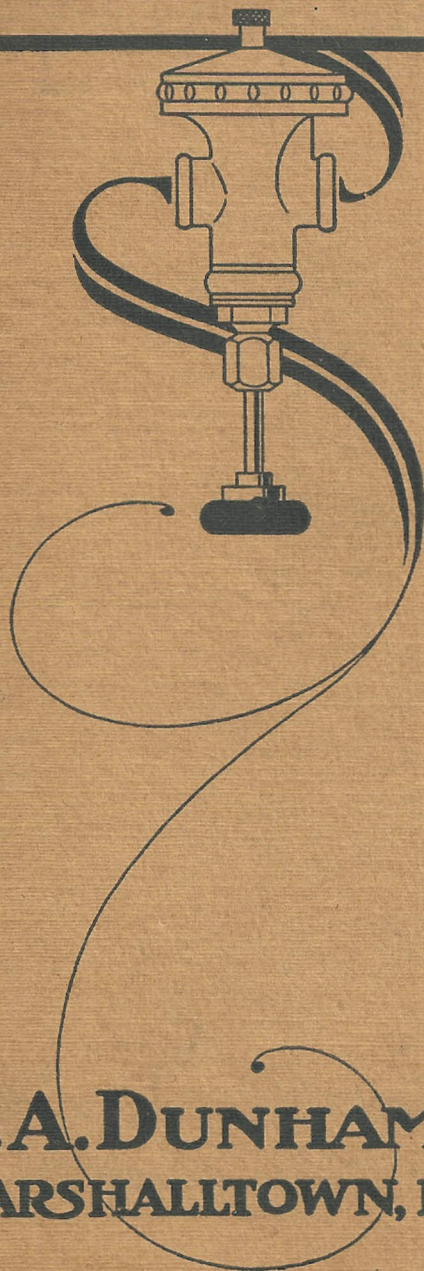


**:- DUNHAM :-  
SPECIALTIES**



**|| C.A. DUNHAM Co. ||  
|| MARSHALLTOWN, IOWA. ||**

BULLETIN No. 9

August 20, 1913

# C. A. Dunham Company

MARSHALLTOWN, IOWA

NEW YORK

CHICAGO

SAN FRANCISCO

Branch Offices in All the Principal Cities

(This Bulletin supersedes and takes place of all information covering same subjects heretofore published by us.)

== SUBJECT ==

## The Dunham Reducing Pressure Valve and Vacuum Pump Governor

OTHER BULLETINS WHICH MAY BE HAD ON APPLICATION ARE

BULLETIN No. 1—The Dunham Vacuo Vapor System of Heating—What it is—How it Operates.

BULLETIN No. 2—Advantages of Steam for Heating—Why the Dunham Vacuo Vapor System is Superior.

BULLETIN No. 3—The Dunham Vacuo Vapor System of Heating. How to Install It.

BULLETIN No. 4—How to Operate the Dunham Vacuo Vapor System of Heating.

BULLETIN No. 5—The Dunham Radiator Trap and its Application.

BULLETIN No. 6—The Dunham Blast Trap and its Application.

BULLETIN No. 7—The Dunham Air Line Valve and its Application.

BULLETIN No. 8—Dunham Traps for High Pressure Service.

## THE DUNHAM REDUCING PRESSURE VALVE

Introduction In our desire to furnish the best vacuum heating specialities that scientific mind to the present day has been able to produce we have come to learn that the success of some of the best things are dependent upon other devices that work in conjunction with them. This fact has come home to us in a number of ways, and has forced us to enlarge our line from time to time to include other specialties to work in conjunction with those made by us in the past.

It was for the reason stated above that we found it necessary to build our Reducing Pressure Valve and Vacuum Pump Governor, which are offered to the trade as being particularly applicable to heating work. By this we don't mean to say they are not adapted to other work aside from heating for they are and admirably too, but when designing them we made them ultra sensitive and of the best material so that they would assist the other specialties of our manufacture in making the Dunham System of Heating give to its owner the greatest satisfaction of service and economy of operation.

The information included in this bulletin we believe is comprehensive enough to enable any one interested to order intelligently and to determine what piping will be necessary to install the devices properly. If however any further information is required same will be given immediately upon application.

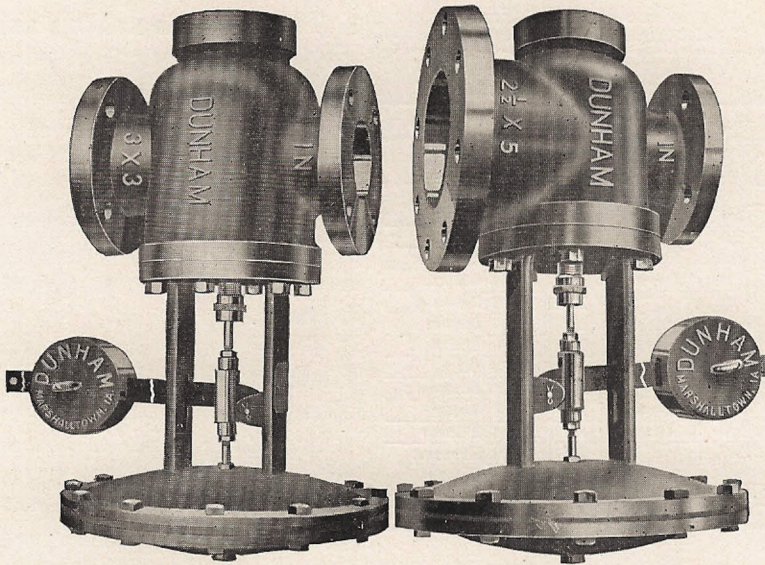
As has always been our practice we propose to carry a large stock of these goods so that no customer will have to wait long for deliveries. Of course we may be out of certain sizes for a time but our facilities are such that stock can be replenished rapidly and customer's orders filled without delay. This will be true even if the goods have to be made up after the order has been received. With this promise on our part we feel that no one need hesitate about sending us his rush orders. In fact we solicit those orders.

When the Dunham Reducing Pressure Valve and Vacuum Pump Governor leaves our warehouse each will be packed in a substantial box made for the purpose and marked to designate just what its contents are. Inside will be an envelope containing instructions for its installation and operation. When unpacking care should be exercised not to injure the valve or the connecting rod or to lose the envelope of instructions.

All Reducing Pressure Valves are of the inverted type as shown by the cuts on opposite page.

All Vacuum Pump Governors are of the vertical type as shown by the cuts on page six.

# THE DUNHAM REDUCING PRESSURE VALVE



Straight Pattern

Expanded Outlet Pattern

STRAIGHT PATTERN For 125 Pounds to Atmosphere					EXPANDED OUTLET PATTERN For 125 Pounds to Atmosphere				
Size	Connection	Wt. Lbs.	List	Code	Size	Connection	Wt. Lbs.	List	Code
3/4	Screwed	37	\$32.00	Antelope	1 1/2 x 3	Screwed	130	\$52.00	Shire
1	"	41	34.00	Anthem	2 x 2 1/2	Flanged	150	55.00	Scine
1 1/4	"	110	40.00	Antic	2 x 3	"	155	55.00	Squash
1 1/2	"	128	44.00	Antidote	2 x 4	"	160	60.00	Sirrah
2	Flanged	139	50.00	Antimony	2 1/2 x 5	"	170	76.00	Sliver
2 1/2	"	152	62.00	Antipode	3 x 6	"	190	88.00	Slotch
3	"	170	76.00	Antler	4 x 8	"	225	118.00	Soot
3 1/2	"	185	80.00	Aonian	5 x 10	"	310	140.00	Slue
4	"	200	96.00	Aorta	6 x 8	"	325	160.00	Stave
5	"	220	120.00	Ape	6 x 12	"	368	176.00	Steak
6	"	260	140.00	Apostle					
8	"	340	210.00	Apparel					

(The above sizes are regularly carried in stock by us)

Where the pressure on the inlet side of the Reducing Valve will be more than 125 lbs. then we furnish an Extra Heavy Valve.

*Add 10 per cent. to above lists if Extra Heavy Valves are required.*

The prices on this page covering flanged valves include facing and drilling of the stationary flanges. *They do not include the furnishing of any companion flanges, bolts or gaskets.*

Prices on faced and drilled companion flanges are given on page eight hereof.

*Discounts upon application.*

# THE DUNHAM REDUCING PRESSURE VALVE

Price List Odd Sizes  
(Not Regularly Carried in Stock)

**EXPANDED OUTLET**  
For 125 Pounds to Atmosphere

Size	Connection	Wt. Lbs.	List	Code
1½x2	Screwed	129	\$50.00	Squab
1½x2½	"	132	54.00	Squall
2x2½	"	144	55.00	Stable
2x3	"	149	55.00	Staff
2x3½	"	152	58.00	Stalk
2x3½	Flanged	157	58.00	Squawk
2x4	Screwed	154	60.00	Stalker
2½x4	"	164	73.00	Squirrel
2½x4	Flanged	168	74.00	Staves
2½x5	Screwed	168	75.00	Stalwart
3x5	"	180	82.00	Stag
3x5	Flanged	183	83.00	Steenbok
3x6	Screwed	183	86.00	Stang
3½x6	Flanged	207	110.00	Stirrup
3½x7	"	215	110.00	Soveran
4x5	"	208	112.00	Sough
4x6	"	215	112.00	Stanza
5x8	"	268	134.00	Starch

(Discount upon Application)

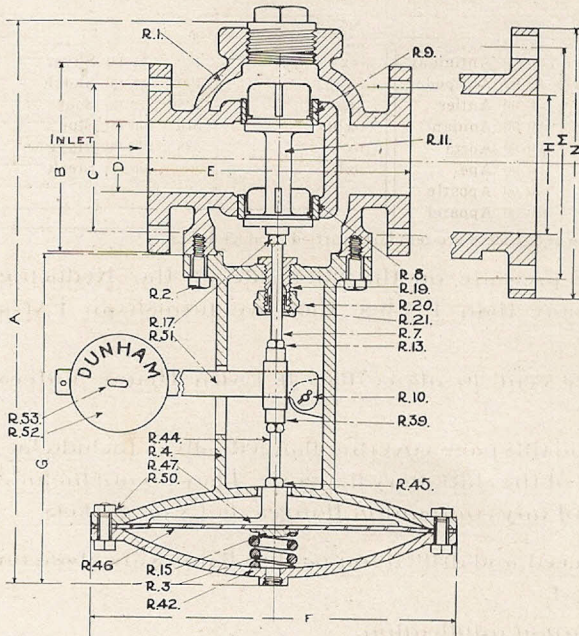
para rubber and heavy weight fabric are made of the finest grade of phosphor bronze. No better steam metal is obtainable than that which goes into our goods.

These reducing valves are for use in connection with both the pressure and vacuum type of heating systems. They can also be used in services where air or gas pressure is required to be reduced.

Every valve is thoroughly tested out before shipment is made.

The construction of the Dunham Reducing Valve is along lines, the correctness of which cannot be doubted. All important working parts outside of the diaphragms which are constructed of pure

## PARTS OF THE REDUCING PRESSURE VALVE



- R-1 Shell
- R-2 Diaphragm Yoke Cap Screws
- R-3 Diaphragm Spring
- R-4 Diaphragm Yoke
- R-7 Valve Stem
- R-8 Large Seat Ring
- R-9 Small Seat Ring
- R-10 Lever Pin
- R-11 Valve
- R-13 Lock Nut
- R-15 Follower Nut
- R-17 Valve Lock Nut
- R-19 Stuffing Box Nut
- R-20 Stuffing Box Nut
- R-21 Gland
- R-39 Stem Connection
- R-42 Diaphragm Casing
- R-44 Diaphragm Rod
- R-45 Diaphragm Rod Lock Nut
- R-46 Rubber Diaphragm
- R-47 Diaphragm Head
- R-50 Diaphragm Bolts
- R-51 Lever
- R-52 Lever Weight
- R-53 Thumb Screws

## THE DUNHAM REDUCING PRESSURE VALVE

Measurements for Standard Goods. For Extra Heavy Goods, dimensions B, C, M, and N are changed to conform to Extra Heavy Flanges, see page 8.

### EXPANDED OUTLET SIZES (Cut on Opposite Page)

Size	Con- nec- tion	A	B	C	D	E	F	G	H	M	N
1½x2	Scd.	19 <sup>1</sup> / <sub>16</sub>			1½	7 <sup>7</sup> / <sub>8</sub>	13	12	2		
1½x2½	"	19 <sup>1</sup> / <sub>16</sub>			1½	7 <sup>1</sup> / <sub>4</sub>	13	12	2½		
1½x3	"	19 <sup>1</sup> / <sub>16</sub>			1½	7 <sup>3</sup> / <sub>8</sub>	13	12	3		
2x2½	"	20 <sup>1</sup> / <sub>4</sub>			2	8½	13	12	2½		
2x2½	Flgd.	20 <sup>1</sup> / <sub>4</sub>	6	4¾	2	8 <sup>5</sup> / <sub>8</sub>	13	12	2½	5½	7
2x3	Scd.	20 <sup>1</sup> / <sub>4</sub>			2	8 <sup>9</sup> / <sub>16</sub>	13	12	3		
2x3	Flgd.	20 <sup>1</sup> / <sub>4</sub>	6	4¾	2	8 <sup>11</sup> / <sub>16</sub>	13	12	3	6	7½
2x3½	Scd.	20 <sup>1</sup> / <sub>4</sub>			2	8 <sup>5</sup> / <sub>8</sub>	13	12	3½		
2x3½	Flgd.	20 <sup>1</sup> / <sub>4</sub>	6	4¾	2	8¾	13	12	3½	7	8½
2x4	Scd.	20 <sup>1</sup> / <sub>4</sub>			2	9	13	12	4		
2x4	Flgd.	20 <sup>1</sup> / <sub>4</sub>	6	4¾	2	9	13	12	4	7½	9
2½x4	Scd.	20 <sup>3</sup> / <sub>8</sub>			2½	9	13	12	4		
2½x4	Flgd.	20 <sup>3</sup> / <sub>8</sub>	7	5½	2½	9 <sup>1</sup> / <sub>16</sub>	13	12	4	7½	9
2½x5	Scd.	20 <sup>3</sup> / <sub>8</sub>			2½	9 <sup>3</sup> / <sub>16</sub>	13	12	5		
2½x5	Flgd.	20 <sup>3</sup> / <sub>8</sub>	7	5½	2½	9 <sup>7</sup> / <sub>16</sub>	13	12	5	8½	10
3x5	Scd.	21 <sup>1</sup> / <sub>4</sub>			3	10¾	13	12	5		
3x5	Flgd.	21 <sup>1</sup> / <sub>4</sub>	7½	6	3	10 <sup>1</sup> / <sub>16</sub>	13	12	5	8½	10
3x6	Scd.	21 <sup>1</sup> / <sub>4</sub>			3	10 <sup>1</sup> / <sub>16</sub>	13	12	6		
3x6	Flgd.	21 <sup>1</sup> / <sub>4</sub>	7½	6	3	10 <sup>1</sup> / <sub>16</sub>	13	12	6	9½	11
3½x6	"	22 <sup>1</sup> / <sub>16</sub>	8½	7	3½	11¾	13	12	6	9½	11
3½x7	"	22 <sup>1</sup> / <sub>16</sub>	8½	7	3½	11 <sup>1</sup> / <sub>16</sub>	13	12	7	10¾	12½
4x5	"	23 <sup>5</sup> / <sub>8</sub>	9	7½	4	11¾	13	12 <sup>1</sup> / <sub>16</sub>	5	8½	10
4x6	"	23 <sup>5</sup> / <sub>8</sub>	9	7½	4	12	13	12 <sup>1</sup> / <sub>16</sub>	6	9½	11
4x8	"	23 <sup>5</sup> / <sub>8</sub>	9	7½	4	12 <sup>5</sup> / <sub>16</sub>	13	12 <sup>1</sup> / <sub>16</sub>	8	11¾	13½
5x8	"	26 <sup>3</sup> / <sub>8</sub>	10	8½	5	13½	13	12 <sup>1</sup> / <sub>8</sub>	8	11¾	13½
5x10	"	26 <sup>3</sup> / <sub>8</sub>	10	8½	5	13¾	13	12 <sup>1</sup> / <sub>8</sub>	10	14¼	16
6x8	"	27 <sup>3</sup> / <sub>4</sub>	11	9½	6	14 <sup>1</sup> / <sub>8</sub>	13	12 <sup>1</sup> / <sub>4</sub>	8	11¾	13½
6x12	"	27 <sup>3</sup> / <sub>4</sub>	11	9½	6	14 <sup>3</sup> / <sub>16</sub>	13	12 <sup>1</sup> / <sub>4</sub>	12	17	19

### STRAIGHT SIZES (Cut on Opposite Page)

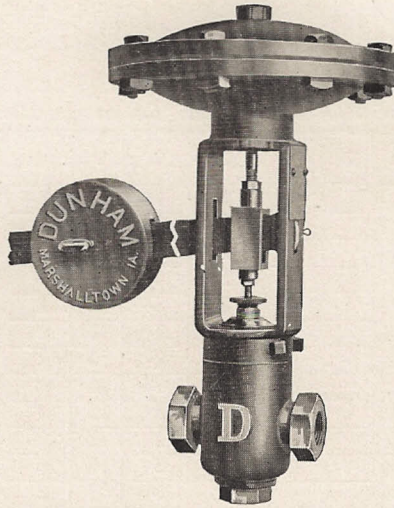
Size	Con- nec- tion	A	B	C	D	E	F	G	H	M	N
¾	Scd.	13½			¾	4 <sup>7</sup> / <sub>8</sub>	8	10			
1	"	19¼			1	4 <sup>7</sup> / <sub>8</sub>	13	13½			
1¼	"	19¼			1¼	6 <sup>3</sup> / <sub>8</sub>	13	13½			
1½	"	20 <sup>3</sup> / <sub>8</sub>			1½	7	13	14 <sup>3</sup> / <sub>16</sub>			
2	Flgd.	22 <sup>7</sup> / <sub>8</sub>	6	4¾	2	8 <sup>3</sup> / <sub>8</sub>	13	14 <sup>3</sup> / <sub>16</sub>			
2½	"	23 <sup>5</sup> / <sub>16</sub>	7	5½	2½	9 <sup>5</sup> / <sub>8</sub>	13	14¼			
3	"	24 <sup>5</sup> / <sub>16</sub>	7½	6	3	10½	13	14¼			
3½	"	25 <sup>1</sup> / <sub>16</sub>	8½	7	3½	11¼	13	14¼			
4	"	25 <sup>7</sup> / <sub>8</sub>	9	7½	4	11 <sup>7</sup> / <sub>8</sub>	13	14 <sup>5</sup> / <sub>16</sub>			
5	"	29 <sup>1</sup> / <sub>16</sub>	10	8½	5	13	13	14 <sup>3</sup> / <sub>8</sub>			
6	"	30	11	9½	6	14¼	13	14½			
8	"	31½	13½	11¾	8	16	13	14½			

This measurement on straight patterns same as D

This measurement on straight patterns same as C

This measurement on straight patterns same as B

## THE DUNHAM VACUUM PUMP GOVERNOR



Size	Connection	Weight Pounds	List	Code
$\frac{1}{2}$	Screwed	37	\$32.00	Spern
$\frac{3}{4}$	"	40	32.00	Spew
1	"	70	36.00	Splum
$1\frac{1}{4}$	"	78	42.00	Spider
$1\frac{1}{2}$	"	90	48.00	Spike
2	"	100	54.00	Spine

Discount Upon Application

This Governor is made for use in regulating the speed of a vacuum pump so that it will maintain a certain degree of vacuum in the suction line. Particularly is such a device needed on a vacuum pump as applied to vacuum steam heating work. In such work a constant vacuum in the return line is often necessary to the successful circulation of steam throughout the radiation.

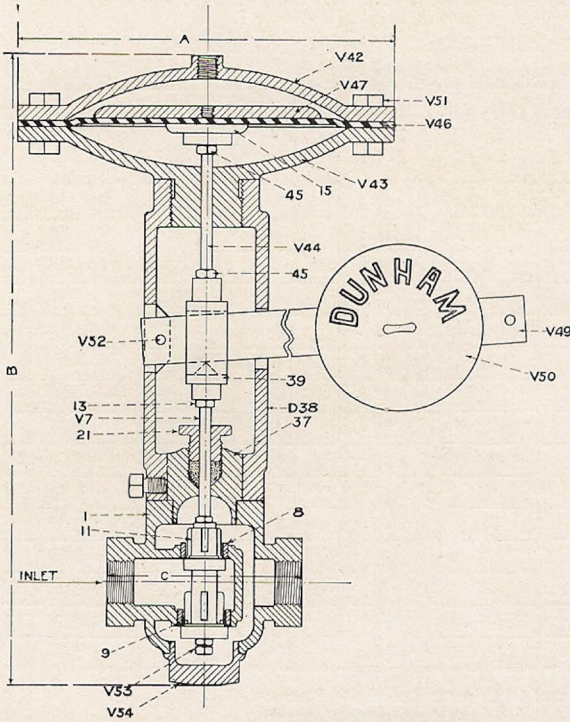
The Dunham Vacuum Pump Governor is made to be installed in a horizontal line of piping. It is made of the same high grade material as is used in the Dunham Reducing Pressure Valve described hereinbefore. It is sensitive yet durable and can be depended upon to regulate the vacuum in the return line without the necessity of constant attention from the engineer in charge of the plant.

We furnish these Governors regularly in the screwed pattern only. Flanged type are special and made only to order. Add 10 per cent. to above list for flanged type.

# THE DUNHAM VACUUM PUMP GOVERNOR

## PARTS FOR DUNHAM VACUUM PUMP GOVERNOR

(Refer to both cuts below)



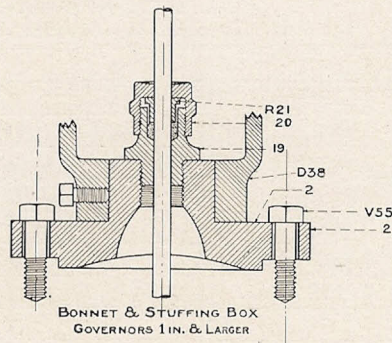
- 1-Shell
- 2-Cover for shell on Governor 1½ inch or larger
- V7-Valve Stem
- 8-Top Seat Ring
- 9-Lower Seat Ring
- 11-Valve
- 13-Valve Stem Lock Nut
- 15-Follower Nut
- 19-Stuffing Box for Governor 1 inch and larger
- 20-Stuffing Box Nut for Governor 1 inch and larger
- 21-Gland
- R21-Gland for Governors 1 inch and larger
- 37-Stuffing Box
- D38-Yoke
- 39-Stem or Lever Connector
- V42-Top Diaphragm Casing
- V43-Bottom Diaphragm Casing
- V44-Diaphragm Rod
- 45-Diaphragm Rod Lock Nut
- V46-Rubber Diaphragm
- V47-Diaphragm Head or Plate

V49-Lever Arm V50-Weight V51-Diaphragm Bolt Nuts V52-Lever Pin V53-Valve Lock Nuts V54-Bottom Plug V55-Cap Screws for Cover

### DIMENSIONS

(See Cut Above)

Sizes	A	B	C
½	8"	13¾	4⅞
¾	8"	13¾	4⅞
1	8"	19½	5⅞
1¼	8"	19½	6⅞
1½	8"	21½	7"
2	8"	22½	8"



The above information can be used to advantage when ordering new parts. Always use greatest care in designating parts wanted. Indicate them both by number and name and *always give serial number* of the Governor which will be found upon brass name plate on the Yoke.



## COMPANION FLANGES

The Dunham Reducing Valve and Vacuum Pump Governor are not furnished with Companion Flanges, hence add prices as given below if latter are wanted on flanged types.

**DIMENSIONS AND PRICES OF STANDARD COMPANION FLANGES**  
(Latest standard as adopted by Standardization Committee of N. A. M. F.)

Pipe Size and O. D. of Flange Inches	Diameter Bolt Circle	Diameter Bolt Hole	Size of Bolt	Number of Bolts	Price Faced and Drilled Each	Shipping Weight
½ x 3½	2½	½	¾	4	1.10	28
¾ x 3½	2½	½	¾	4	1.10	30
1 x 4	3	$\frac{9}{16}$	$\frac{7}{16}$	4	1.50	45
1¼ x 4½	3¾	$\frac{9}{16}$	$\frac{7}{16}$	4	1.60	56
1½ x 5	3¾	⅝	½	4	1.65	80
2 x 6	4¾	¾	⅝	4	1.75	91
2½ x 7	5½	¾	⅝	4	2.25	115
3 x 7½	6	¾	⅝	4	2.50	135
3½ x 8½	7	¾	⅝	4	2.75	160
4 x 9	7½	¾	⅝	8	3.35	192
5 x 10	8½	⅞	¾	8	4.35	200
6 x 11	9½	⅞	¾	8	4.70	240
8 x 13½	11¾	⅞	¾	8	7.25	300
10 x 16	14¼	1	⅞	12	10.95	420
12 x 19	17	1	⅞	12	14.20	530

(Above List Prices Include Bolts, Nuts and Gaskets)  
(Above list subject to discount)

### DIMENSIONS AND PRICES OF EXTRA HEAVY COMPANION FLANGES

(Latest Standard as Adopted by Standardization Committee of N. A. M. F.)

1 x 4½	3¼	⅝	½	4	1.55	50
1¼ x 5	3¾	⅝	½	4	1.65	65
1½ x 6	4½	¾	⅝	4	1.70	90
2 x 6½	5	¾	⅝	4	1.80	100
2½ x 7½	5¾	⅞	¾	4	2.35	125
3 x 8¼	6¾	⅞	¾	8	2.55	148
3½ x 9	7¼	⅞	¾	8	3.00	172
4 x 10	7¾	⅞	¾	8	3.60	203
5 x 11	9¼	⅞	¾	8	4.60	215
6 x 12½	10¾	⅞	¾	12	5.05	255
8 x 15	13	1	⅞	12	7.75	320
10 x 17½	15¼	1⅛	1	16	11.95	440
12 x 20	17¾	1⅛	1	16	15.70	580

(Above List Prices Include Bolts and Nuts but not Gaskets)  
(Above list subject to discount)