

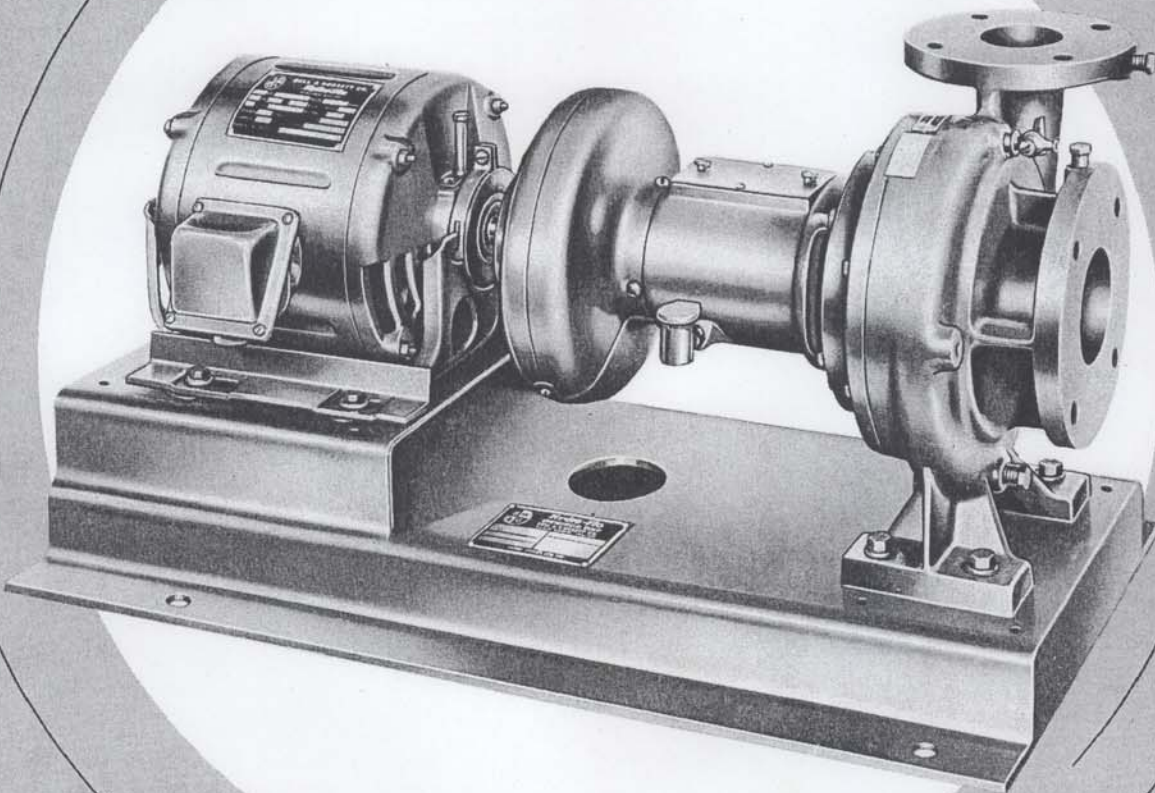


Quiet Operating

UNIVERSAL

Centrifugal Pumps

TEST PERFORMANCE CURVES



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UNIVERSAL PUMPS—FOR QUIET OPERATION

GENERAL INFORMATION

Bell & Gossett Universal pumps are designed especially for circulating water systems where quiet and vibrationless operation is essential. For standard centrifugal pump selections, see the Bell & Gossett 1510 base-mounted series or the 1531 close coupled series, etc. Universals, available from 1 HP through 60 HP, are base-mounted, flexibly connected by means of a time-proven spring coupler to a special, quiet-operating, 1750 RPM motor. Universals are of vertical split case design for complete disassembly without disturbing piping or motor connections. The pump volute is connected directly to the base for maximum support and resistance

to piping strains. Since every effort has been made to have noise and vibration designed out of Universals, special vibration eliminators, flexible connections or resilient pads are not required for Universal pumps. Refer to Bell & Gossett Bulletin #SD-649-CA for complete installation and operation instructions.

Universals meet all the basic government and military guide specifications on this type of pump and are specifically recommended and guaranteed by Bell & Gossett for use on closed circulating systems where quietness in operation is required.

SIZES AND SELECTION PROCEDURE

Universals are designed for wide interchangeability of parts. For example, two sizes of bearing assemblies including shaft and Remite mechanical seal, cover the entire line of Universals from 1 HP through 60 HP. Three separate volute sizes, A, B, and C, accommodate three ranges of impeller diameters. "A" size pumps provide heads up to approximately 40 ft., "B" size up to 80 ft., "C" size up to 160 ft.

Stock size Universals as shown on page 3 are equipped with special, extra quiet "non-overloading" motors, meaning motor nameplate horsepower including service factor is not exceeded when the pump is operated at any point on its capacity curve. These stock size Universal pumps are normally available locally or from B&G's stock at Morton Grove, Illinois.

Where suitable selection is not possible from stock models on page 3, refer to built-to-order Universals on pages 4 through 10. Use stock size charts as a guide to locate appropriate pump from Size A, B, or C curves. Pump selection from these curves also requires selection of motor horsepower. The required impeller size, unless specified, will be selected at the factory and matched to the exact point of operating head and GPM capacity. Always select motor HP large enough to meet any possible flow condition expected from the pump. Best pump selection for quiet operation is in the white and lightly shaded areas. The white area across each family of curves denotes point of maximum efficiency, and within 3 percentage points of maximum. Operation at extreme ends of curves should be avoided.

STANDARD CONSTRUCTION—

Volute	Cast Iron
Impeller	Bronze
Shaft	Heat Treated Carbon Steel Stainless Steel Stub Shaft*
Seal	Mechanical, Carbon with ceramic seat
Casing wearing rings*	Bronze
Companion Flanges*	Cast Iron NPT
Pump Bearings	Bronze, sleeve, oil lubricated
Coupler	Flexible, spring type
Base	Reinforced steel plate
Motor	Special, Quiet-operating 1 through 5 HP—Ring Mounted 7½ HP and over—Foot Mounted
Motor Bearings	Bronze, sleeve, oil-lubricated

*Available on request at extra cost.

OPERATING DATA

Maximum Working Pressure	175 PSI
Maximum Operating Temperature	
Standard Seal	225°F. 250°F.**
Special High Temperature Seal*	300°F.
Maximum Motor RPM	1750
Electrical Characteristics—STD—	208/220/440 Volt, 60 cycles, 3 phase.

(Single phase motors not recommended or guaranteed for quiet operation.)

**Not a continuous operating temperature and based on closed system design using modulated temperature control, proper pump location and system pressurization.

TYPICAL SPECIFICATIONS FOR UNIVERSAL PUMPS

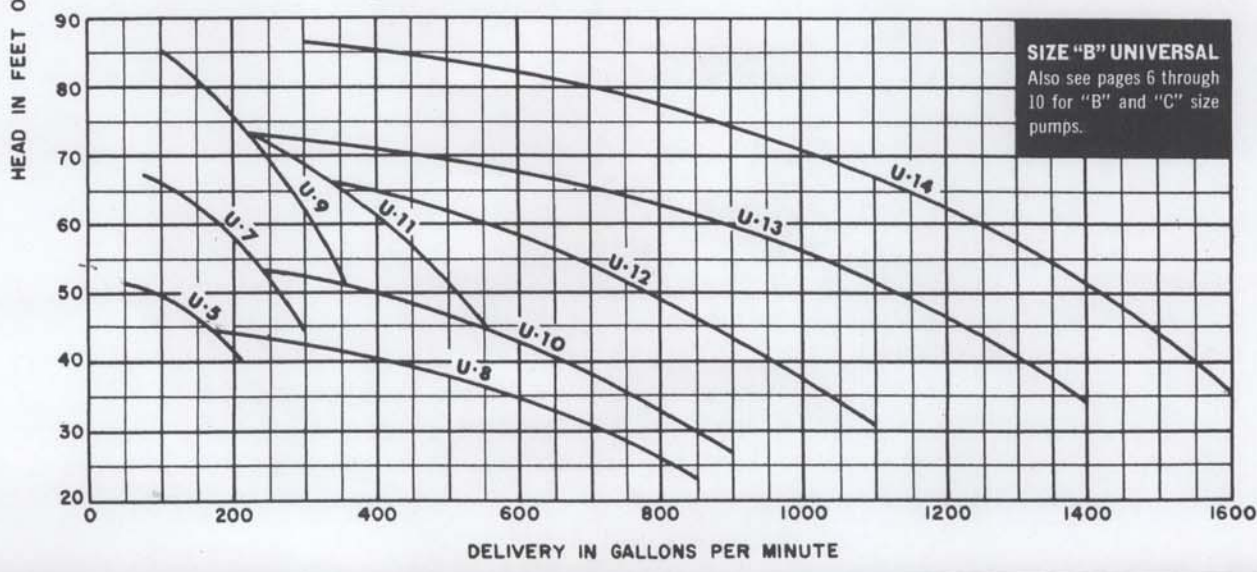
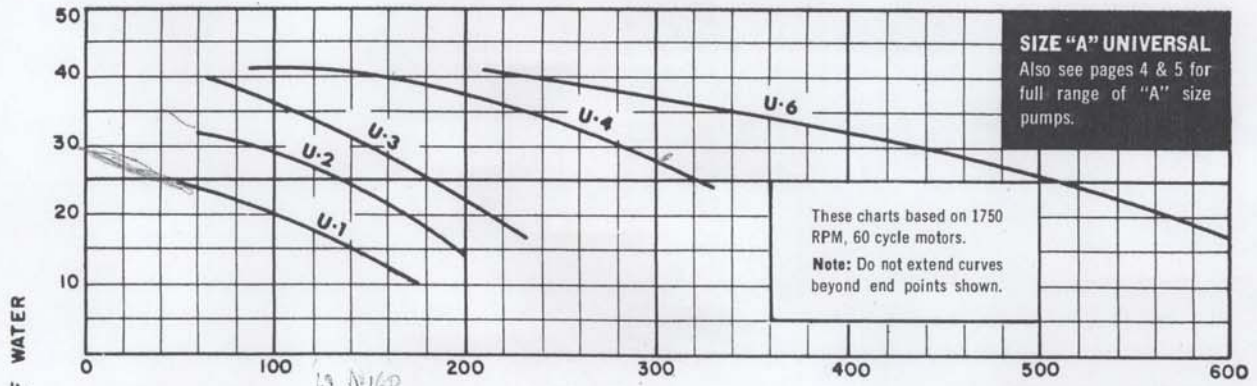
Centrifugal Pump—The contractor shall furnish pumps as illustrated on the plans having capacity, head and horsepower characteristics as listed in the pump schedule or as shown below.

- Pumps shall be base-mounted and of horizontal or vertical split case design. All operating parts shall be accessible without disturbing piping or motor connections.
- Pump volute shall be supported by the pump base and shall be equipped with venting petcock at its high point. Tapped gauge openings at suction and discharge nozzles shall also be provided.
- Pumps shall be specially designed for quiet operation

and guaranteed by the manufacturer for the intended application. Pump motors shall be specially constructed for quiet operation and shall not exceed 1750 RPM. Motor shall be flexibly connected to pump.

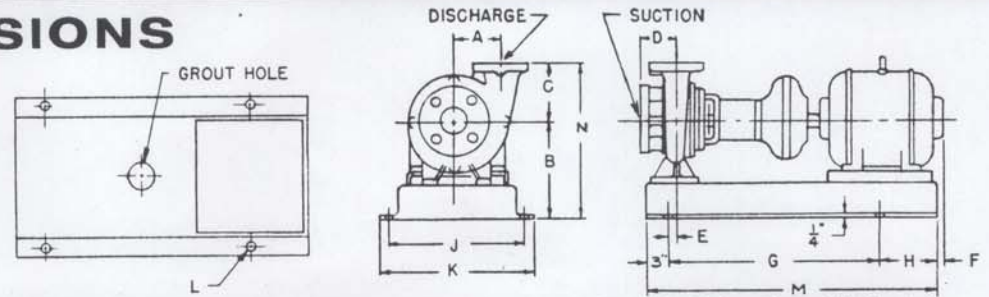
- Pumps shall be equipped with watertight mechanical seals. Packing gland pumps or converted packing gland pumps will not be acceptable.
- Pump and motor shall have oil-lubricated sleeve bearings and suitable oil level indicator shall be provided on the pump.

Pump shall be installed, aligned and started in accordance with the manufacturer's recommendations.



DIMENSIONS

All motors are 1750 RPM. Suction and discharge flanges 125 lbs., C.I. STD. Flanges available separately.



Dimensions are subject to change. When dimensions are needed for layout, write to the factory for certified print.

Catalog No.	Motor		A	B	C	D	E	F	G	H	J	K	L	M	N	Suct. N.P.T.	Disch. N.P.T.
	Frame	H.P.															
U-1S	184	1	4 1/4	9 1/2	6	3 3/8	1 3/8	—	23 3/8	6	14	15 3/4	3/4	32 3/8	15 1/2	3	2 1/2
U-1T	182	1	4 1/4	9 1/2	6	3 3/8	1 3/8	—	23 3/8	6	14	15 3/4	3/4	32 3/8	15 1/2	3	2 1/2
U-2S	184	1 1/2	4 1/4	9 1/2	6	3 3/8	1 3/8	—	23 3/8	6	14	15 3/4	3/4	32 3/8	15 1/2	3	2 1/2
U-2T	184	1 1/2	4 1/4	9 1/2	6	3 3/8	1 3/8	—	23 3/8	6	14	15 3/4	3/4	32 3/8	15 1/2	3	2 1/2
U-3S	213	2	4 1/4	10 1/2	6	3 3/8	1 3/8	—	23 3/8	8 3/8	14	15 3/4	3/4	35	16 1/2	3	2 1/2
U-3T	184	2	4 1/4	9 1/2	6	3 3/8	1 3/8	—	23 3/8	6	14	15 3/4	3/4	32 3/8	15 1/2	3	2 1/2
U-4S	215	3	5	10 1/2	6	4 1/8	1 3/8	—	23 3/8	8 3/8	14	15 3/4	3/4	35	16 1/2	4	3
U-4T	213	3	5	10 1/2	6	4 1/8	1 3/8	—	23 3/8	8 3/8	14	15 3/4	3/4	35	16 1/2	4	3
U-5S	215	3	6	10 1/2	6 3/4	3 1/2	1 1/4	—	23 3/8	8 3/8	14	15 3/4	3/4	35	17 1/4	3	2 1/2
U-5T	213	3	6	10 1/2	6 3/4	3 1/2	1 1/4	—	23 3/8	8 3/8	14	15 3/4	3/4	35	17 1/4	3	2 1/2
U-6T	215	5	5	10 1/2	6 1/4	4 1/4	1 3/8	—	23 3/8	8 3/8	14	15 3/4	3/4	35	16 1/4	5	4
U-7T	215	5	6	10 1/2	6 3/4	3 1/2	1 1/4	—	23 3/8	8 3/8	14	15 3/4	3/4	35	17 1/4	3	2 1/2
U-8T	254U	7 1/2	6 1/4	14	8 1/4	5 1/4	3/8	5/8	28 3/8	6 1/2	15 1/2	17 1/4	3/4	37 7/8	22 1/4	6	5
U-9T	254U	7 1/2	6	12	6 3/4	3 1/2	1 1/4	5/8	28 3/8	6 1/2	15 1/2	17 1/4	3/4	37 7/8	18 3/4	3	2 1/2
U-10T	256U	10	6 1/4	14	8 1/4	5 1/4	3/8	2 3/8	28 3/8	6 1/2	15 1/2	17 1/4	3/4	37 7/8	22 1/4	6	5
U-11T	256U	10	6 3/8	13	7 1/2	4 3/4	7/8	2 3/8	28 3/8	6 1/2	15 1/2	17 1/4	3/4	37 7/8	20 1/2	5	4
U-12T	284U	15	6 1/4	14	8 1/4	5 1/4	3/8	1 1/8	30 3/8	7 3/8	18	20 3/4	7/8	40 3/4	22 1/4	6	5
U-13T	286U	20	7 1/2	15	11	7	1 1/4	1/8	36 1/8	9 1/2	20	22 3/4	7/8	48 3/8	26	8	6
U-14T	324U	25	7 1/2	16	11	7	1 1/4	1 1/8	36 1/8	9 1/2	20	22 3/4	7/8	48 3/8	27	8	6

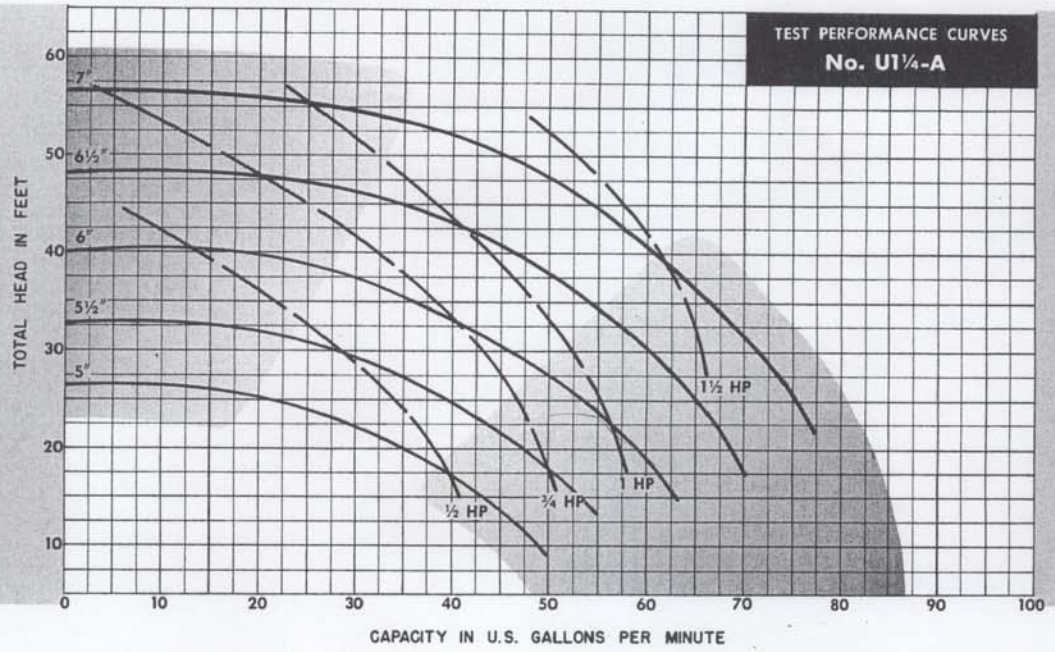
"S" suffix in catalog number means "single phase" motor.

"T" suffix in catalog number means "three phase" motor.

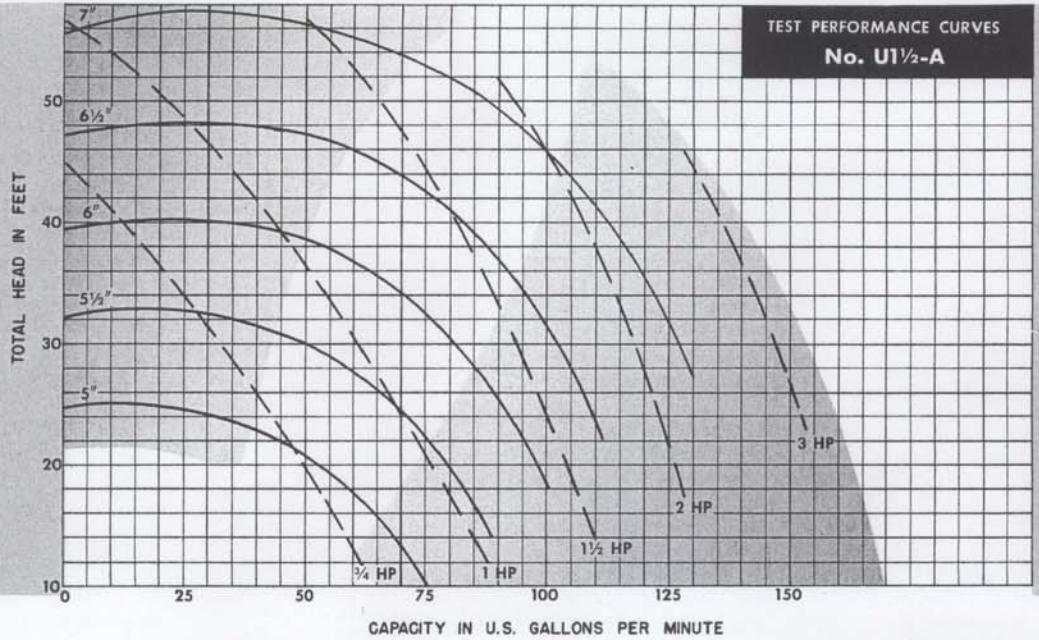
U1¼-A UNIVERSAL

SELECTION NOTE ALL PUMPS

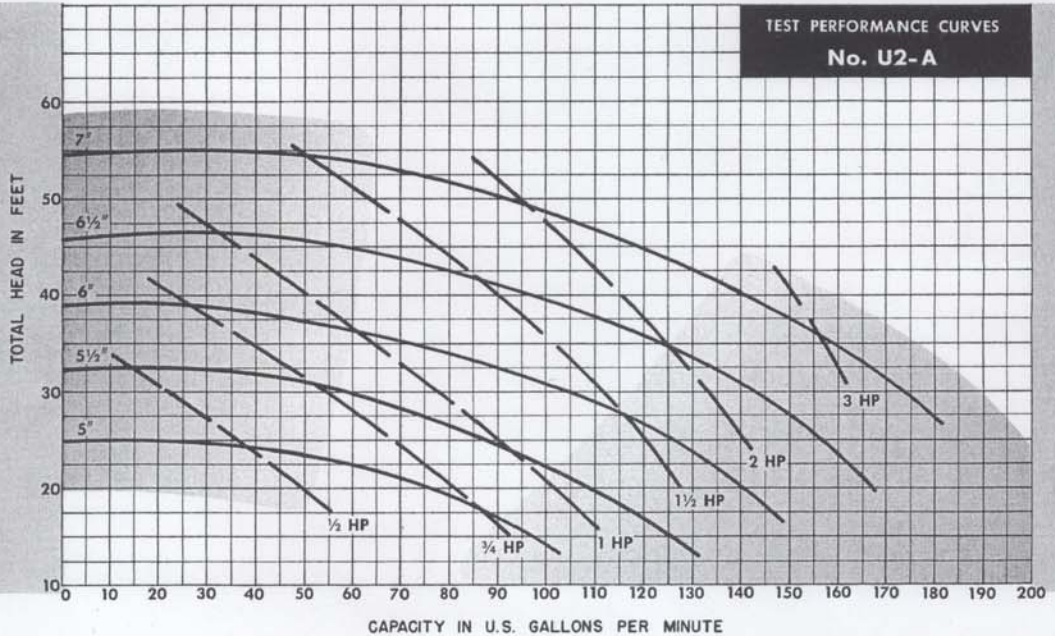
Best pump selection for quiet operation is in the white and lightly shaded areas. Maximum pump efficiency (within 3 percentage points) is in white area.

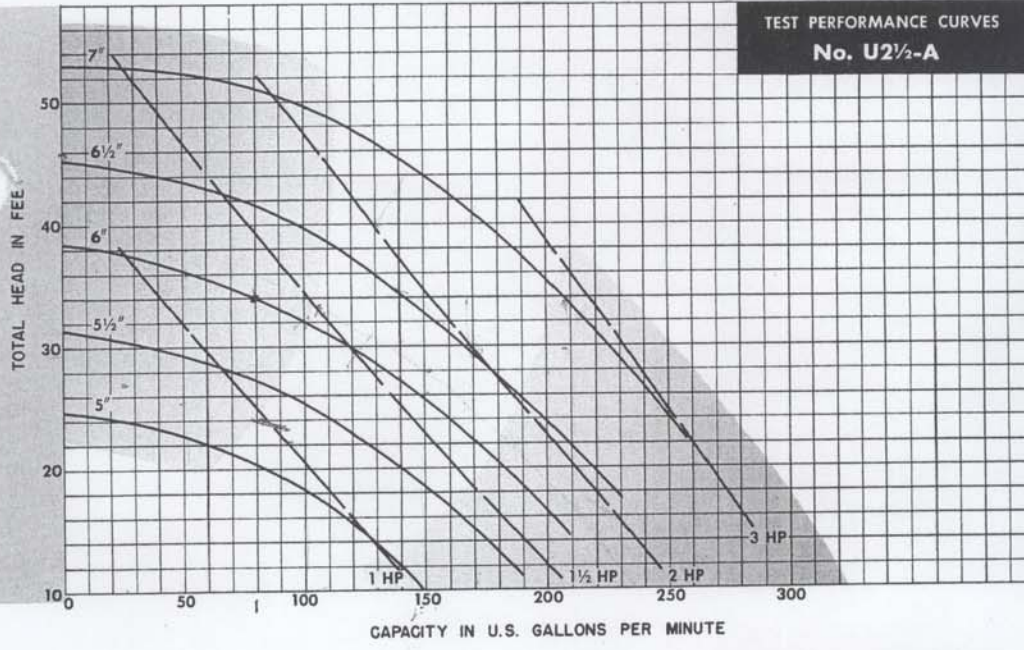


U1½-A UNIVERSAL

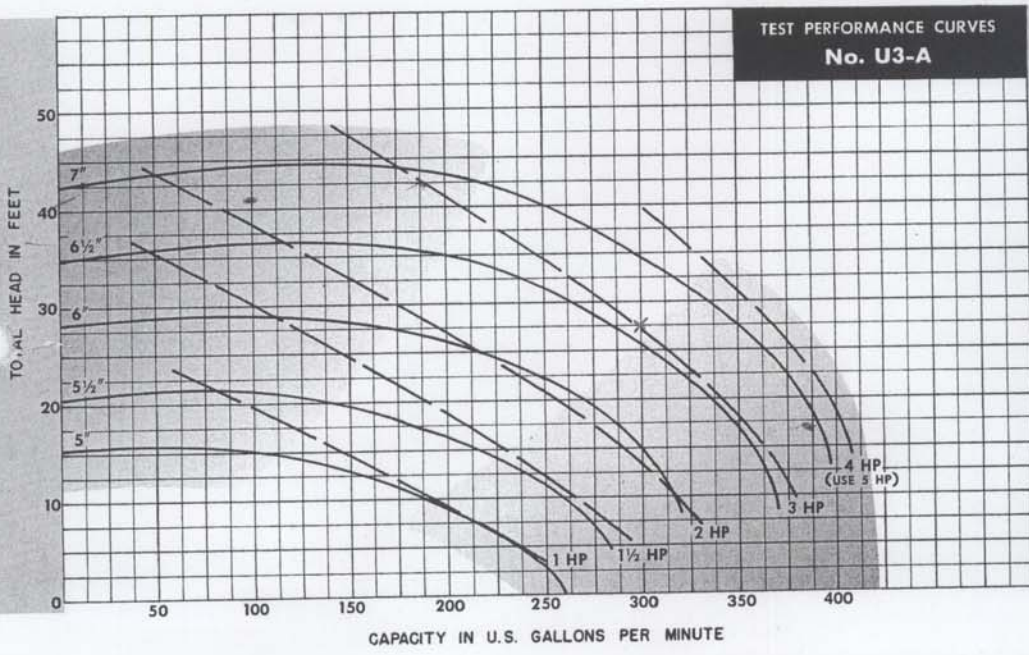


U2-A UNIVERSAL





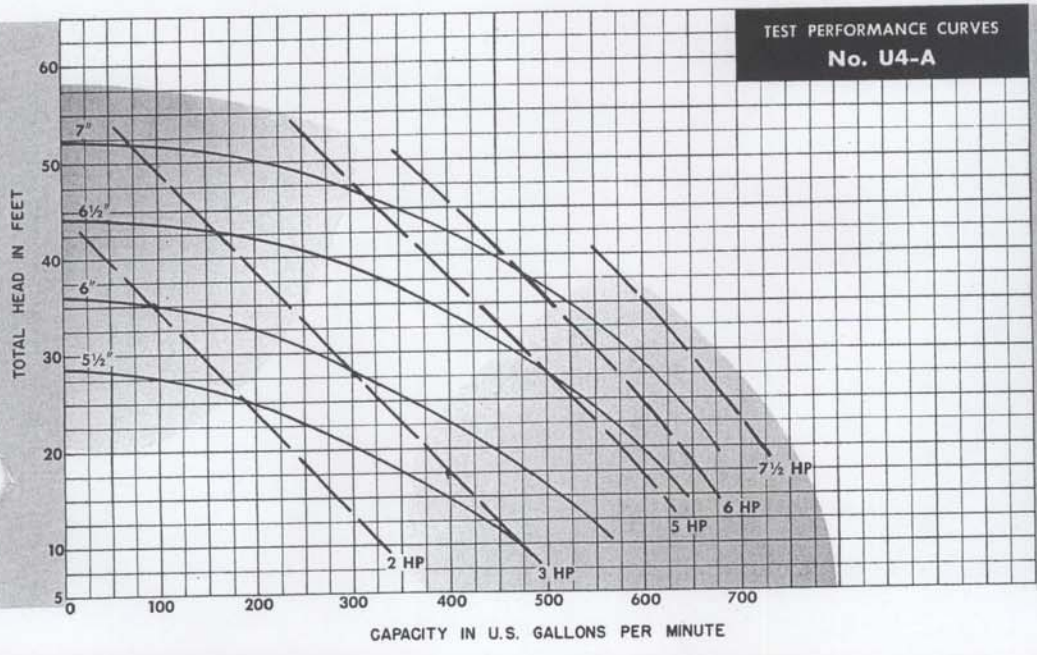
U2½-A UNIVERSAL



U3-A UNIVERSAL

**IMPORTANT
ALL PUMPS**

Always select large enough motor HP for any possible increase in pump flow resulting from reduced system pressure drop.

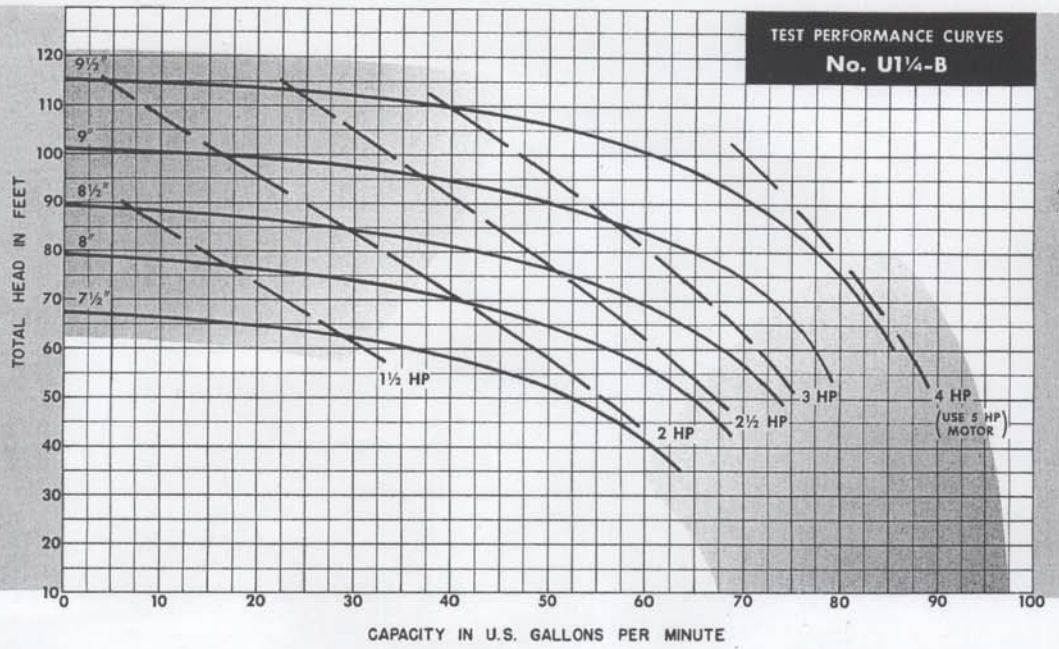


U4-A UNIVERSAL

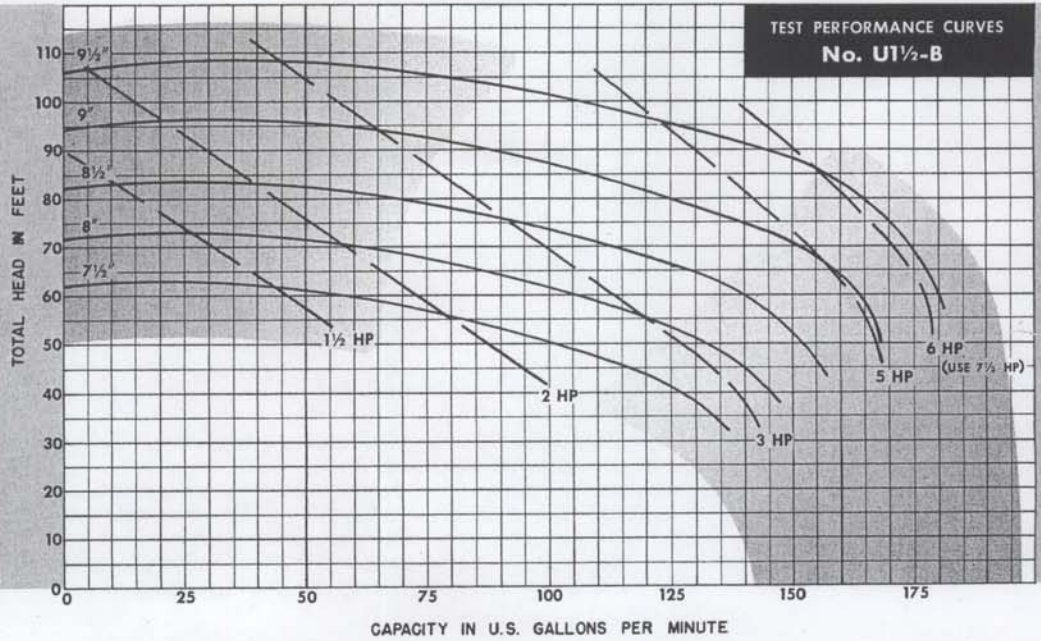
U1¼-B UNIVERSAL

SELECTION NOTE ALL PUMPS

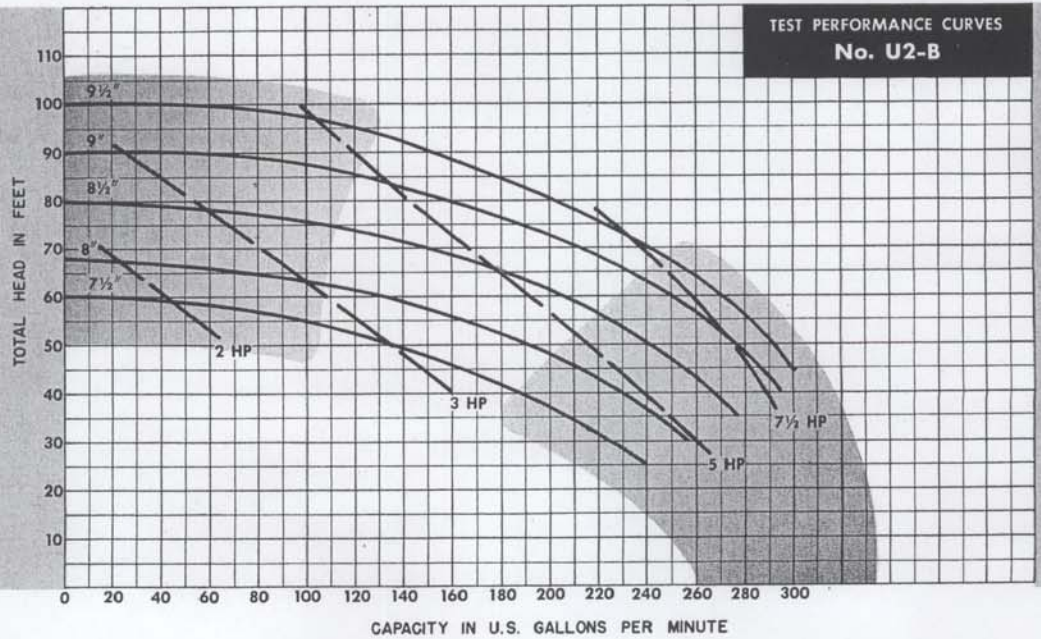
Best pump selection for quiet operation is in the white and lightly shaded areas. Maximum pump efficiency (within 3 percentage points) is in white area.



U1½-B UNIVERSAL

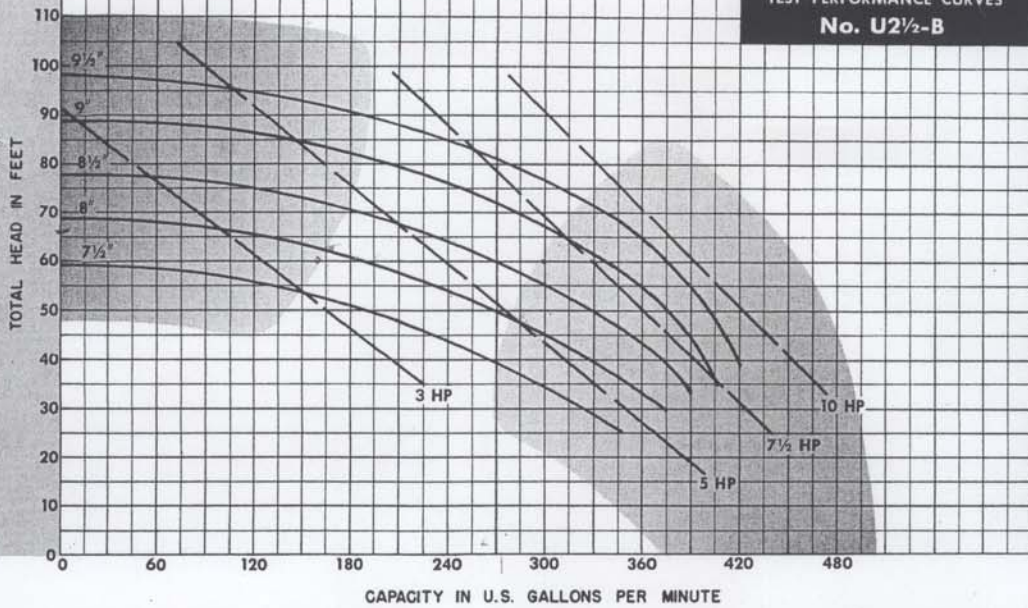


U2-B UNIVERSAL



TEST PERFORMANCE CURVES

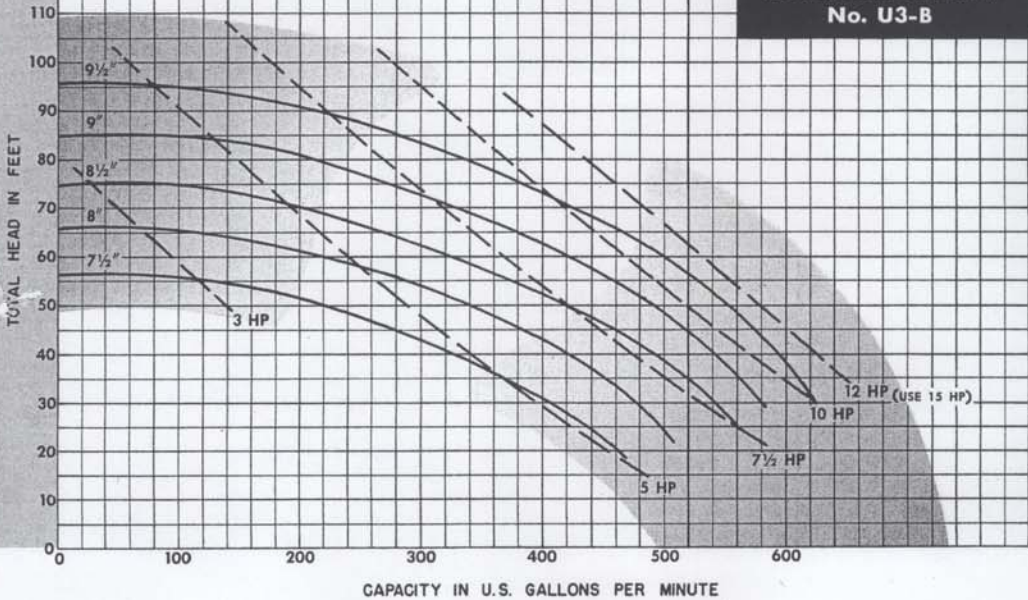
No. U2½-B



U2½-B UNIVERSAL

TEST PERFORMANCE CURVES

No. U3-B



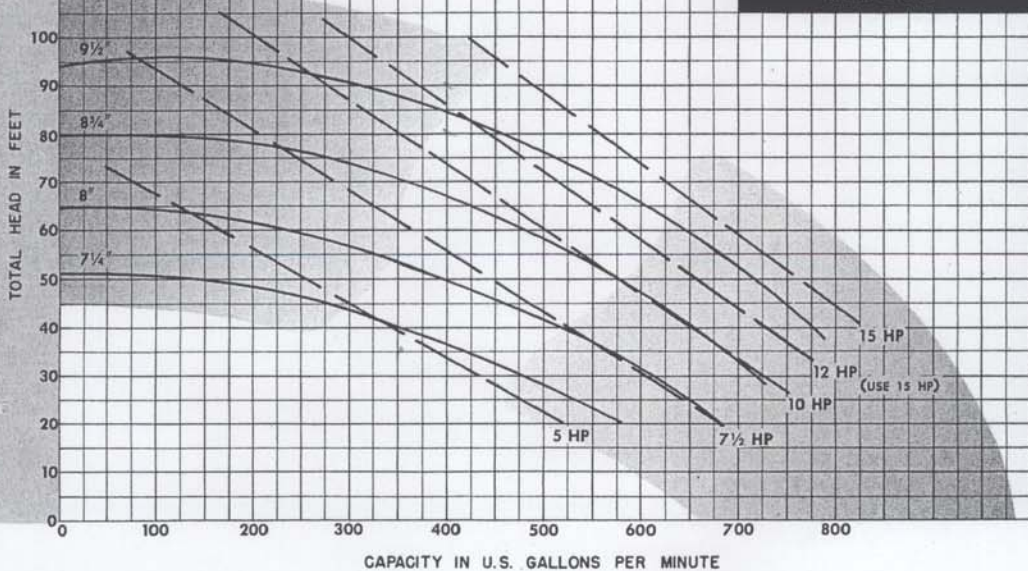
U3-B UNIVERSAL

IMPORTANT ALL PUMPS

Always select large enough motor HP for any possible increase in pump flow resulting from reduced system pressure drop.

TEST PERFORMANCE CURVES

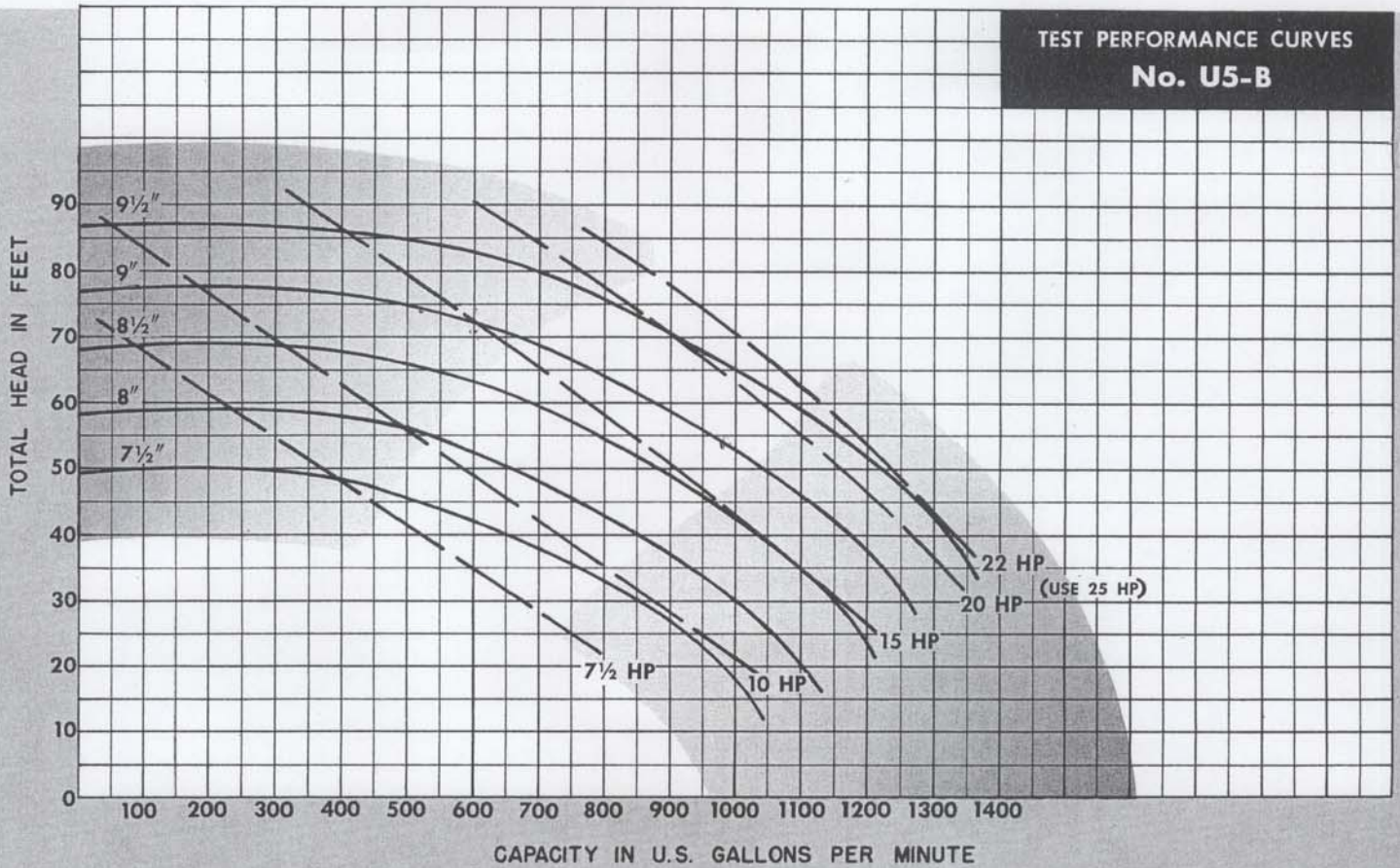
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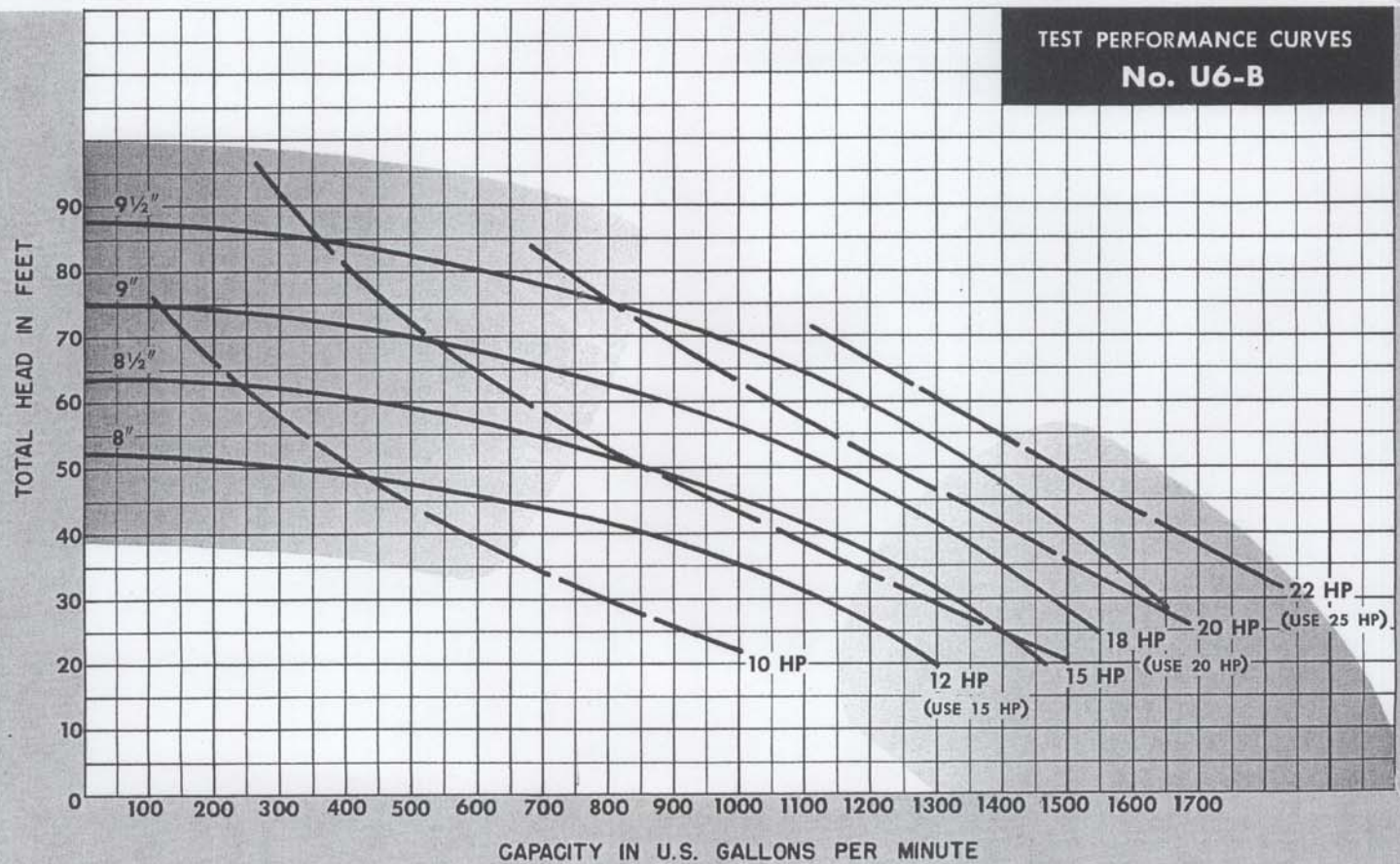
U4-B UNIVERSAL

Size "B" Universals
continued on page 8 . . .

SIZE "B" UNIVERSALS (continued)



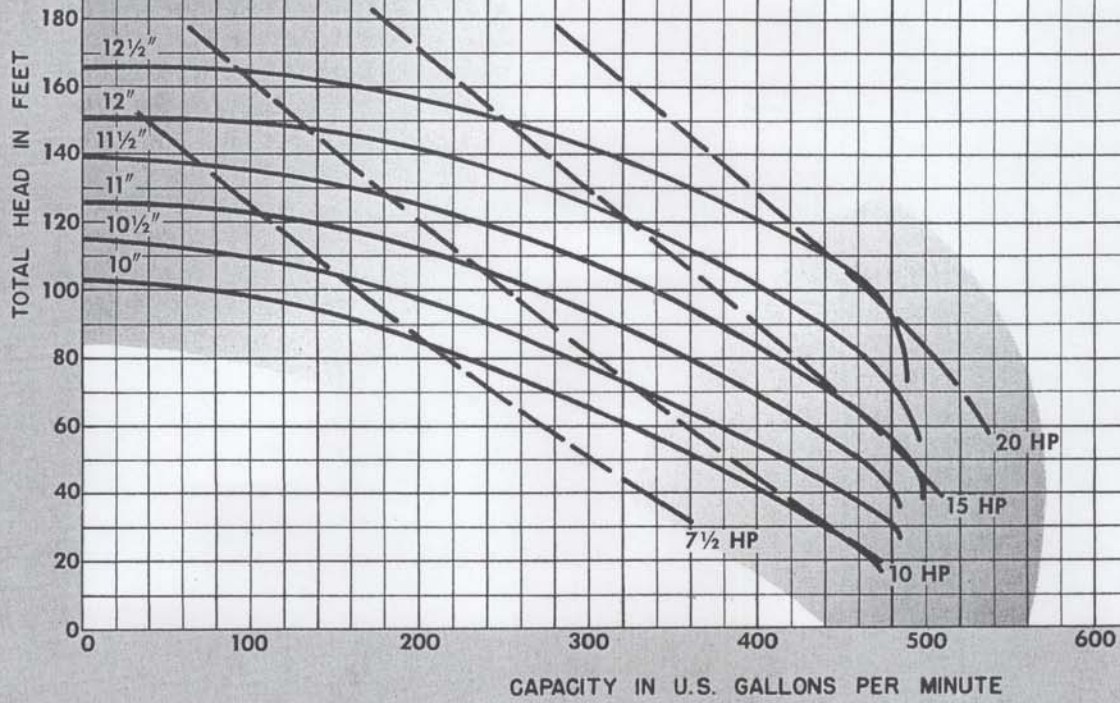
U5-B UNIVERSAL



U6-B UNIVERSAL

TEST PERFORMANCE CURVES

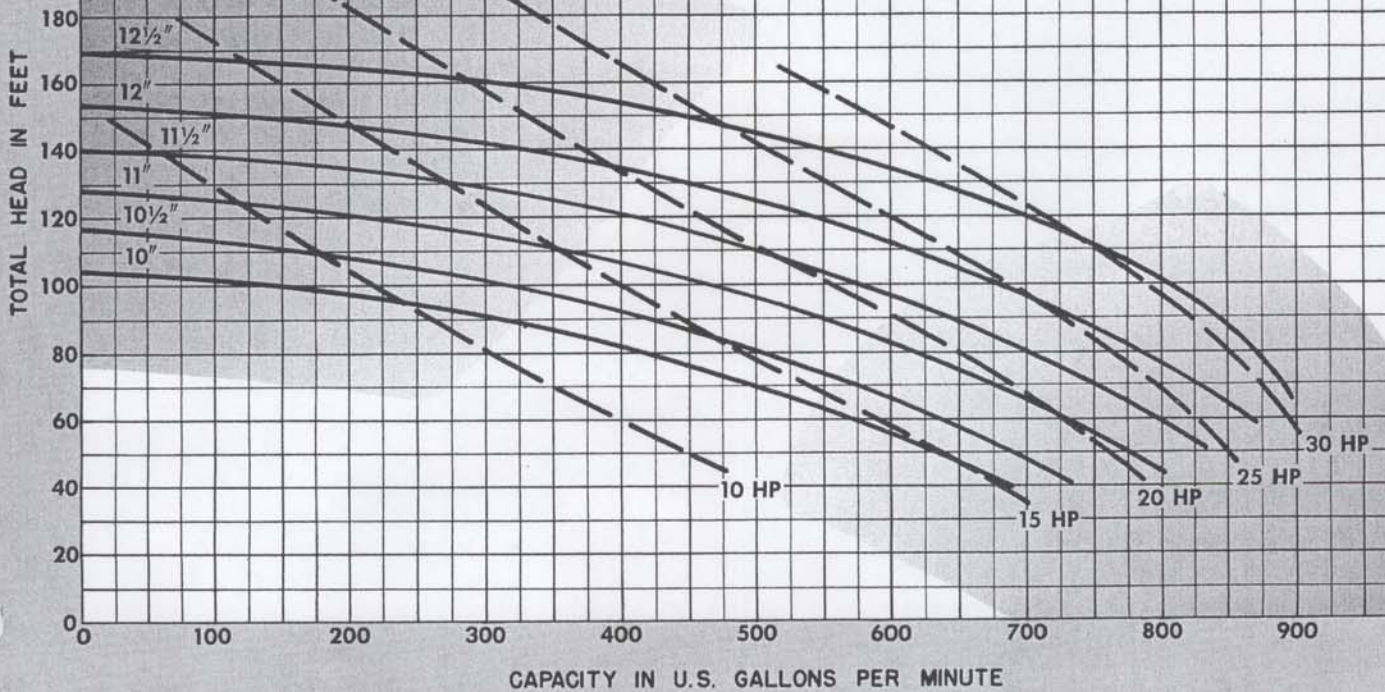
No. U3-C



U3-C UNIVERSAL

TEST PERFORMANCE CURVES

No. U4-C

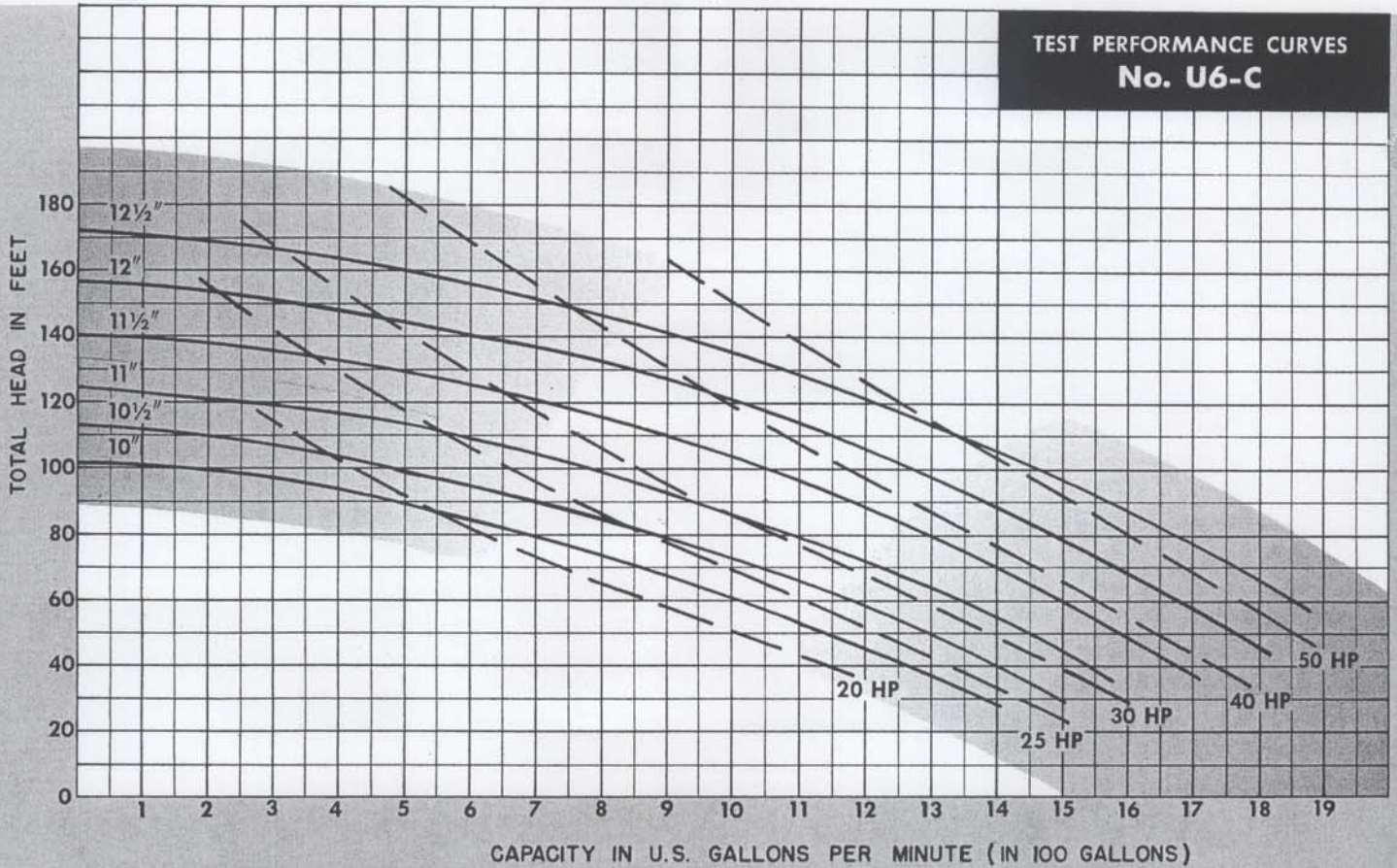


U4-C UNIVERSAL

Size "C" Universals continued on page 10 . . .

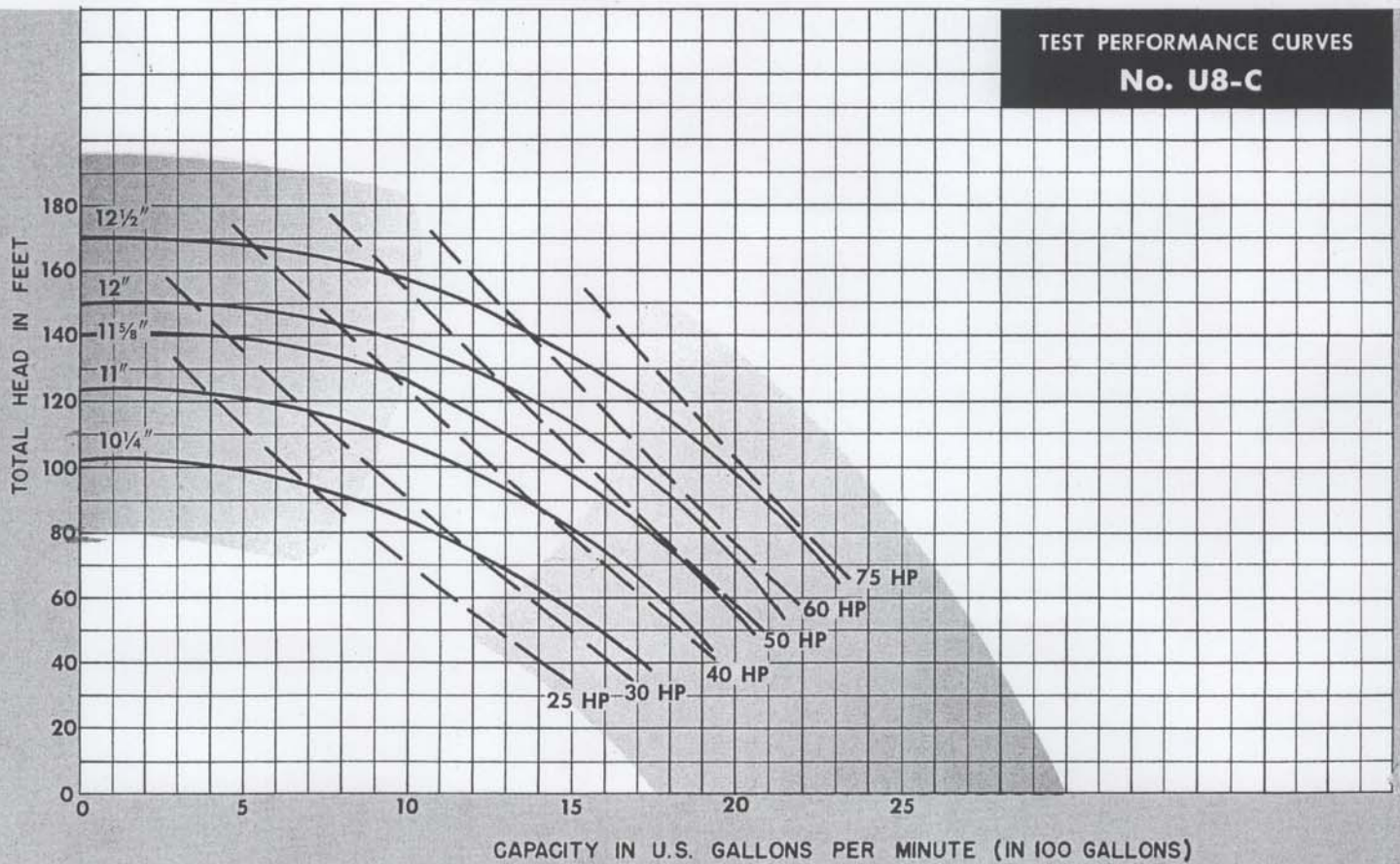
SIZE "C" UNIVERSALS (continued)

TEST PERFORMANCE CURVES
No. U6-C



U6-C UNIVERSAL

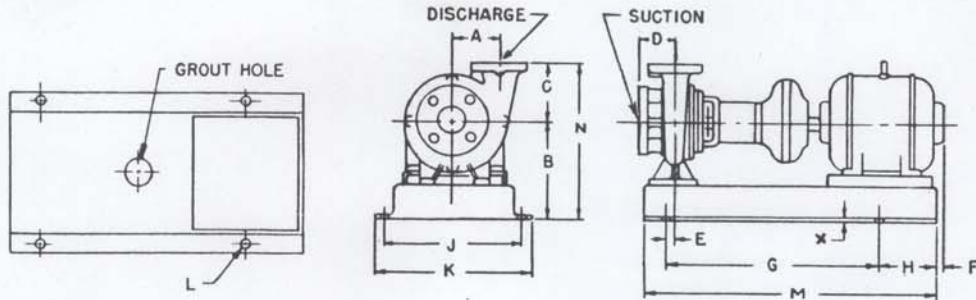
TEST PERFORMANCE CURVES
No. U8-C



U8-C UNIVERSAL

UNIVERSAL PUMP DIMENSIONS in inches

All motors are 1750 RPM. Suction and discharge flanges 125 lbs., C.I. STD. Flanges available separately.



SIZE "A"

PUMP NUMBER	SUCTION SIZE	DISCHARGE SIZE	MOTOR FRAME	BASE NUMBER	A	B	C	D	E	N
U1¼ A	1½ NPT	¼ NPT	56	11	4½	9¼	5	2⅞	⅞	14¼
U1¼ A	1½ NPT	¼ NPT	182, 184	12	4½	9½	5	2⅞	⅞	14½
U1½ A	2 NPT	½ NPT	182, 184	12	4⅝	9½	6	3⅞	1⅜	15½
U1½ A	2 NPT	½ NPT	213	13	4⅝	10½	6	3⅞	1⅜	16½
U2 A	2½	2	56	11	4¾	9¼	6½	3	⅞	15¾
U2 A	2½	2	182, 184	12	4¾	9½	6½	3	1⅜	16
U2 A	2½	2	213, 215	13	4¾	10½	6½	3	1⅜	17
U2½ A	3	2½	184	12	4⅞	9½	6	3⅞	1¼	15½
U2½ A	3	2½	213, 215	13	4⅞	10½	6	3⅞	1¼	16½
U3 A	4	3	184	12	5	9½	6	4⅞	1⅞	15½
U3 A	4	3	213, 215	13	5	10½	6	4⅞	1⅞	16½
U3 A	4	3	254U	14	5	12	6	4⅞	1⅞	18
U4 A	5	4	213, 215	13	5	10½	6¼	4¾	1⅞	16¾
U4 A	5	4	254U	14	5	12	6¼	4¾	1⅞	18¼

SIZE "B"

PUMP NUMBER	SUCTION SIZE	DISCHARGE SIZE	MOTOR FRAME	BASE NUMBER	A	B	C	D	E	N
U1¼ B	1½ NPT	¼ NPT	184	12	5½	10½	8	2⅞	1⅞	18½
U1¼ B	1½ NPT	¼ NPT	213, 215	13	5½	10½	8	2⅞	1⅞	18½
U1¼ B	1½ NPT	¼ NPT	254U	14	5½	12	8	2⅞	1⅞	20
U1½ B	2 NPT	½ NPT	184	12	5¾	10½	6½	3⅞	1⅞	17
U1½ B	2 NPT	½ NPT	213, 215	13	5¾	10½	6½	3⅞	1⅞	17
U1½ B	2 NPT	½ NPT	254U	14	5¾	12	6½	3⅞	1⅞	18½
U2 B	2½	2	213, 215	13	5⅞	10½	7	3⅞	1⅞	17½
U2 B	2½	2	254U	14	5⅞	12	7	3⅞	1⅞	19
U2½ B	3	2½	213, 215	13	6	10½	6¾	3½	1⅞	17¼
U2½ B	3	2½	254U, 256U	14	6	12	6¾	3½	1⅞	18¾
U3 B	4	3	215	13	6⅞	10½	7½	4¾	1⅞	18
U3 B	4	3	254U, 256U	14	6⅞	12	7½	4¾	1⅞	19½
U3 B	4	3	284U	15	6⅞	12	7½	4¾	1⅞	19½
U4 B	5	4	215	13	6⅞	11½	7½	4¾	⅞	19
U4 B	5	4	254U, 256U	14	6⅞	13	7½	4¾	⅞	20½
U4 B	5	4	284U	15	6⅞	14	7½	4¾	⅞	21½
U5 B	6	5	254U, 256U	14	6⅞	14	8¼	5⅞	⅞	22¼
U5 B	6	5	284U	15	6⅞	14	8¼	5⅞	⅞	22¼
U5 B	6	5	286U	16	6⅞	15	8¼	5⅞	1⅞	23¼
U6 B	8	6	284U, 286U	16	7½	15	11	7	1¼	26
U6 B	8	6	324U	16	7½	16	11	7	1¼	27

SIZE "C"

PUMP NUMBER	SUCTION SIZE	DISCHARGE SIZE	MOTOR FRAME	BASE NUMBER	A	B	C	D	E	N
U3 C	4	3	254U, 256U	16	7½	14¼	9½	5½	3½	23¾
U3 C	4	3	284U, 286U	16	7½	15	9½	5½	3½	24½
U4 C	5	4	284U, 286U	16	8	15	11	6	3⅞	26
U4 C	5	4	324U, 326U	16	8	16	11	6	3⅞	27
U6 C	8	6	324U, 326U	18	9¼	18½	13	8	⅞	31½
U6 C	8	6	364U, 365US	18	9¼	18½	13	8	⅞	31½
U8 C	10	8	364U, 365US	18	9½	16¾	16¾	11½	—	32½
U8 C	10	8	404US	18	9½	17½	16¾	11½	—	33½

NOTE: Pump sizes 2" and smaller have screwed connections. Companion flanges not included.

BASE DIMENSIONS FOR MOTORS

BASE NUMBER	MOTOR FRAME	F	G	H	J	K	L	M	X
11	56	2⅞	20	4½	11	12¾	¾	27½	¼
12	182	—	23⅞	6	14	15¾	¾	32⅞	¼
12	184	—	23⅞	6	14	15¾	¾	32⅞	¼
13	213	—	23⅞	8⅞	14	15¾	¾	35	¼
13	215	—	23⅞	8⅞	14	15¾	¾	35	¼
14	254U	⅞	28⅞	6½	15½	17¼	¾	37⅞	¼
14	256U	2⅞	28⅞	6½	15½	17¼	¾	37⅞	¼
15	284U	1⅞	30⅞	7⅞	18	20¾	⅞	40¾	¼
16	254U	—	36⅞	9½	20	22¾	⅞	48⅞	¼
16	256U	—	36⅞	9½	20	22¾	⅞	48⅞	¼
16	284U	—	36⅞	9½	20	22¾	⅞	48⅞	¼
16	286U	—	36⅞	9½	20	22¾	⅞	48⅞	¼
16	324U	1¼	36⅞	9½	20	22¾	⅞	48⅞	¼
16	326U	2¾	36⅞	9½	20	22¾	⅞	48⅞	¼
18	324U	—	38	8¼	29½	32	1	53¼	⅞
18	326U	—	38	8¼	29½	32	1	53¼	⅞
18	364U	1½	38	8¼	29½	32	1	53¼	⅞
18	365US	—	38	8¼	29½	32	1	53¼	⅞
18	404US	1½	38	8¼	29½	32	1	53¼	⅞

HORSEPOWER AND CORRESPONDING FRAME NUMBER

3-PHASE MOTOR H.P.	FRAME NUMBER	1-PHASE MOTOR H.P.	FRAME NUMBER
¾	56	¾	56
1	182	1	184
1½	184	1½	184
2	184	2	213
3	213	3	215
5	215	5	254U
7½	254U	—	—
10	256U	—	—
15	284U	—	—
20	286U	—	—
25	324U	—	—
30	326U	—	—
40	364U	—	—
50	365US	—	—
60	404US	—	—

*For exact installation data, please write factory for certified dimensions.



GUARANTEE

Bell and Gossett Products are guaranteed only against defective material and workmanship for a period of one year and can be returned, transportation charges prepaid, only after receiving written permission. Products or parts found defective upon inspection at the factory will be replaced, F.O.B. factory. The Company shall not be held liable for damages or delay caused by defective material and no claims for labor in replacing or repairing such products or parts will be allowed.

RETURNED GOODS

Written permission must be obtained before returning any material for any reason. Material returned for credit will be subject to factory inspection. In-warranty product, in original cartons, of current design will be subject to a ten percent rehandling charge less freight originally allowed. All material must be shipped with transportation charges prepaid.

Products which are obsolete or made to special order are not returnable.

BELL & GOSSETT COMPANY • MORTON GROVE, ILLINOIS