

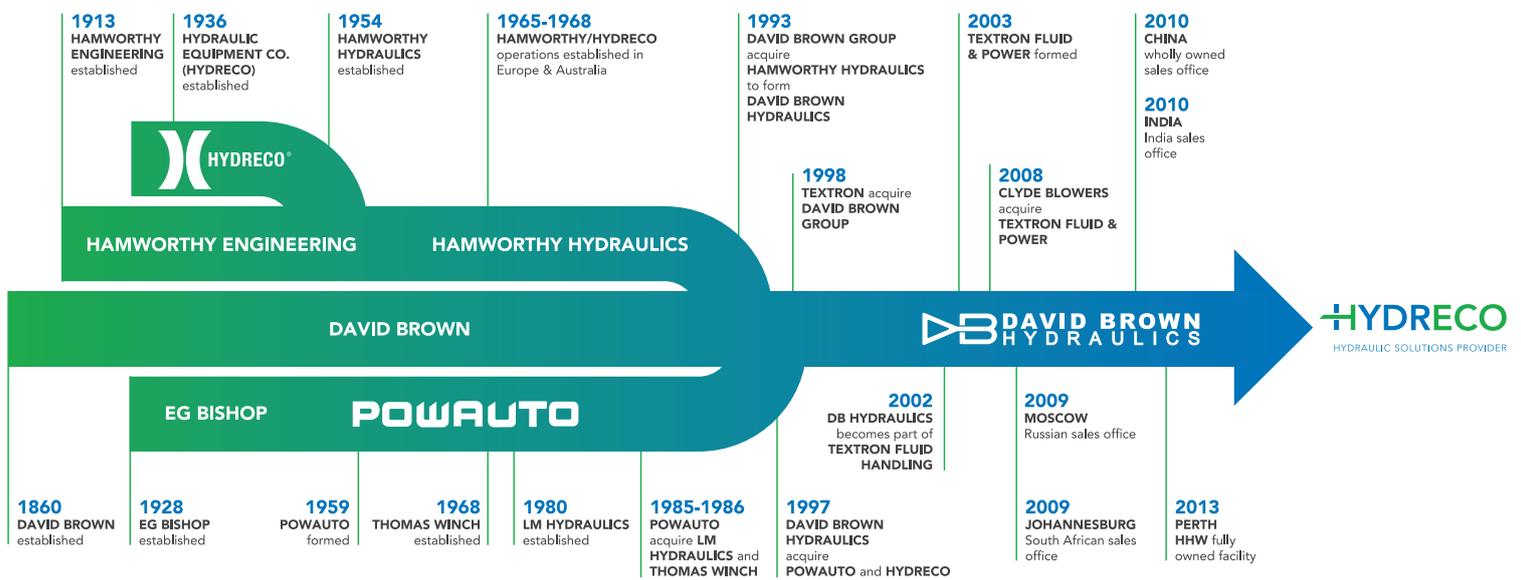
HYDRECO

HYDRAULIC SOLUTIONS PROVIDER

1900 SERIES GEAR PUMPS AND MOTORS



22.0 TO 74.2 CC/REV.
250 BAR. PEAKPRESSURE



100 YEARS OF HYDRAULICS EXPERIENCE

Hydreco Hydraulics is the designer, manufacturer and distributor of products servicing the transport and mobile hydraulics sector. Hydreco has a combined history of 100 years in developing solutions through a rich heritage of legacy companies. The joining of David Brown Hydraulics, Powauto and Hydreco in 1997 brought together some of the most respected products, people and heritage brands in the business.

Engineering excellence is at the core of our organization, the product range is geared towards offering the best possible solution for many applications within Construction, Earth moving, Transport, Industrial, Materials handling, and many more. We pride ourselves on supporting customers through leading edge products, designed to provide optimum performance and extensive reliability in continual hard working applications. With innovative technology our products have evolved and developed, leading to a range of some of the highest quality products available in the market

place. The business is positioned to respond to your hydraulic needs through a worldwide network of manufacturing and sales facilities.

Hydreco has an extensive range of low noise helical gear, aluminium and cast iron gear pumps and standard spur gear models from its David Brown heritage. Its valve range covers multi-spool sectional and monoblock models with electro hydraulic, hydraulic and lever control. Dual axis, stackable and single axis hydraulic pilot valves, with an extensive range of handle options including ergonomic handles with many switches and button options. The valves are available with spring centred and electric detent options.

Under the name Hydreco Powauto, with heritage back to 1928, we sell our range of Transport hydraulics products. The product range covers power take-off units, pumps, valves, cylinders and accessories for on and off road vehicles. This World Class brand possesses a strong footprint in Asia Pacific building on its excellent reputation.



The manufacturing engineering office from the 1950's



The Tool Room from 1947

1900 GENERAL DATA

INTRODUCTION

1900 Series Standard models have Heavy-Duty roller bearings, for use with synthetic Mineral Oils.

Models are also available with plain (bush) bearings for specific applications including use with Fire-Resistant Fluids.

Operating parameters for plain-bearing units may differ from the standard data given in this leaflet. For further information consult Hydreco Hydraulics.

The information contained in this leaflet covers all 1900 Series Gear Pumps and Motors, forming part of the wide range of Hydraulic Pumps, Motors, Control and Auxiliary Valves produced by Hydreco.

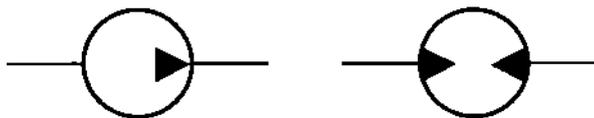
Our extensive coverage is specifically designed to provide manufacturers of construction equipment and mechanical handling plant with the best possible combination of pumps, motors and control equipment at competitive prices.

The high rate of technical innovation demanded by equipment manufacturers constantly adds new features to our products, usually as the result of intensive practical development undertaken to improve the operation or economics of a specific type of machine.

Such features cannot always be covered in a publication of this nature but our application engineers are always ready to help in finding a practical solution.

Hydraulically, your business is our business and we believe our company to be uniquely qualified to assist you to get the best out of your machines. This professional technical service is freely at your disposal.

Our fully equipped plant, backed by our own first-class foundry, provides us with the most up-to-date production facilities in Europe. Qualified distributors or subsidiary companies in the most important industrial markets, ensure that parts and service are available internationally.



THEORETICAL DISPLACEMENT

Units	1905	1907	1909	1911	1913	1916
cm ³ /rev	22.00	33.43	41.50	51.80	62.10	74.20

GENERAL DATA

Drive Shafts	See Page 5
Shaft Seal Designs	See Page 5
Mounting Flanges	See Page 6
Port Connections	See Page 7
Rotation - Pumps	Either direction (not reversible)
Rotation - Motors	Either direction (reversible)
Speed Range Pumps	600-2700 u/min
Speed Range Motors	600-3000 u/min
Dimensions	See Page 5
Weight	See Page 5
Mounting Position	No attitude limitation
Ambient Temperature Range	-20°C to +60°C
Hydraulic Fluid Temperature Range	-20°C to +80°C
Maximum viscosity for Cold Start	850 cSt
Maximum for normal working conditions	250 cSt
Minimum permissible viscosity	10 cSt

For optimum 'life' and efficiency, fluid viscosity should be in the range of 15 to 25 cSt during normal working conditions.

Performance Data	}	See Pages 9-14 incl.
Overall Efficiencies		
Pressure/Speed Limitations		

OPERATING PRESSURE - PUMPS

Inlet Pressure Range	Minimum	See Page 3
	Maximum 2 bar	(0.2 MPa)
Outlet 1905 to 1913	Nominal	210 bar (21 MPa)
	Peak	250 bar (25 MPa)
1916	Nominal	170 bar (17 MPa)
	Peak	210 bar (21 MPa)

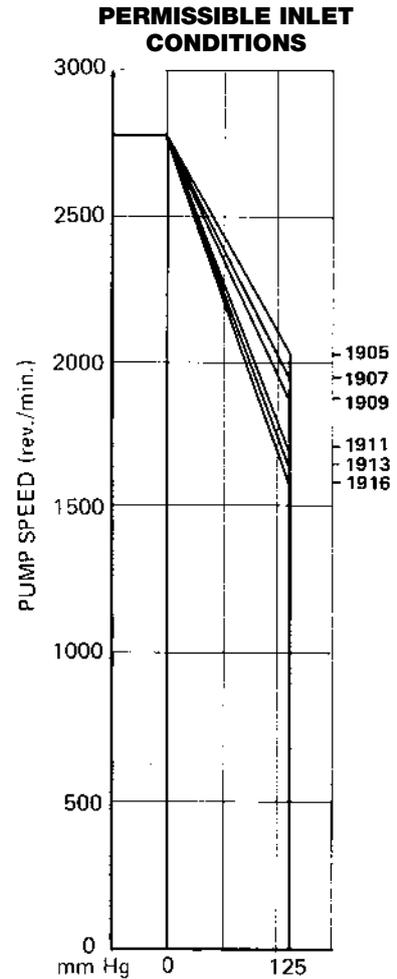
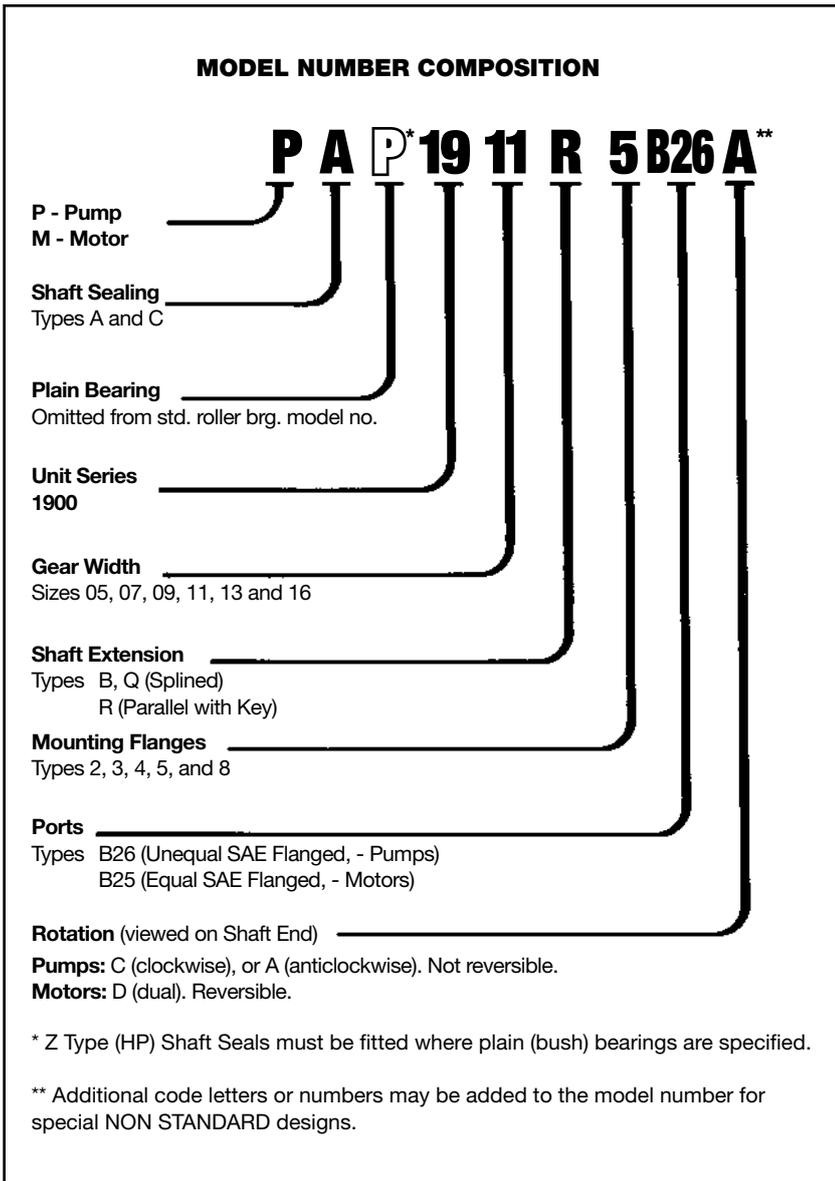
OPERATING PRESSURE - MOTORS

Inlet/Outlet	1905 to 1913	Nominal 210 bar (21 MPa)
		Peak 250 bar (25 MPa)
	1916	Nominal 170 bar (17 MPa)
		Peak 210 bar (21 MPa)
Drain Line Pressure		Maximum 1 bar (0.1 MPa)

ALL DATA IS OBTAINED FROM AVERAGE PERFORMANCE OF REGULAR PRODUCTION PUMPS USING GOOD QUALITY S.A.E. 10 MINERAL HYDRAULIC OIL AT 49 DEG. C. GENERALLY CORRESPONDING TO A VISCOSITY OF 21 CENTISTROKES (90 SEC. REDWOOD NO. 1 OR 103 SSU.)

Critical Dimensions of all Shafts, Flanges and Ports conform to S.A.E. Standards where these are specified.

1900 GENERAL DATA

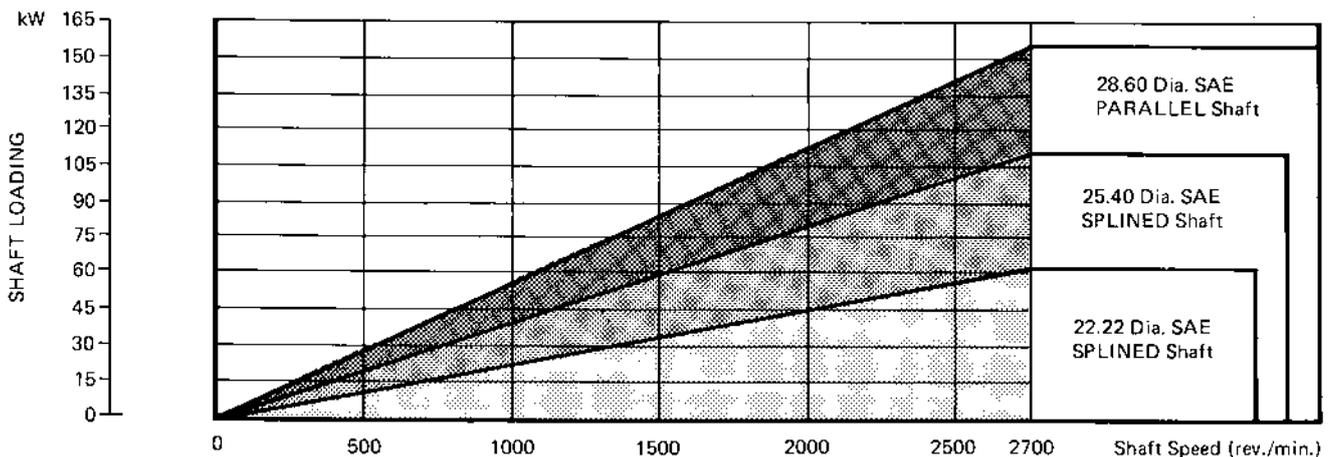


Pumps with standard size ports will operate without detriment when inlet conditions are within the outlined area of the chart.

For operation within the shaded area, consult **Hydreco Hydraulics**.

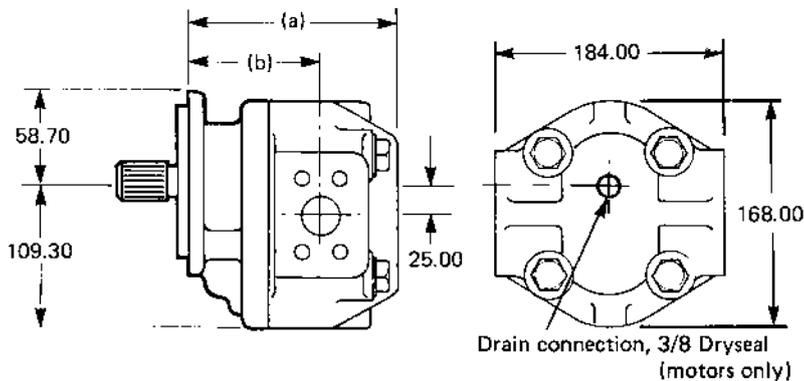
DRIVE SHAFT POWER LIMITATIONS

The shafts listed below are recommended for use where the horsepower to be transmitted at any given speed lies within the shaded areas of the accompanying graph,- for requirements outside these limitations refer to **Hydreco Hydraulics**.



1900 INSTALLATION DATA

GENERAL DIMENSIONS (mm)

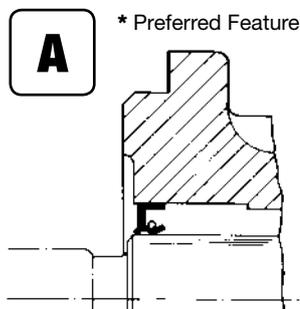


DIMENSIONS (a) & (b) CHANGE WITH ADAPTOR & HOUSING

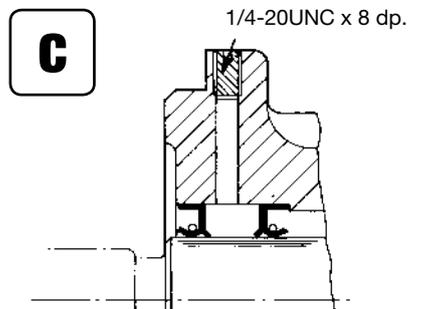
UNIT SIZE	(a)	(b)	WEIGHT (kg)
1905	143	94	17.70
1907	143	94	17.90
1909	159	97	18.10
1911	159	102	18.40
1913	172	102	18.60
1916	172	102	18.80

C of G position
Approx.
50% of Dim.A

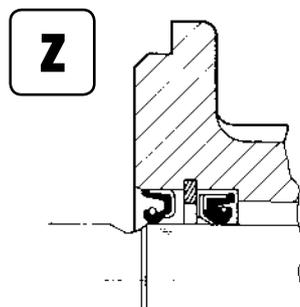
SHAFT SEAL DESIGNS



Suitable for external shaft or flexible drive couplings.

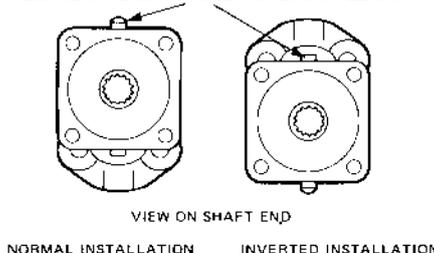


Incorporates extra seals and visible bleed facility making it suitable for direct mounting on torque converters and gear boxes.



Suitable for most Dual-Rotation Units the HP lip seal will withstand back-pressures of up to 20 bar.

VISIBLE-BLEED DRILLINGS IN ADAPTORS WHEN C-DESIGN SHAFT SEALS ARE FITTED REMOVE UPPERMOST SCREW AFTER INSTALLATION

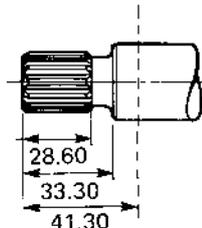


DRIVE - SHAFTS

B 22.2 Dia. SAE
13 Tooth Involute Spline
* Standard for Single Pumps

INVOLUTE SPLINE DATA

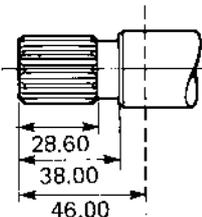
Side Fit - Flat Root
Diametral Pitch 16/32
Pressure Angle 30°
Number of Teeth 13
Major Diameter:
21.79/21.69



Standard Flange Mounting Face

Q 25.4 Dia. SAE
15 Tooth Involute Spline
* Standard for Multiple Pumps

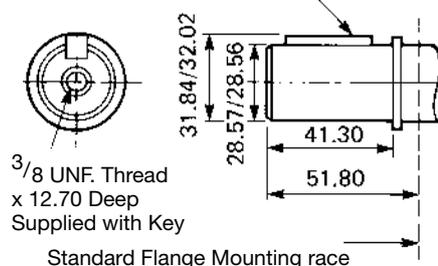
Diametral Pitch 16/32
Pressure Angle 30°
Number of Teeth 15
Major Diameter:
24.87/24.97



Standard Flange Mounting Face

R 28.60 Dia.
Parallel Shaft with Key

31.80 x 7.90 sq. key



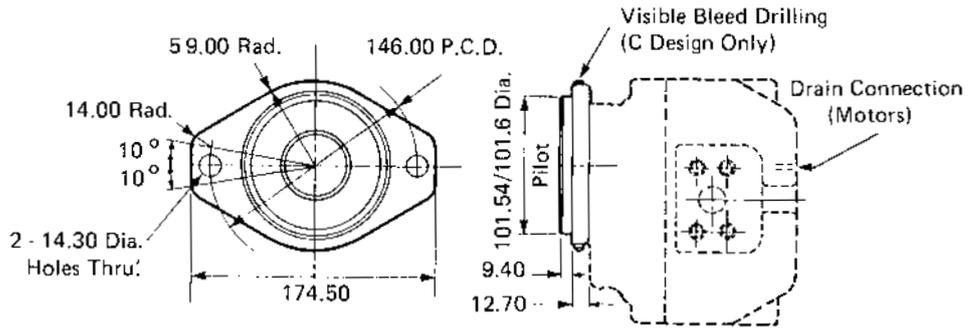
Standard Flange Mounting race

1900 INSTALLATION DATA

FLANGES

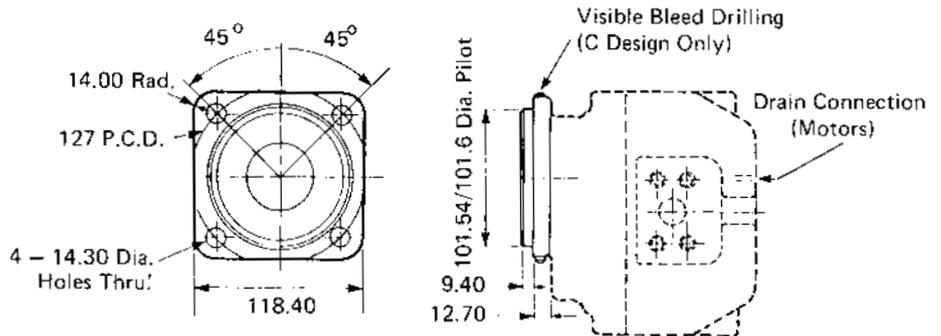
Dimensions in millimetres

2 **SAE B 2 Hole**
Available for
Designs A, C

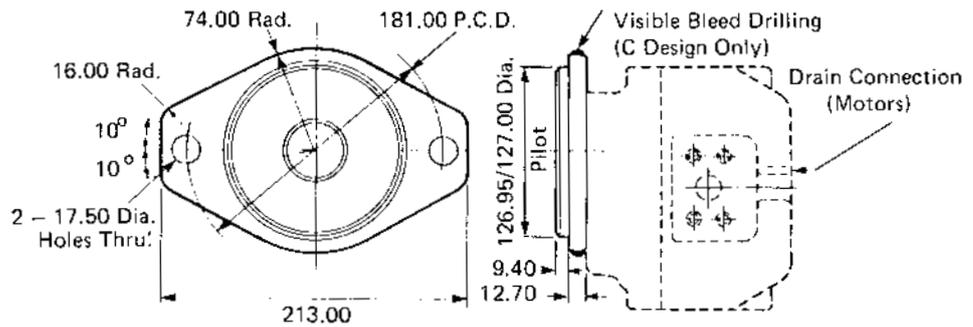


3 **SAE B 4 Hole**
Available for
Designs A, C

*Preferred Feature

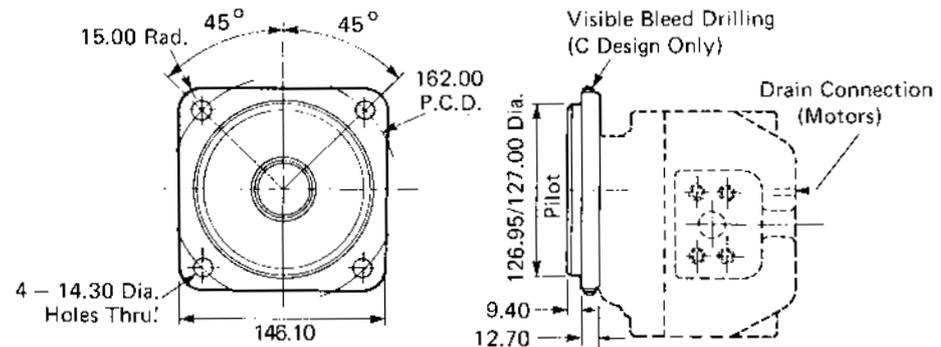


4 **SAE C 2 Hole**
Available for
Designs A, C

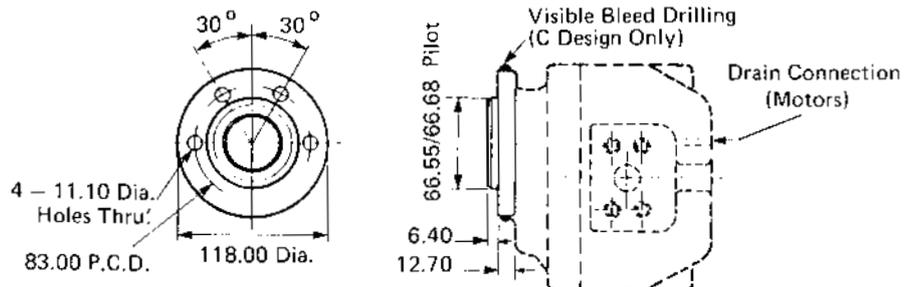


5 **SAE C 4 Hole**
Available for
Designs A, C

*Preferred Feature



8 **4 Hole Round Flange**
Available for
C Designs only



Visible Bleed Drillings (C Design Only).

Adaptors for C design Units will have a plug fitted in BOTH bleed drillings when initially assembled. The UPPERMOST plug should be removed when a C design unit is installed.

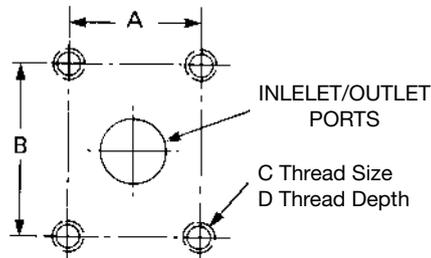
1900 INSTALLATION DATA

PORTS (PUMPS)

Dimensions in millimetres

B26

Unequal SAE Flanged Ports
(METRIC Tapping)
* Preferred Feature

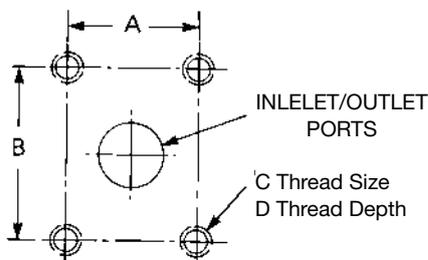


PUMP SIZE	INLET					OUTLET				
	DIA.	A	B	C (B26)	D	DIA.	A	B	C (B26)	D
1905	25.4	26.00	52.40	M10 X 1.5	28.60	19.00	22.00	47.60	M10 X 1.5	28.60
1907										
1909										
1911	32.00	30.00	58.70	M12 X 1.75		25.40	26.00	52.40		
1913	38.00	35.70	70.00			32.00	30.00	58.70		
1916										

PORTS (MOTORS)

B25

Equal SAE Flanged Ports
(METRIC Tapping)
* Preferred Feature

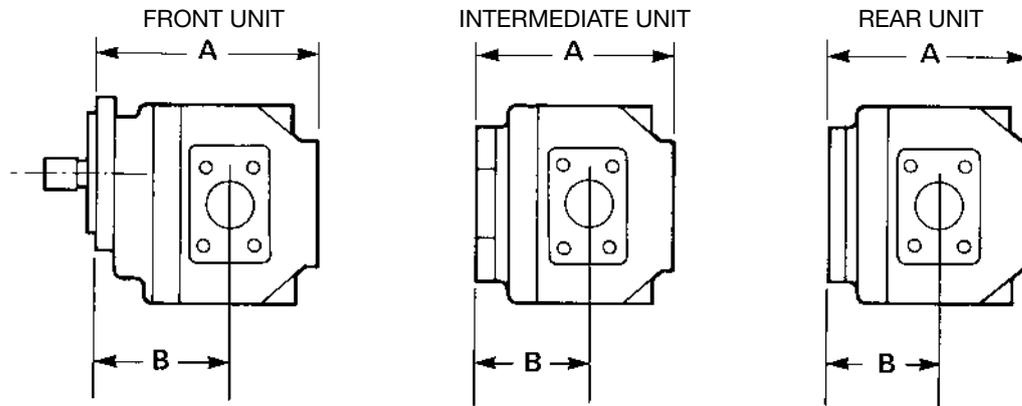


MOTOR SIZE	DIA.	A	B	C (B25)	D
1905	19.00	22.00	47.60	M10 X 1.5	28.60
1907					
1909	25.40	26.00	52.40		
1911					
1913	32.00	30.00	58.70		
1916					

1900 INSTALLATION DATA

INSTALLATION DIMENSIONS - MULTIPLE UNITS

Dimensions in millimetres



ALL SEAL DESIGNS														
2400				2200				1900						
SIZE	FRONT	INTER	REAR	SIZE	FRONT	INTER	REAR	SIZE	FRONT	INTER	REAR			
2411	A	192	176	162	2208	A	178	167	159	1905	A	156	145	132
	B	110	94	95		B	108	97	97		B	94	83	83
2413	A	197	181	162	2210	A	178	167	159	1907	A	162	151	132
	B	114	98	95		B	108	97	97		B	97	86	83
2415	A	202	187	172	2213	A	184	173	165	1909	A	167	156	148
	B	114	98	98		B	116	105	105		B	97	86	86
2416	A	206	191	172	2215	A	194	193	185	1911	A	167	156	148
	B	121	105	102		B	116	115	115		B	102	90	90
2419	A	206	191	187	2216	A	194	193	185	1913	A	179	168	160
	B	121	105	105		B	116	115	115		B	102	90	90
										1916	A	179	168	160
											B	102	90	90

For dimensions not shown refer to the separate units section.

Total H.P./SPEED requirements must be within the limits given in the SHAFT LOADING CHARTS (see page 3).

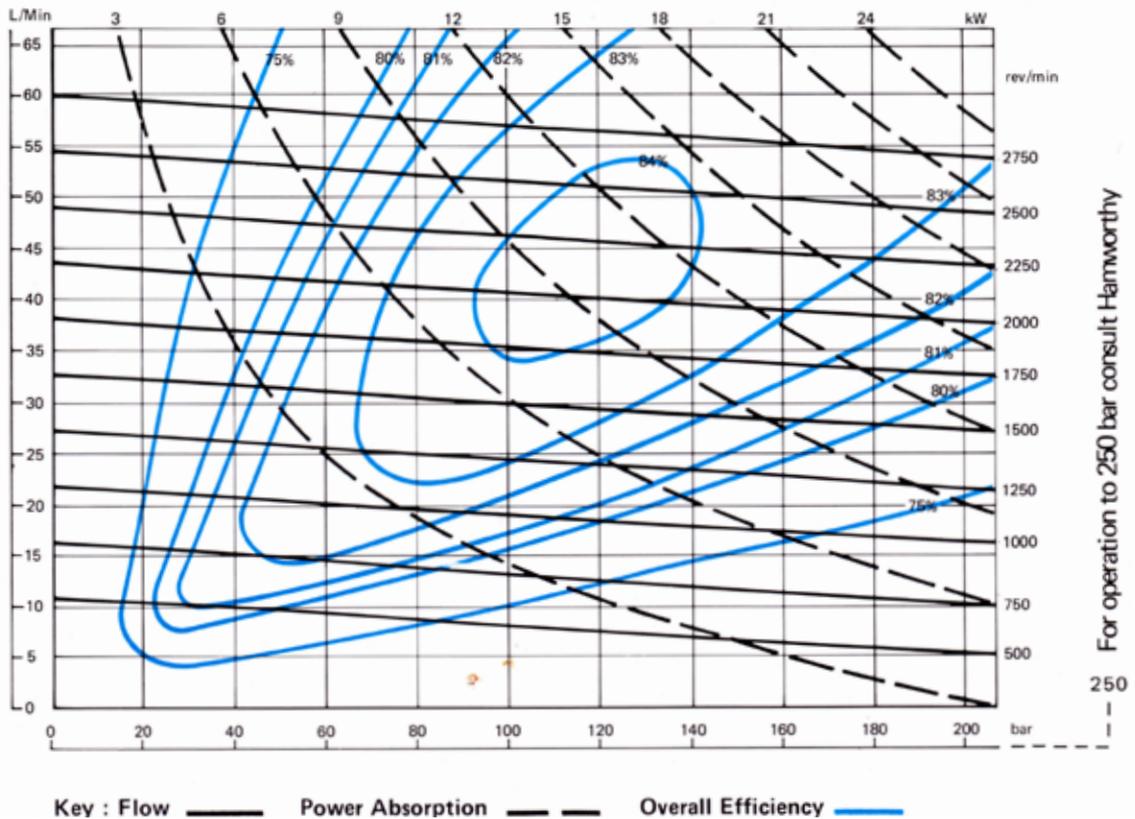
Smallest capacity pump units are normally mounted in REAR position only.

In multiple MOTOR assemblies each unit is normally of the same size and capacity.

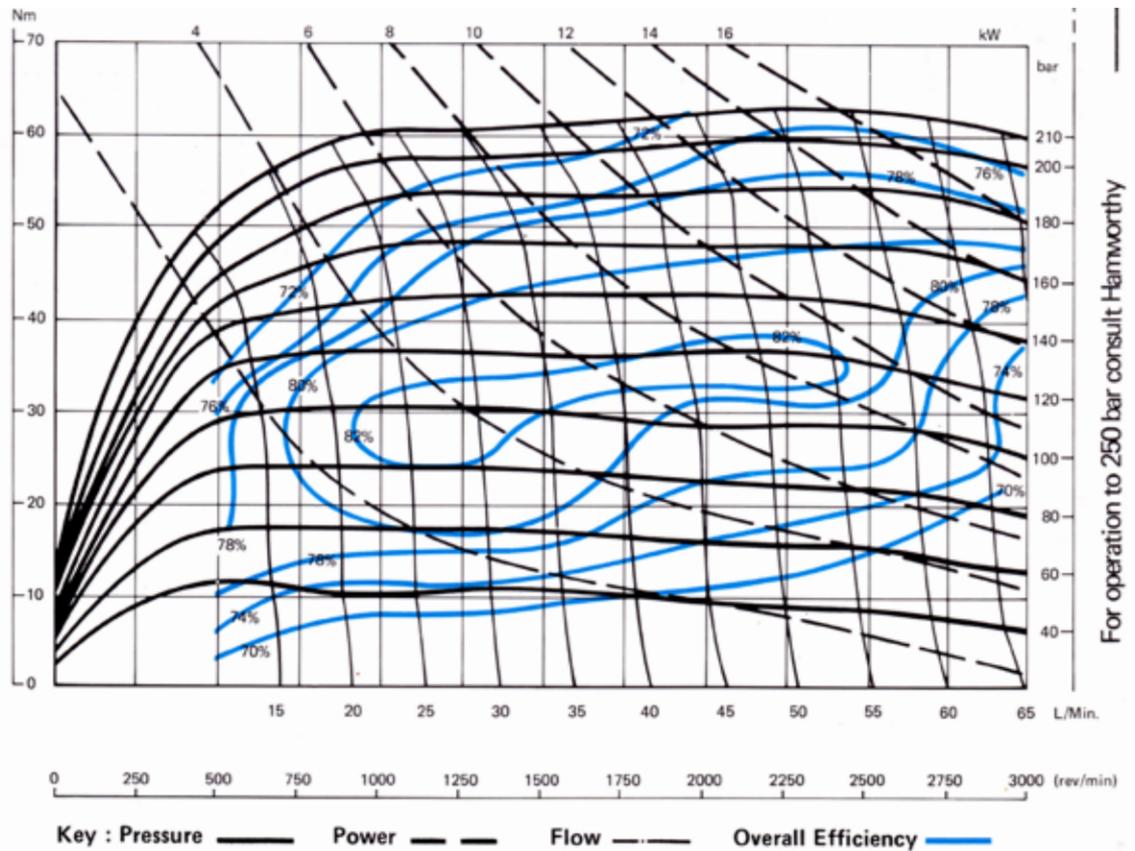
For Variations of Design, Performance and "Specification see the relevant Selection Data Sheets for each unit.

1900 PERFORMANCE DATA

1905 PUMP

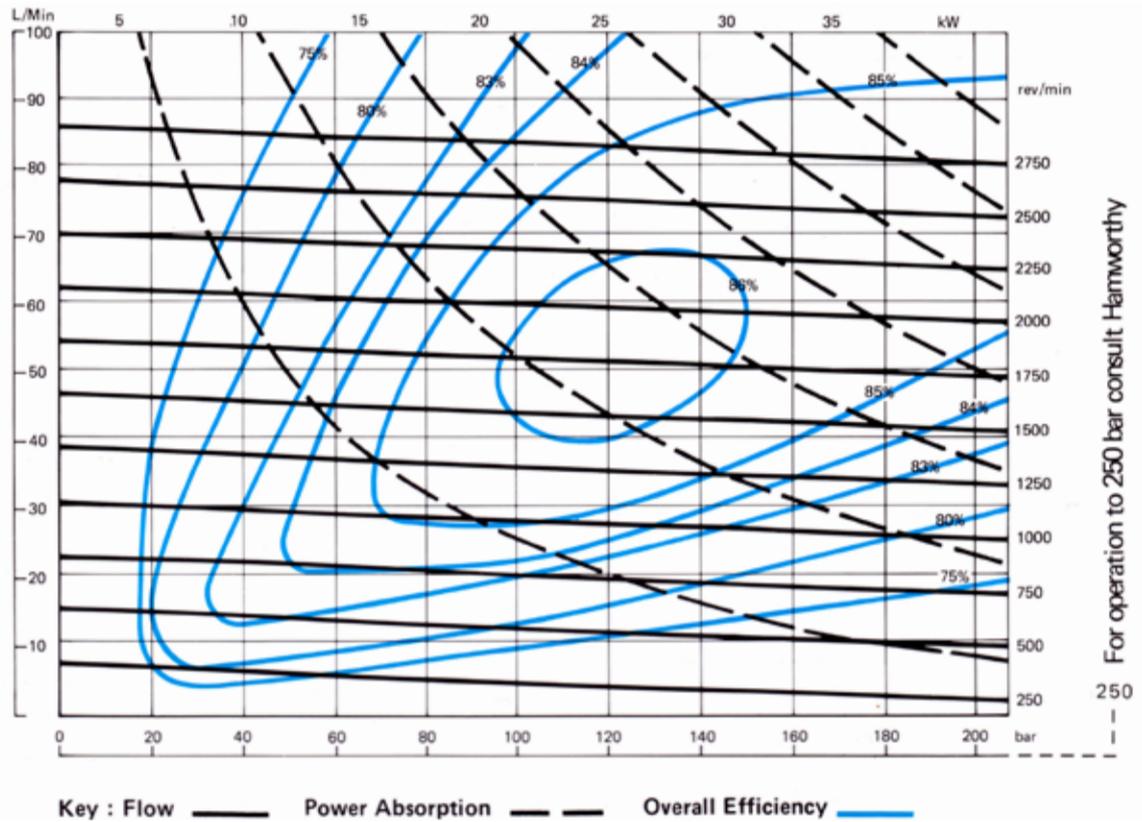


1905 MOTOR

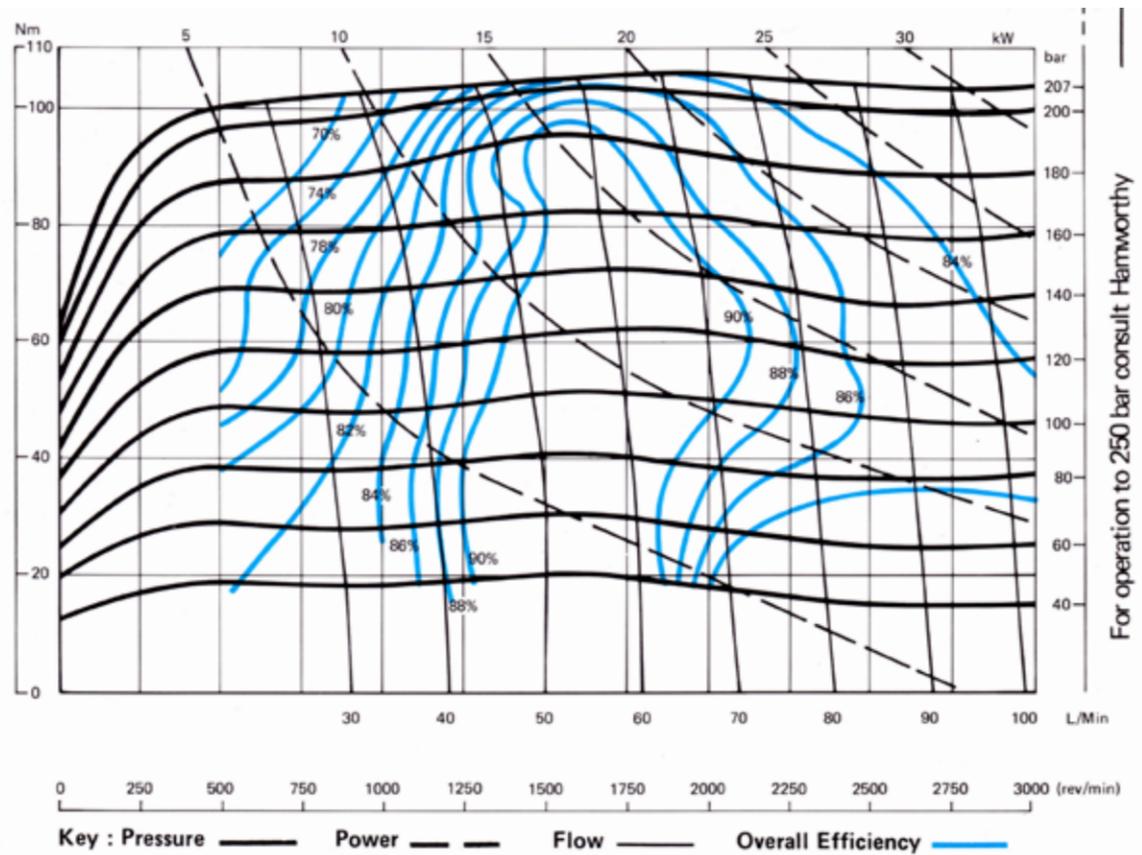


1900 PERFORMANCE DATA

1907 PUMP

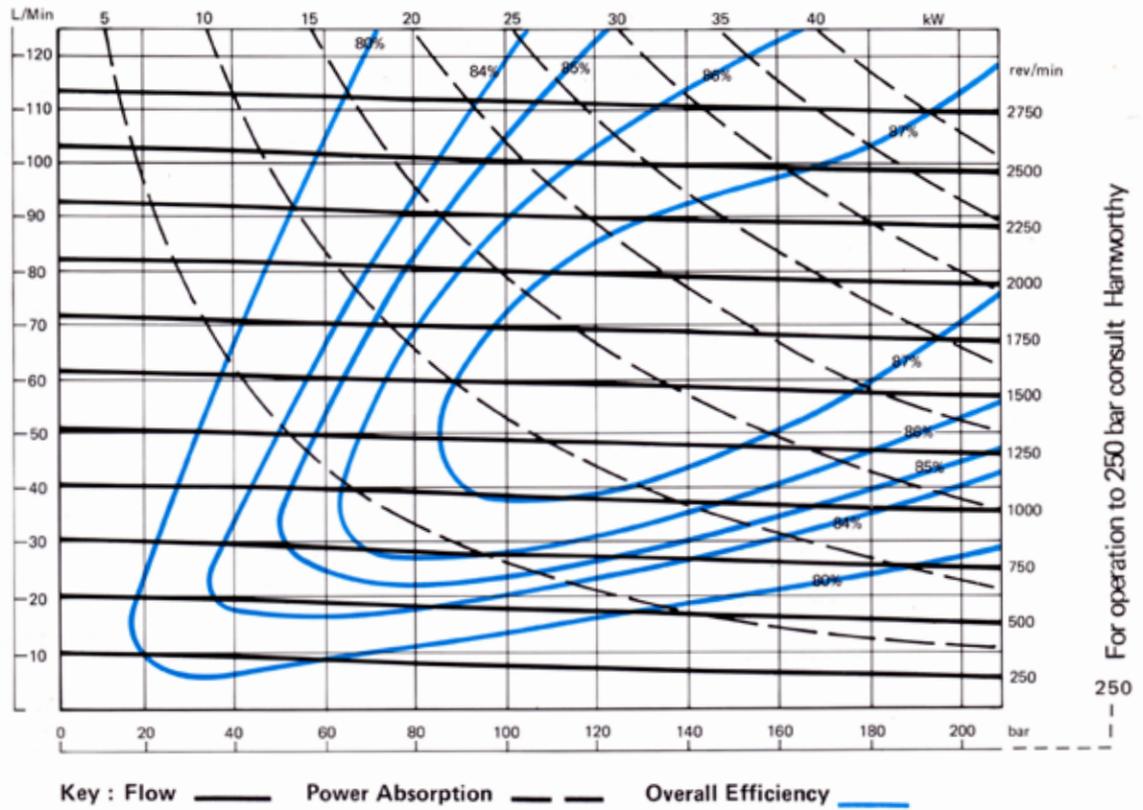


1907 MOTOR

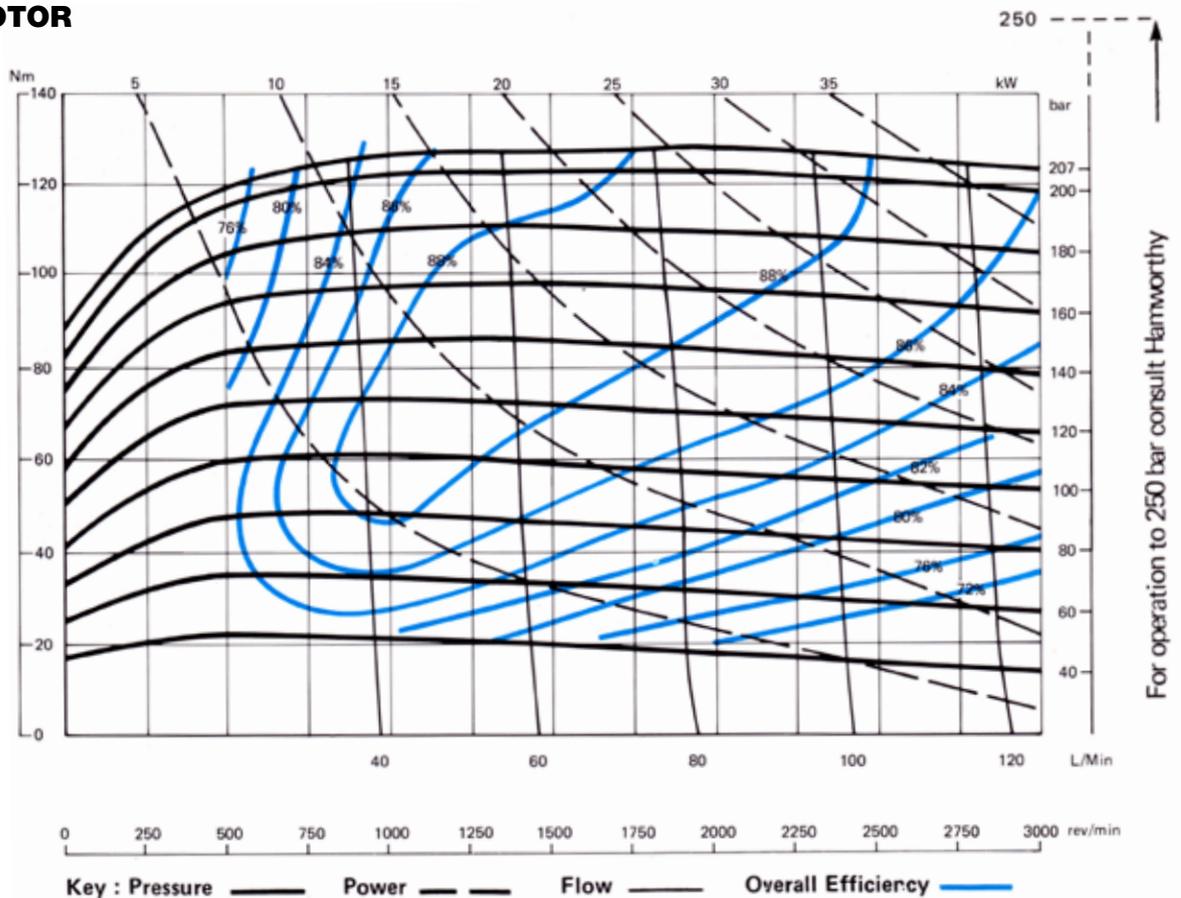


1900 PERFORMANCE DATA

1909 PUMP

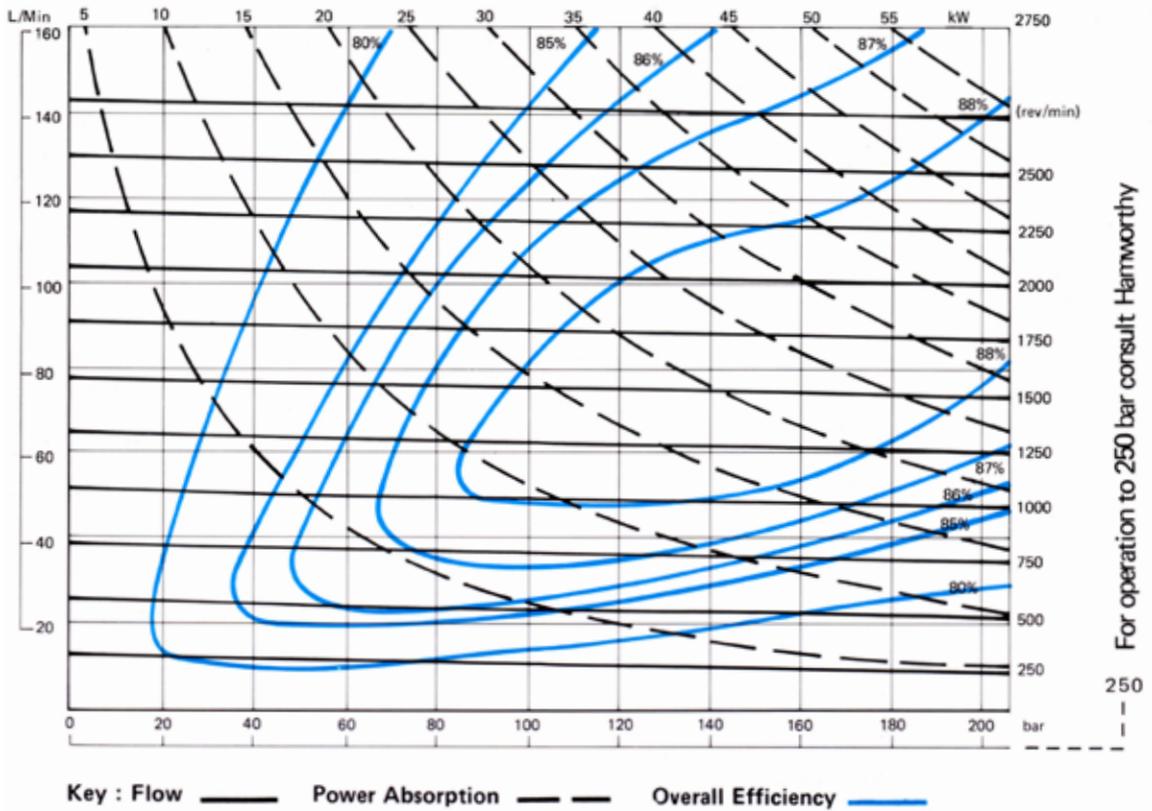


1909 MOTOR

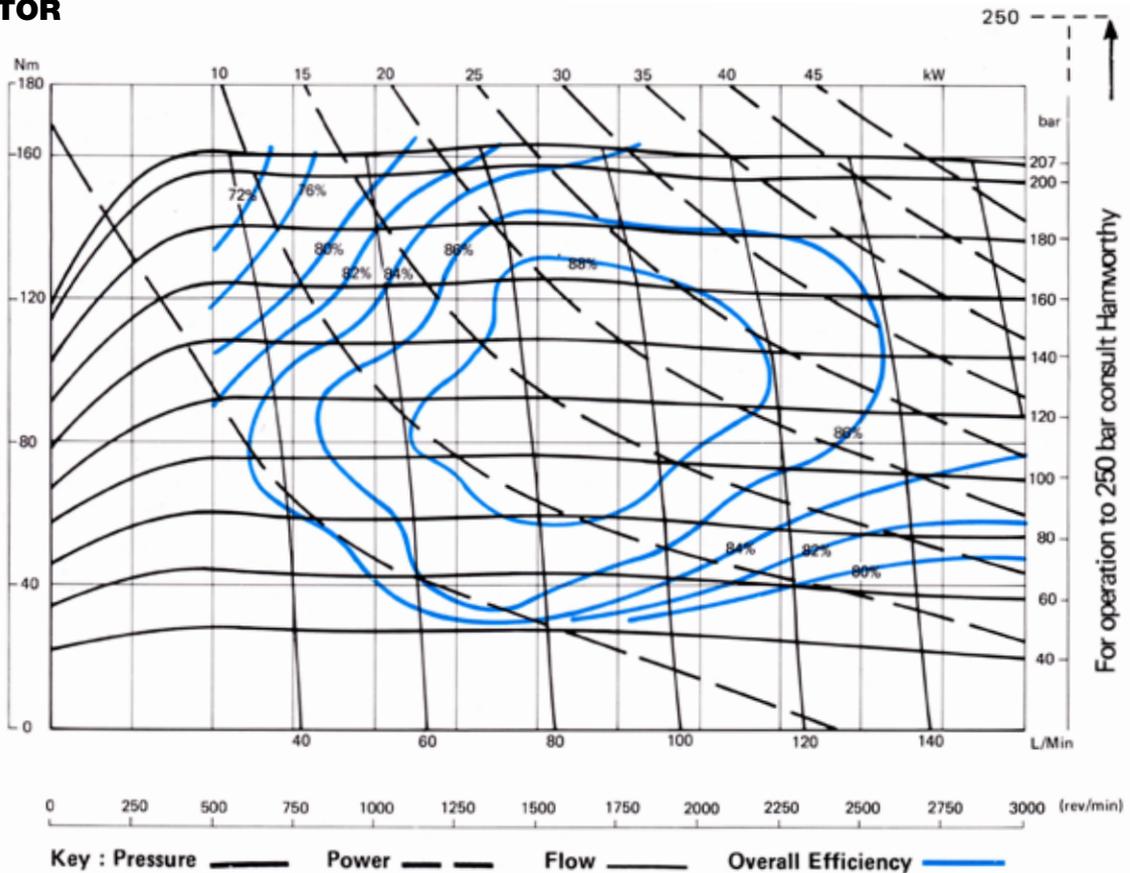


1900 PERFORMANCE DATA

1911 PUMP

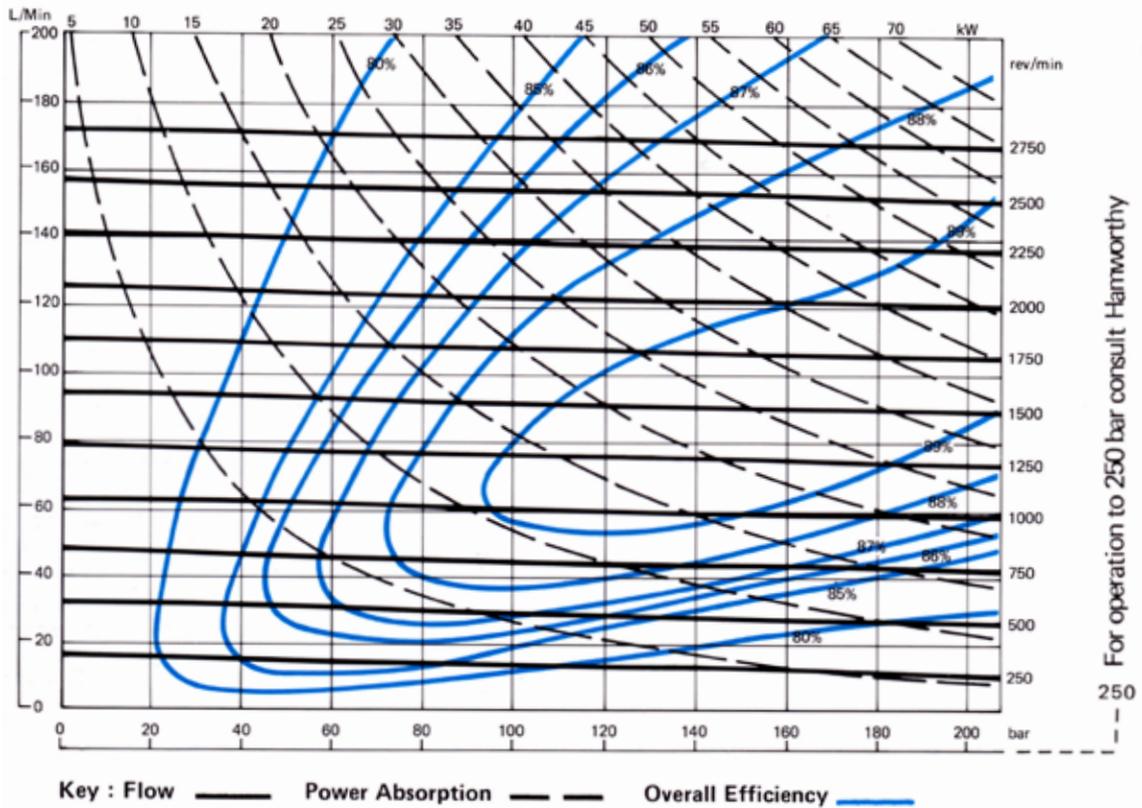


1911 MOTOR

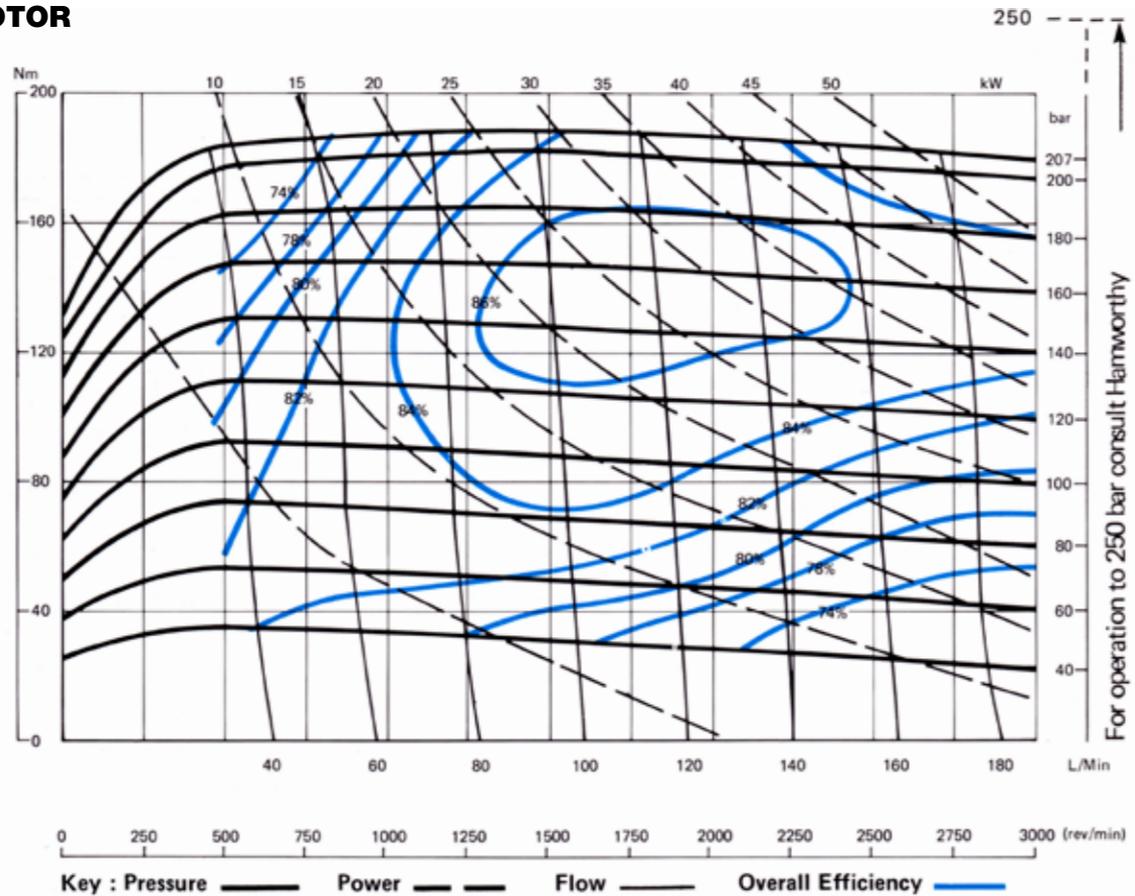


1900 PERFORMANCE DATA

1913 PUMP

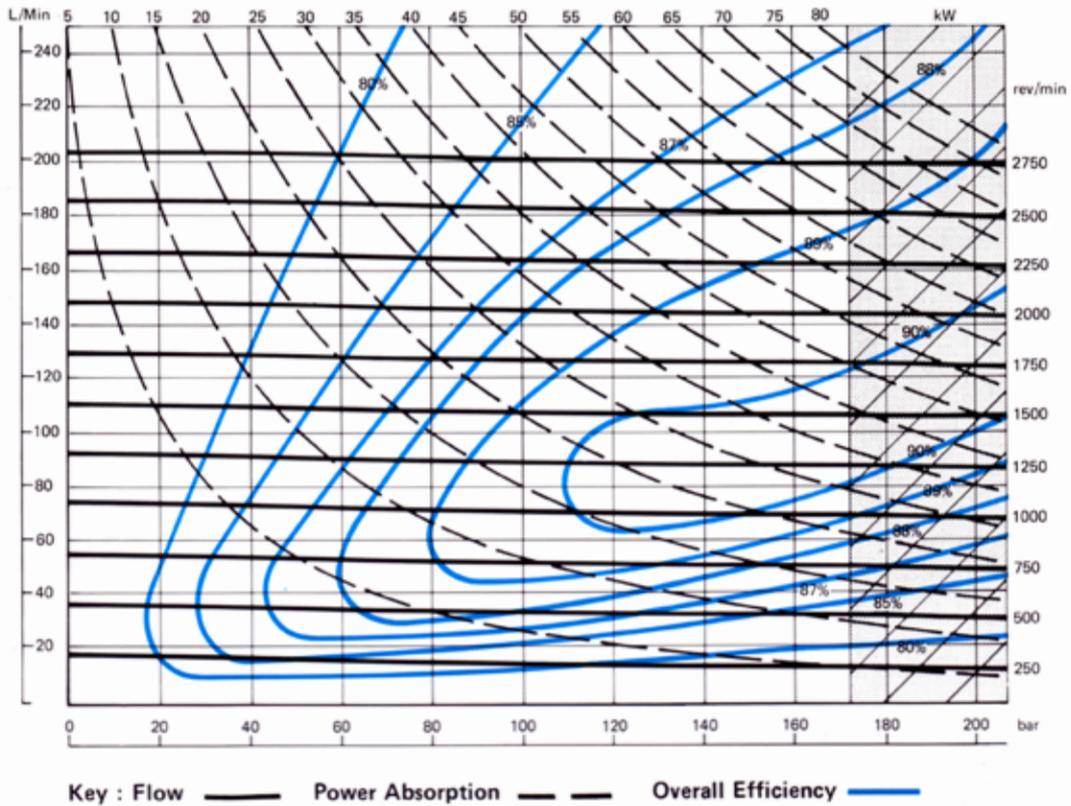


1913 MOTOR

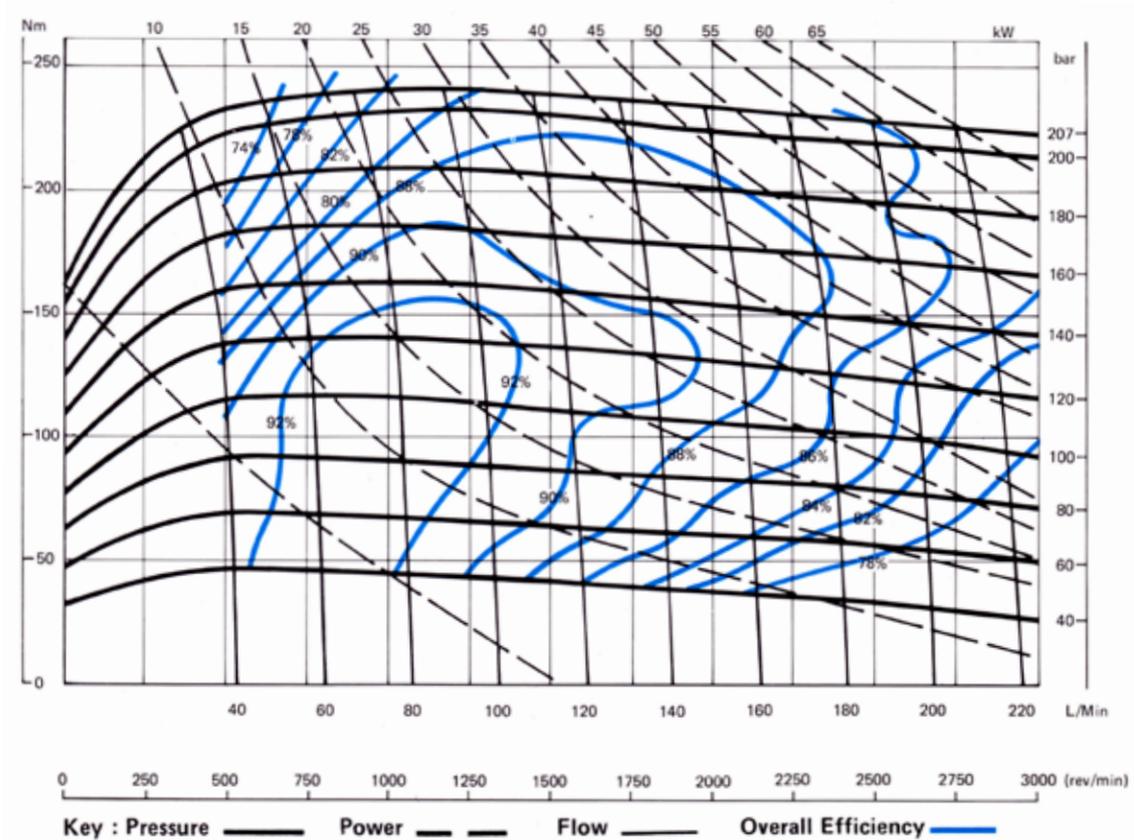


1900 PERFORMANCE DATA

1916 PUMP

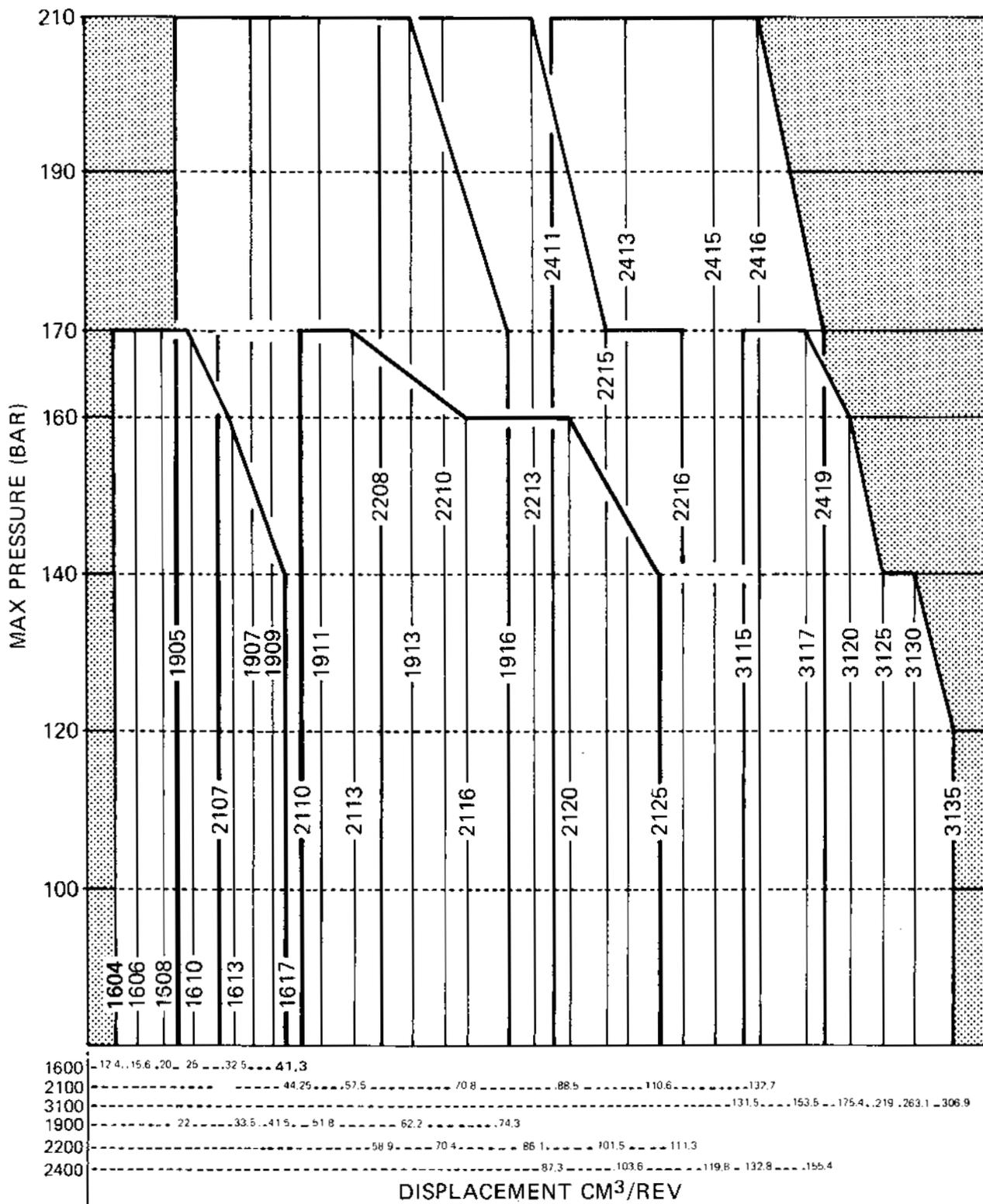


1916 MOTOR



1900 GENERAL DATA

THE CHART BELOW SHOWS THE DISPLACEMENT AND OPERATING PRESSURES AVAILABLE FROM THE FULL RANGE OF HYDRECO GEAR PUMPS AND MOTORS





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