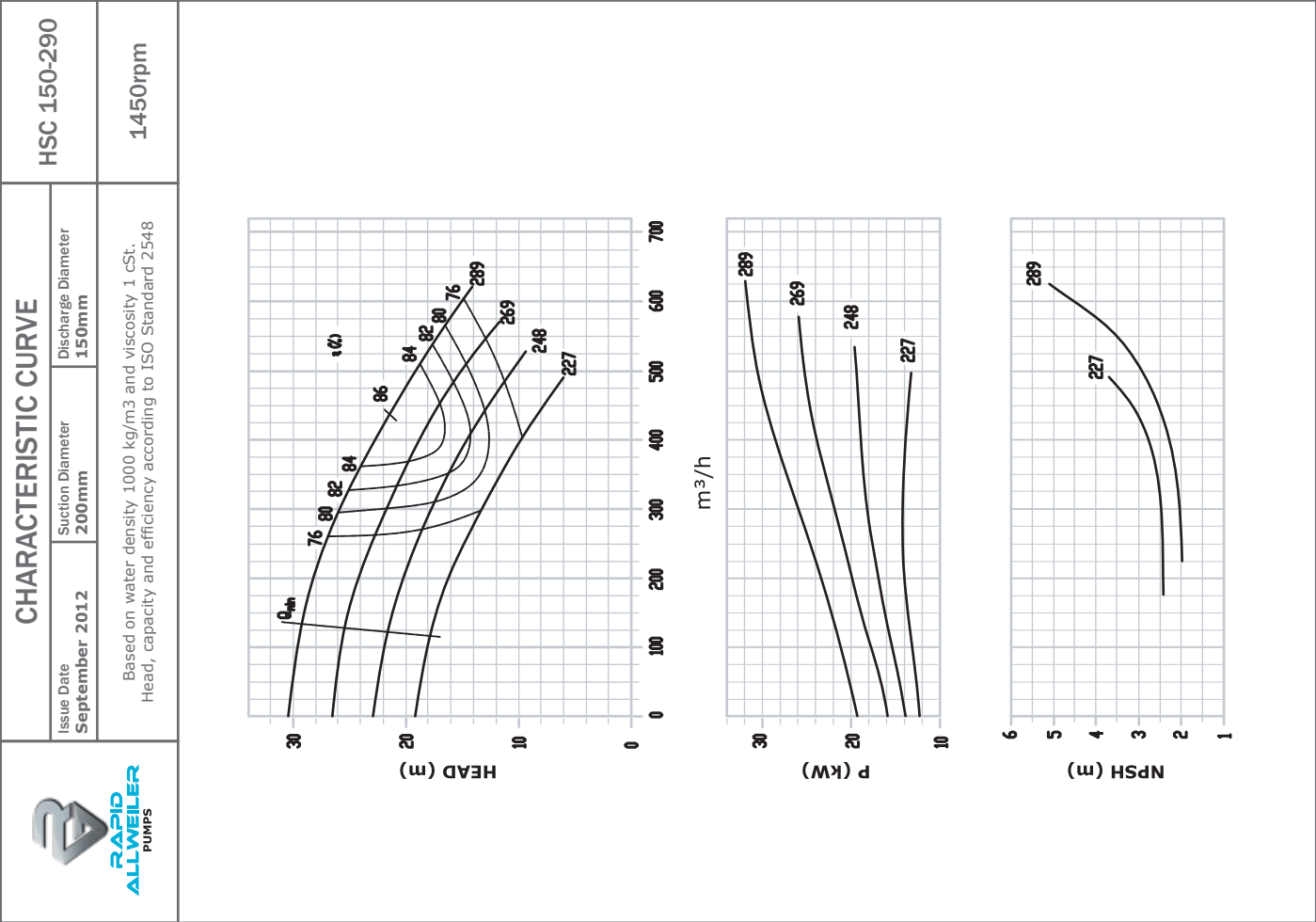
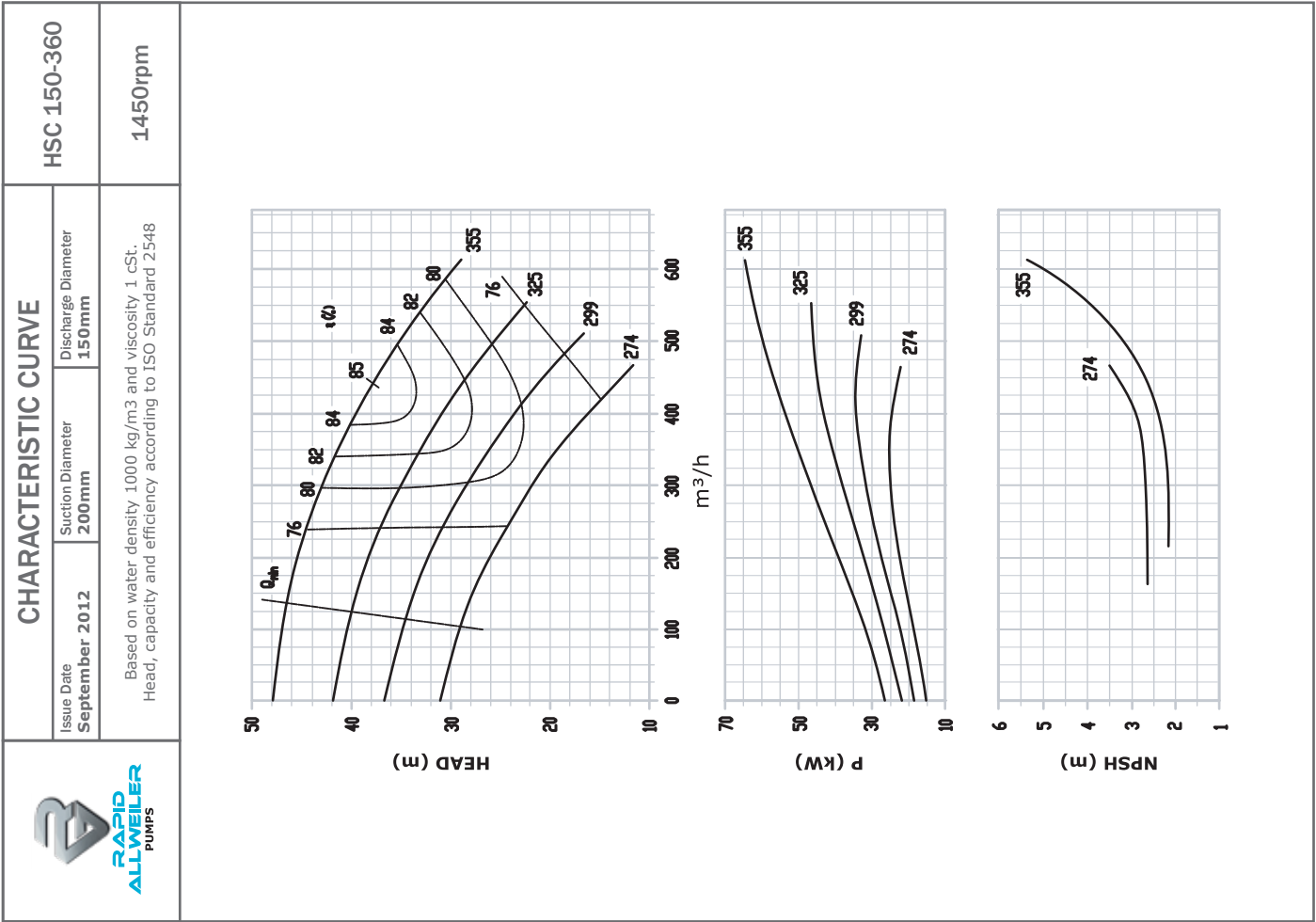
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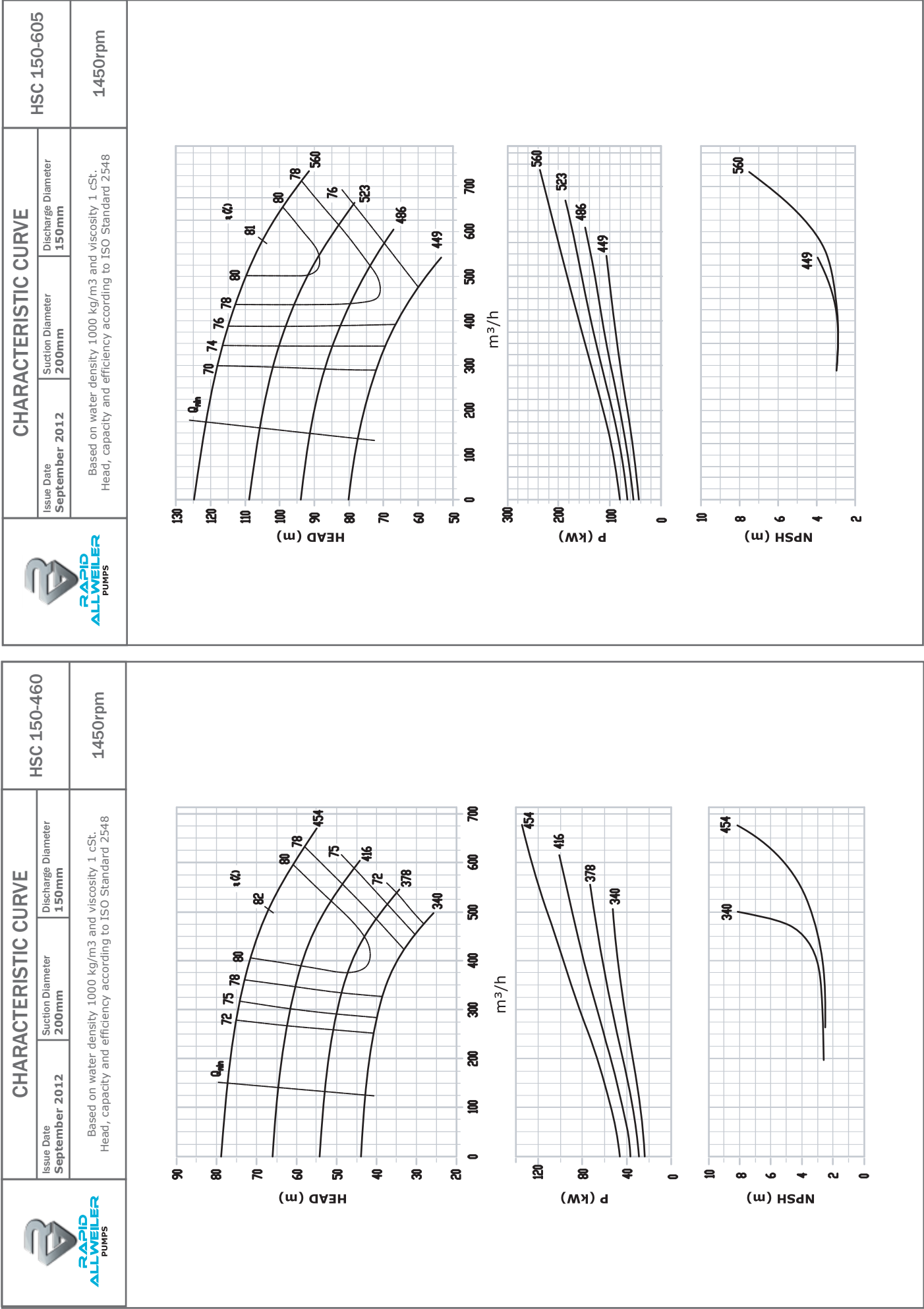
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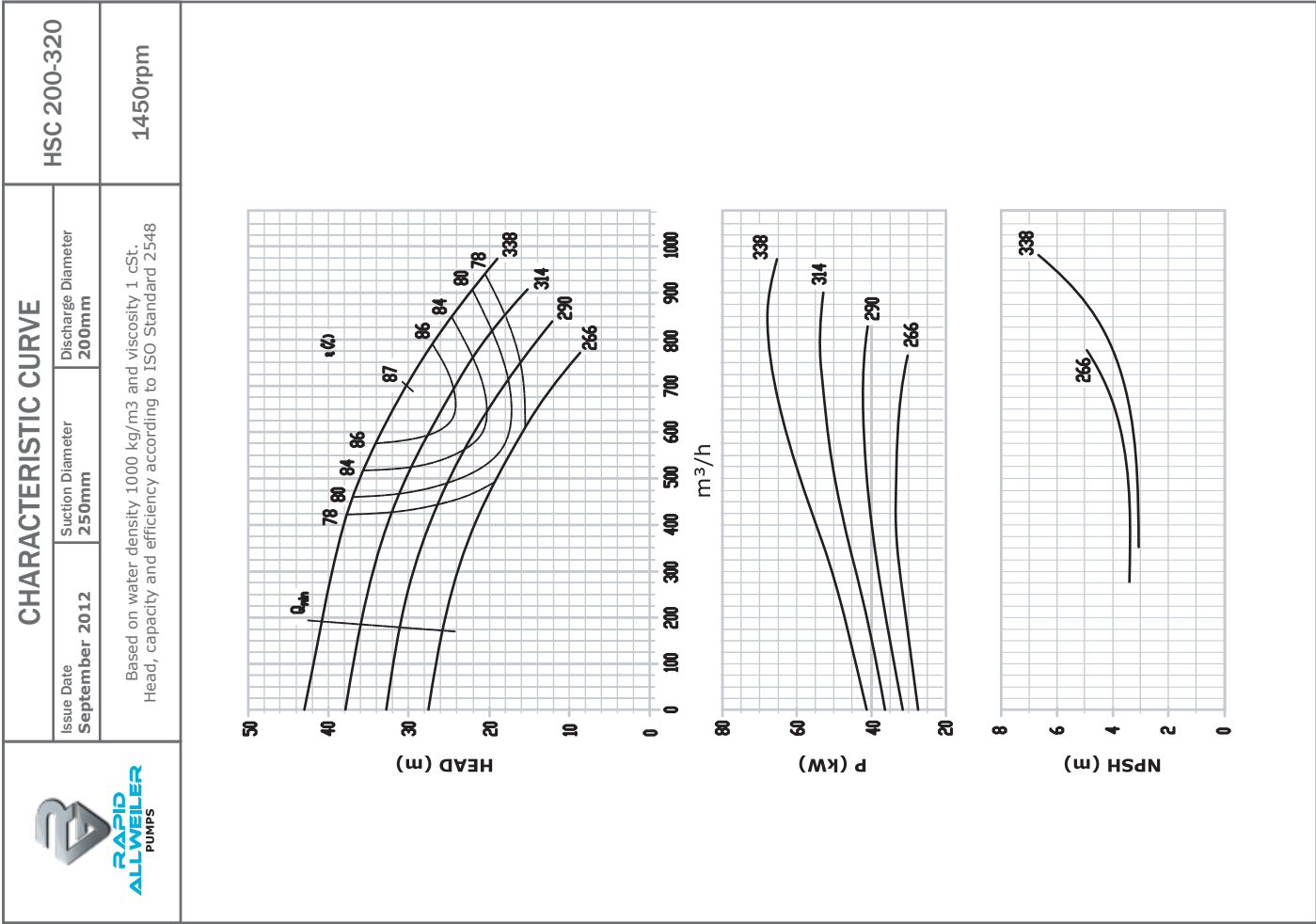
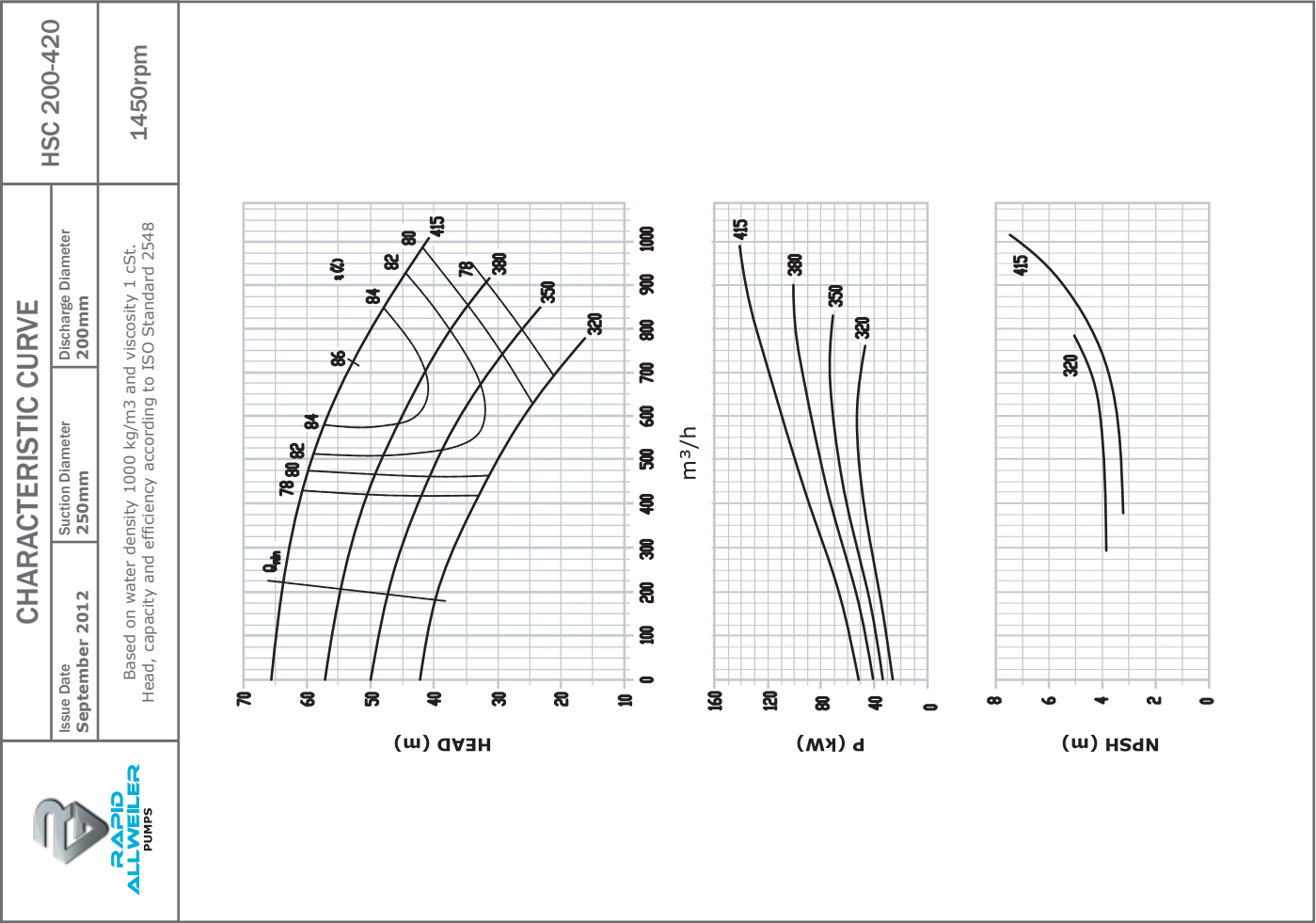
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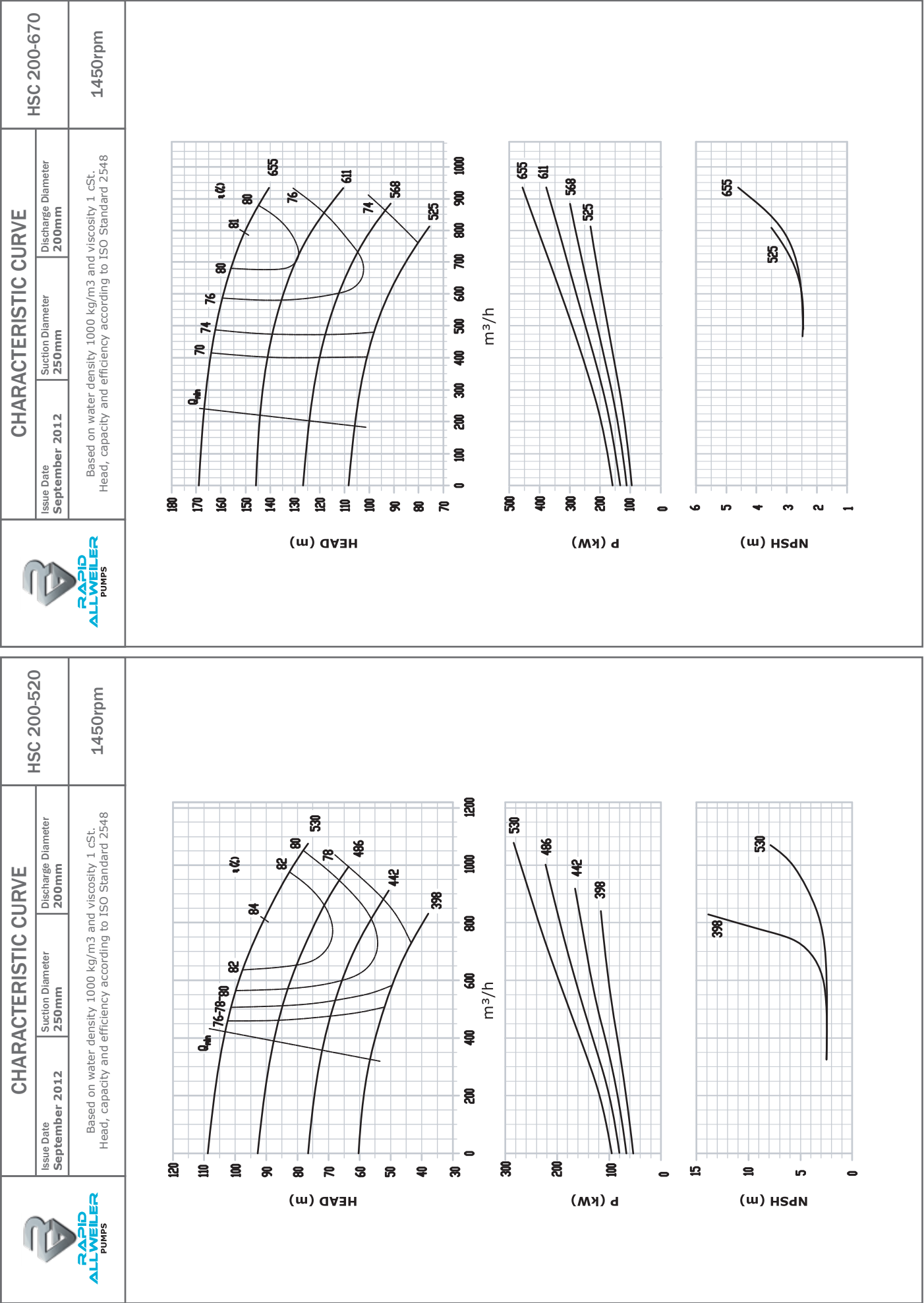
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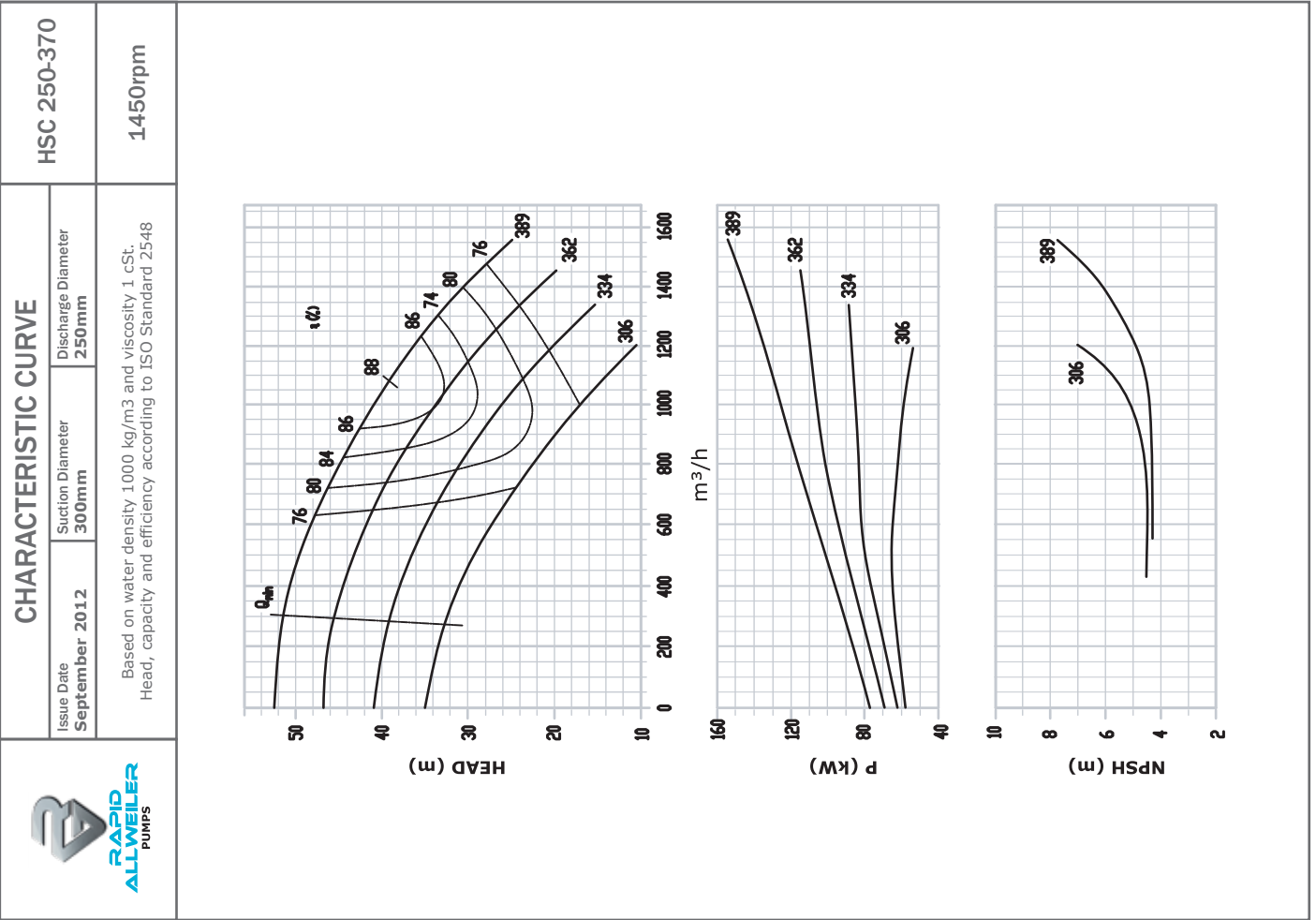
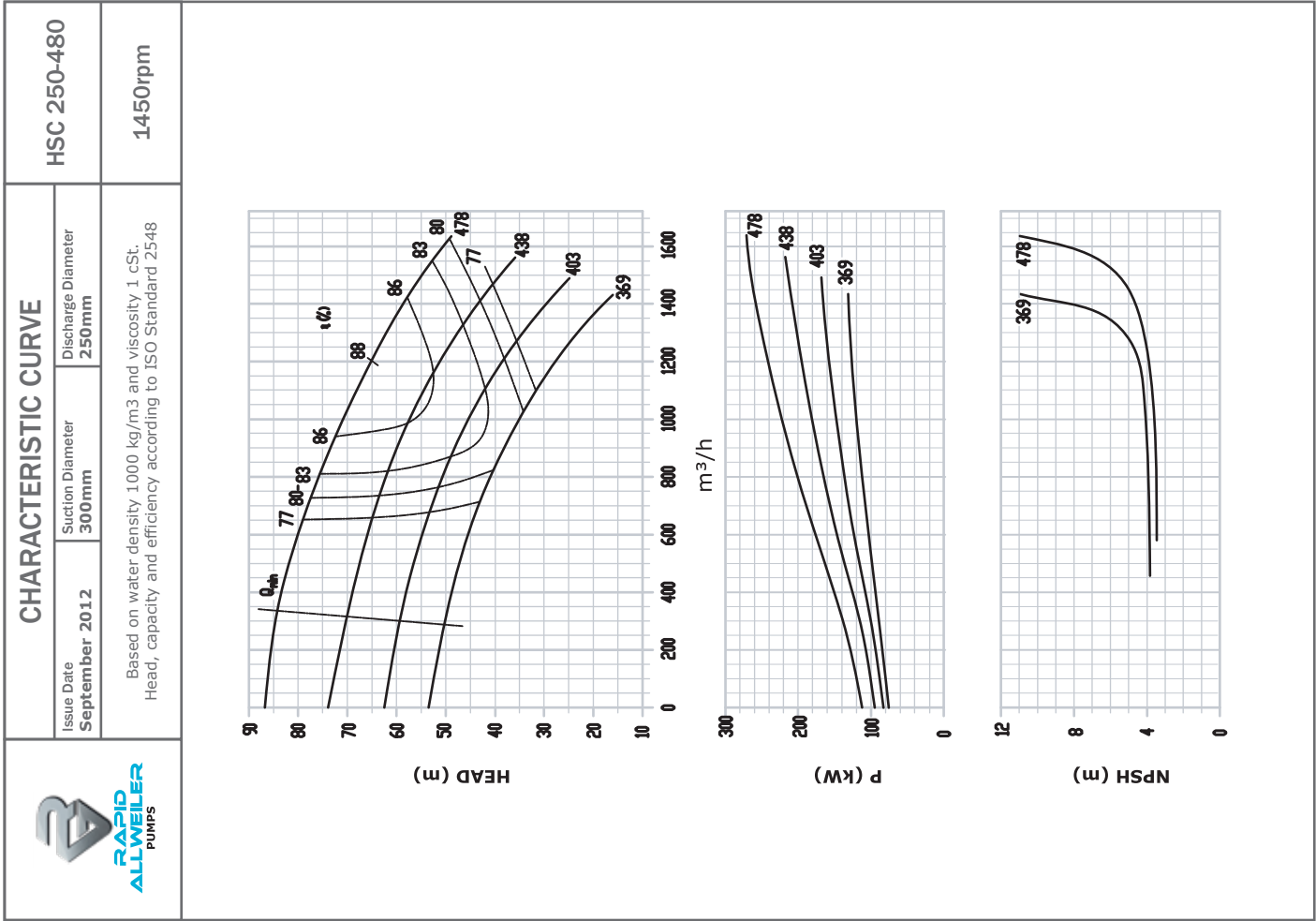
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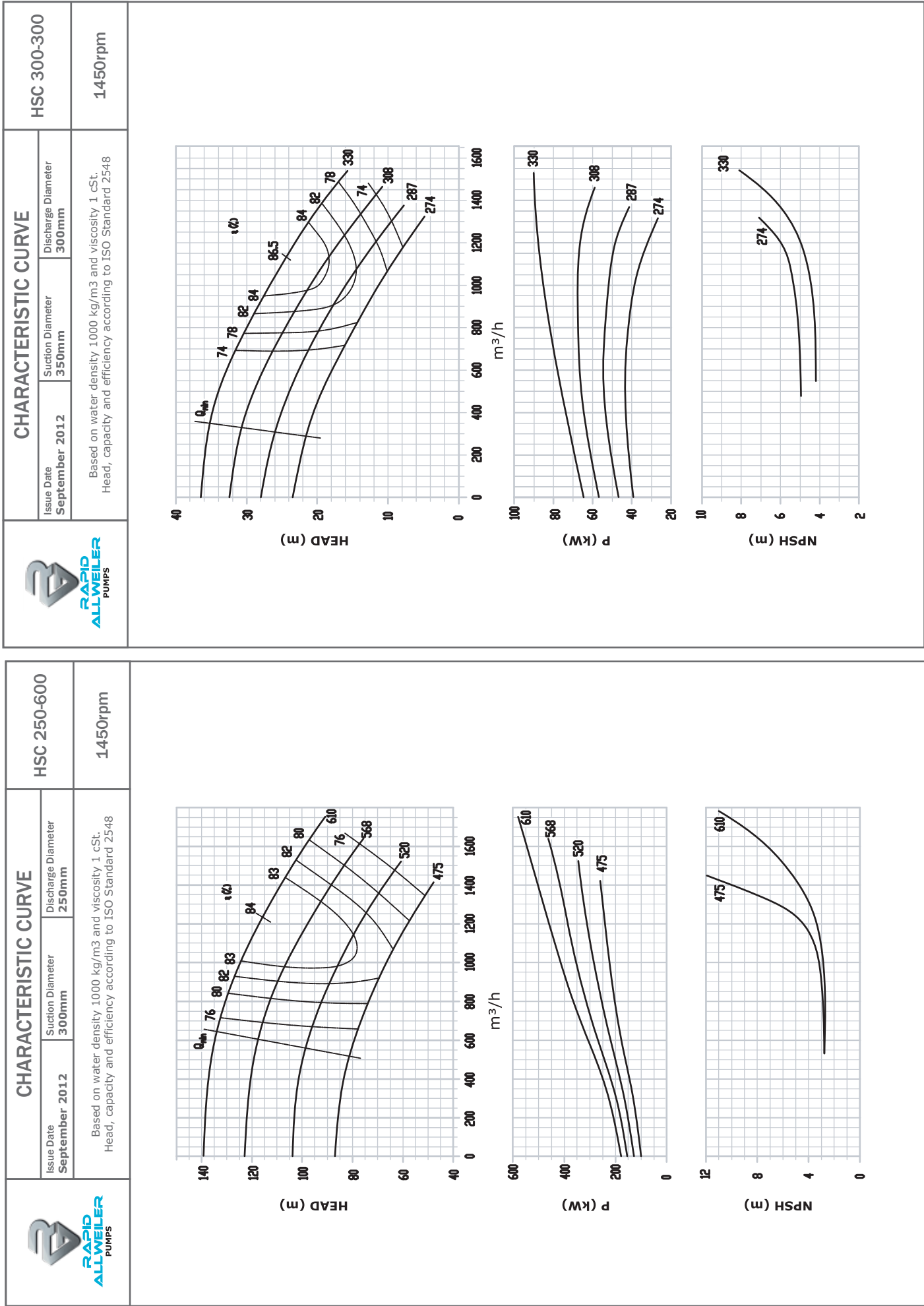
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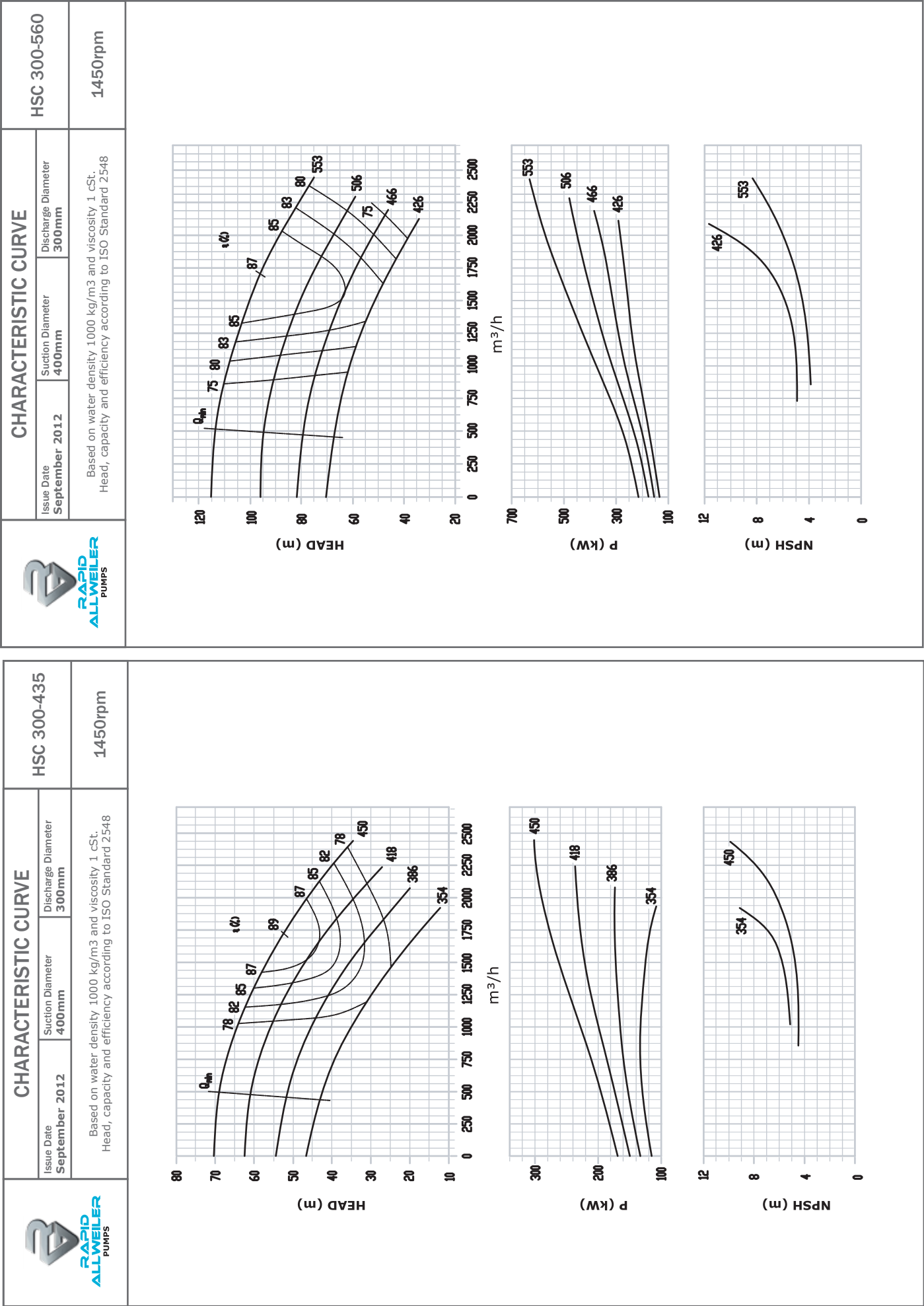
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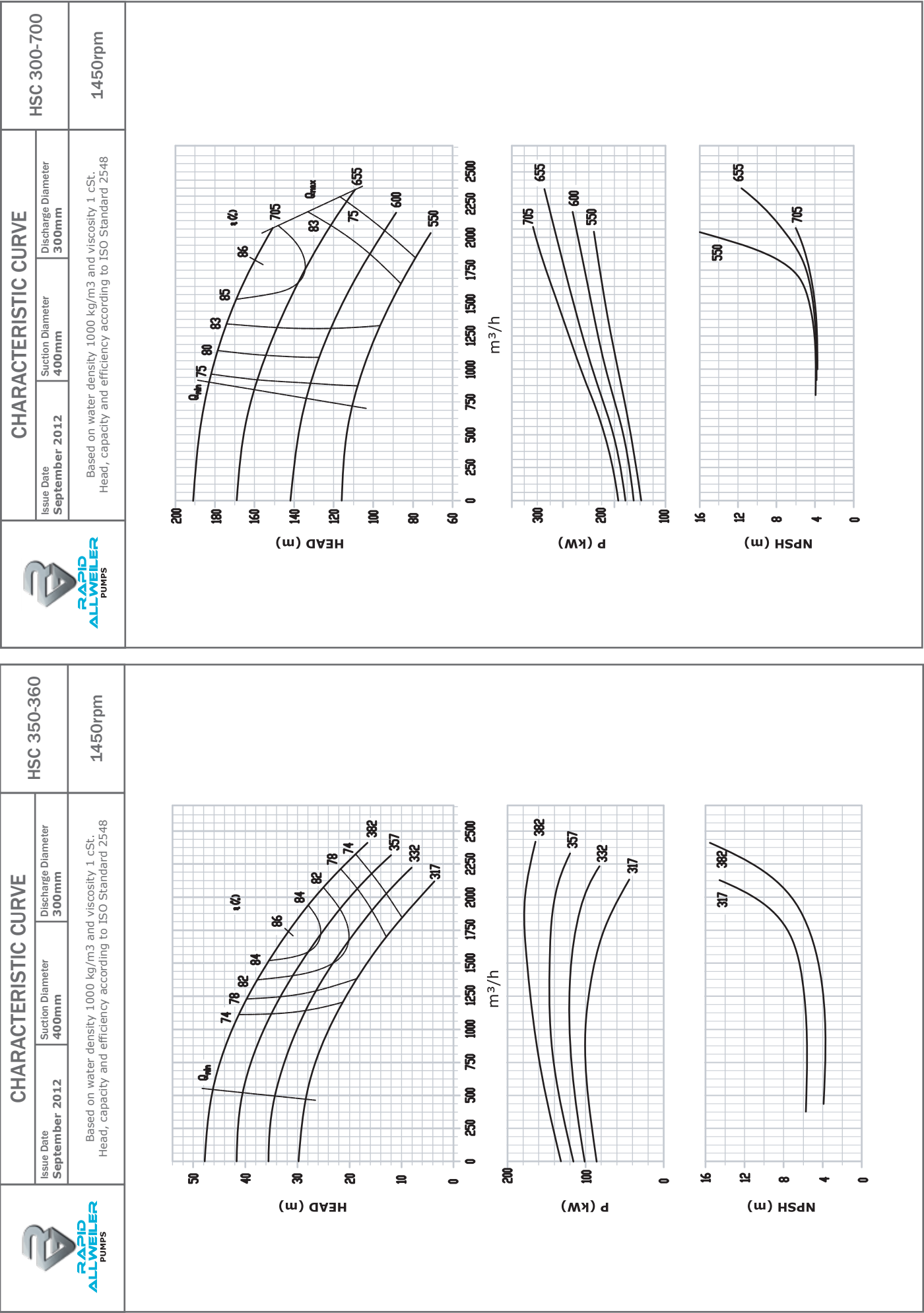
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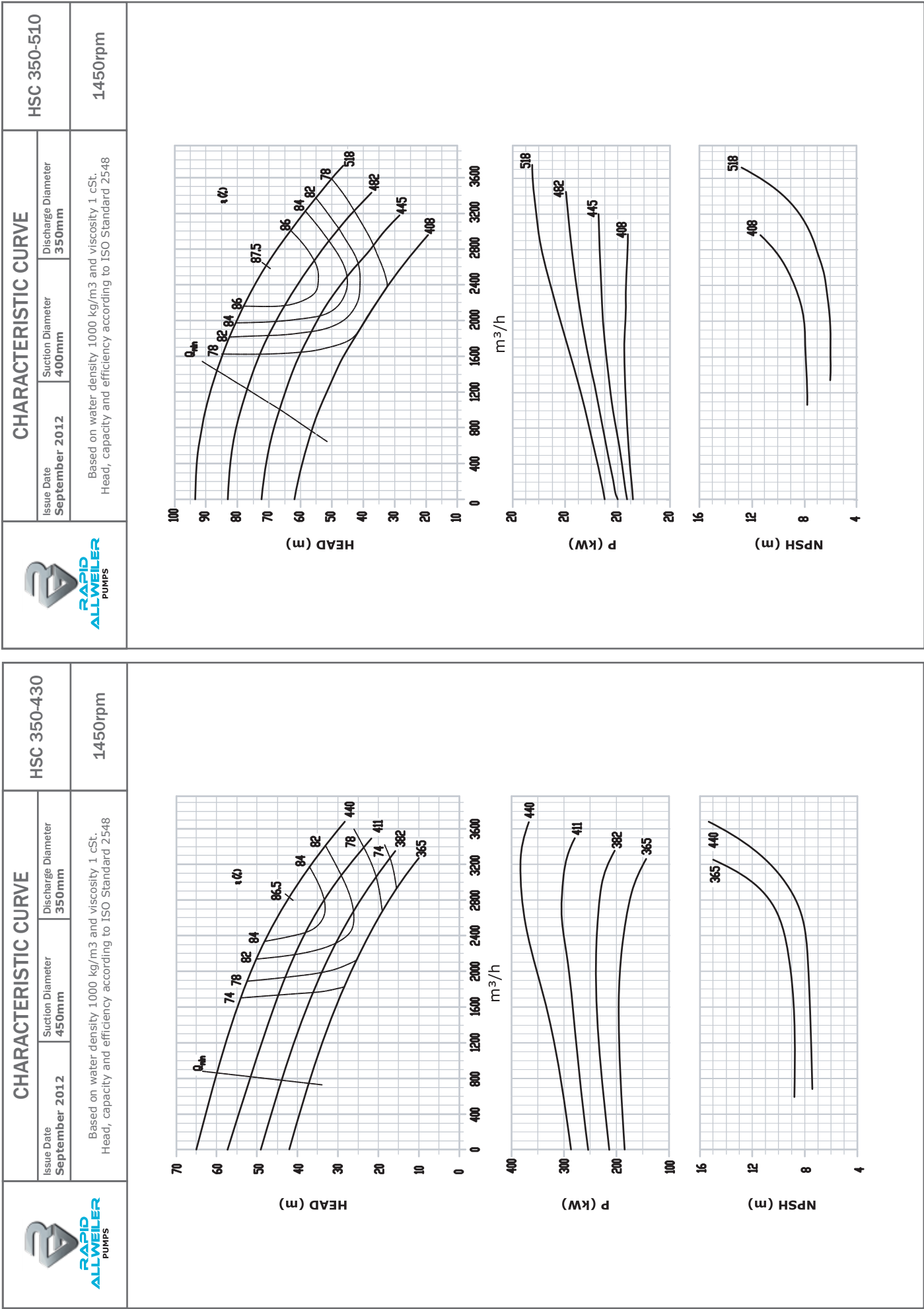
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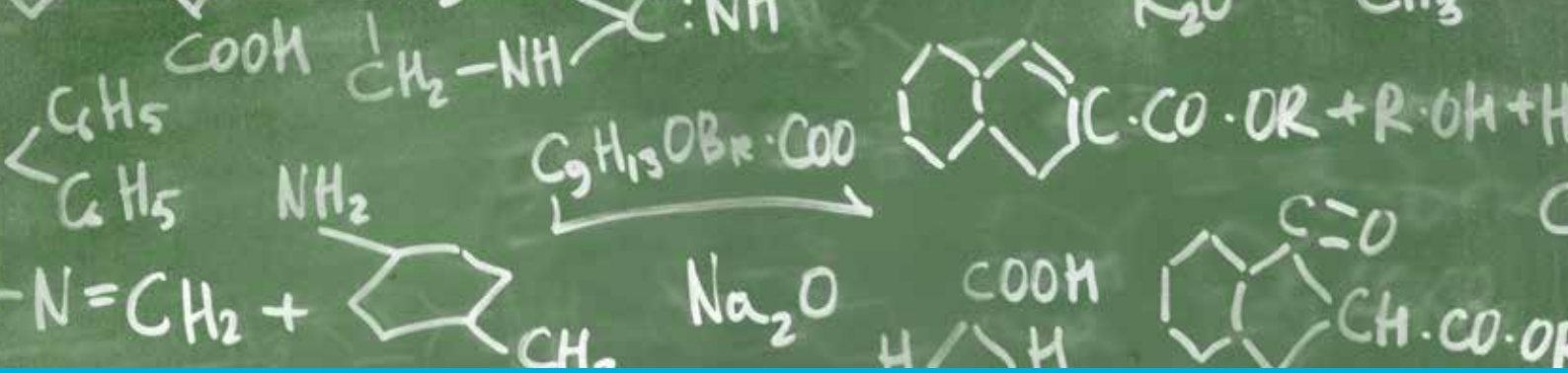
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BASIC FORMULAS

H= Head(m)

Q = Flow(m³/h)

Capacity

$$\text{l/sec} \times 3.6 = \text{m}^3/\text{h}$$

$$\text{m}^3/\text{h} \div 3.6 = \text{l/sec}$$

$$\text{Imp gpm} \times 0.2271 = \text{m}^3/\text{h} \quad \text{m}^3/\text{h} \times 4.403 = \text{Imp gpm}$$

$$\text{US gpm} \div 0.246 = \text{l/min} \quad \text{l/min} \times 0.246 = \text{US gpm}$$

$$10000 \text{ kg/hr} = \frac{10\text{m}^3\text{h}}{\text{Density(SG)}}$$

Head/Pressure

$$\text{Ft} \div 3.28 = \text{m}$$

$$\text{m} \times 3.28048 = \text{Ft}$$

$$\text{Bar} \times 100 = \text{kpa}$$

$$\text{m} \times 9.805 = \text{kpa}$$

$$\text{kpa} \times 0.102 = \text{m}$$

$$\text{m} \times 0.098 = \text{Bar}$$

$$\text{Bar} \times 10.19 = \text{m}$$

$$\text{m} \times 1.45 = \text{psi}$$

$$\text{psi} \times 6.895 = \text{kpa}$$

Power

$$\text{hp} \times 0.746 = \text{kw}$$

$$\text{kw} \times 1.340483 = \text{hp}$$

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

$$\text{kw} = \frac{\text{Amps} \times \text{Volts} \times \text{Power Factor} \times 1.732}{1000}$$

$$\text{RPM} = \frac{\text{Hz} \times 120}{\text{No of Poles}}$$

$$\text{Hz} = \frac{\text{RPM} \times \text{No Of Poles}}{120}$$

$$\text{Velocity m/sec} = \frac{Q \times 353.63}{(\text{Pipe Dia})^2}$$

Efficiency

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

Eff = Pump Eff%

Density = SG

Temperature

$$\text{Deg.C} = (\text{deg.F} - 32) \times 0.556$$

$$\text{Deg.F} = (1.8 \times \text{deg.C}) + 32$$

Peripheral Speed

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

Viscosity

vis Viscous Liquid

w Water

Given: Qvis in m³/h kinematic viscosity v in mm²/s

Hvis in m

pvis in kg/dm³

$$Q_w = \frac{Q_{\text{vis}}}{C_Q}$$

$$H_w = \frac{H_{\text{vis}}}{C_H}$$

Qw =

C% x %w

$$P_{\text{vis}} = \frac{Q_{\text{vis}} \times H_{\text{vis}} \times P_{\text{vis}}}{367 \times \text{Eff}(\%) \text{ vis}}$$

Centrifugal and Axial Flow Pump Affinity Laws:

Speed changes & impeller diameter remains the same:

$$Q_1/Q_2 = N_1/N_2$$

$$H_1/H_2 = (N_1/N_2)^2$$

$$P_1/P_2 = (N_1/N_2)^3$$

Impeller diameter changes and speed remains the same:

$$Q_1/Q_2 = D_1/D_2$$

$$H_1/H_2 = (D_1/D_2)^2$$

$$P_1/P_2 = (D_1/D_2)^3$$



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