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SAE 4-Bolt Flanges 13

(F3) - V10 1 S 5 S - 1 C 22 L

1 2 3 4 5 6 7 8 9 10

1 Special Seals

Omit - (Standard)
F3 - Viton Seals

2 Series No

V10 V20

3 Mounting

1 - 2-Bolt Flange (Standard)

4 Inlet Port Connection

S - (Standard)
1 5/16-12 UN-2B (V10 Only)
1 5/8-12 UN-2B (V20 Only)
P - 1" NPT (V10 Only)
1 1/4" NPT (V20 Only)

5 Pump (GPM)

(@1200 RPM, 100 PSI)

V10	V20
1	6
2	7
3	8
4	9
5	11
6	12
7	13

6 Outlet Port Connection

S - (Standard)
3/4-16 UNF-2B (V10 Only)
1 1/16-12 UN-2B (V20 Only)
P - 1/2" NPT (V10 Only)
3/4" NPT (V20 Only)

7 Shaft Type

1 - Straight Keyed (Standard)
11 - Splined
62 - Splined (V20 Only)

8 Outlet Port Position

(View From Cover End of Pump)
A - Opposite Inlet
B - 90° CCW From Inlet
C - Inline With Inlet (Standard)
D - 90° CW From Inlet

9 Design Number

22 - (Standard)
10 - Design Change

10 Rotation

(View From Shaft End of Pump)
Omit - Right Hand Rotation (Standard)
L - Left Hand Rotation



SERIES NO	PUMP (GPM)	MAX SPEED (RPM)			MAX PRESSURE (PSI)		
		ANTI-WEAR OIL	WATER GLYCOL	WATER-IN-OIL EMULSION	ANTI-WEAR OIL	WATER GLYCOL	WATER-IN-OIL EMULSION
V10	**1**	4800	1800	1800	2500	1800	1500
	2	4500					
	3	4000					
	4	3400					
	5	3200					
	6	3000			2200		1575
	7	2800					
V20	6	3400			2500		
	7	3000					
	8	2800					
	9						
	11	2500				1575	1350
	12	2400			2200		
	13						

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(F3) - V2010 1 F 13 S 3 S - 1 C C 22 L

1 2 3 4 5 6 7 8 9 10 11 12 13

1 Special Seals

Omit - (Standard)
F3 - Viton Seals

2 Series No

V2010 V2020

3 Mounting

1 - 2-Bolt Flange (Standard)

4 Inlet Port Connection

F - SAE 4-Bolt Flange (Standard)

5 Shaft End Pump (GPM)

(@1200 RPM, 100 PSI)
V20** - 6, 7, 8, 9, 11, 12, 13

6 Outlet No 1 Port Connection

S - 1 1/16-12 UN-2B (Standard)

7 Cover End Pump (GPM)

(@1200 RPM, 100 PSI)

V**10	V**20
1	6
2	7
3	8
4	9
5	11
6	
7	

8 Outlet No 2 Port Connection

S - 3/4-16 UNF-2B (V2010 Only)
1 1/16-12 UN-2B (V2020 Only)

9 Shaft Type

1 - Straight Keyed (Standard)
11 - Splined

10 Outlet No 1 Port Position

(View From Cover End of Pump)
A - Opposite Inlet
B - 90° CCW From Inlet
C - Inline With Inlet (Standard)
D - 90° CW From Inlet

11 Outlet No 2 Port Position

(View From Cover End of Pump)

V2010
A - 135° CCW From Inlet
B - 45° CCW From Inlet
C - 45° CW From Inlet (Standard)
D - 135° CW From Inlet

V2020
A - Opposite Inlet
B - 90° CCW From Inlet
C - Inline With Inlet (Standard)
D - 90° CW From Inlet

12 Design Number

22 - (Standard)
10 - Design Change

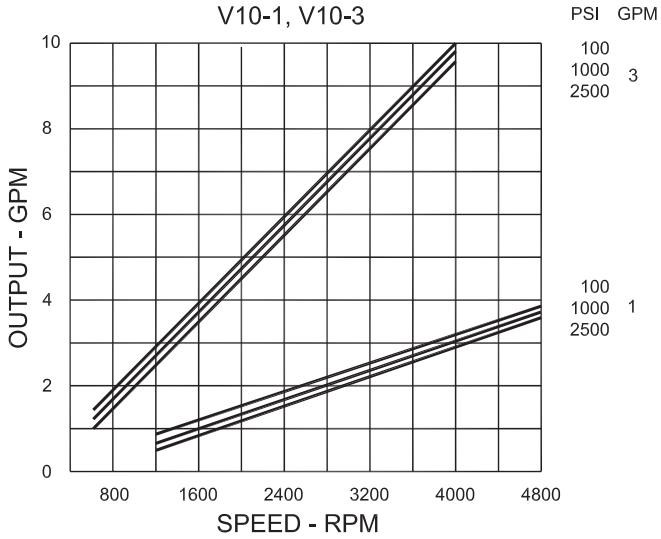
13 Rotation

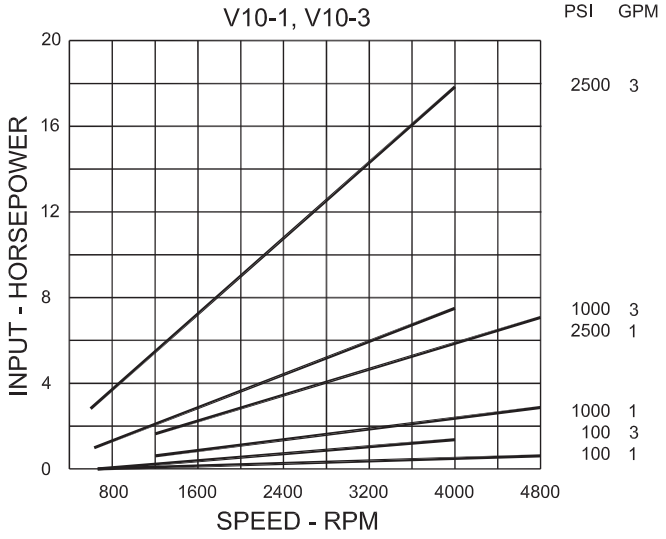
(View From Shaft End of Pump)
Omit - Right Hand Rotation (Standard)
L - Left Hand Rotation

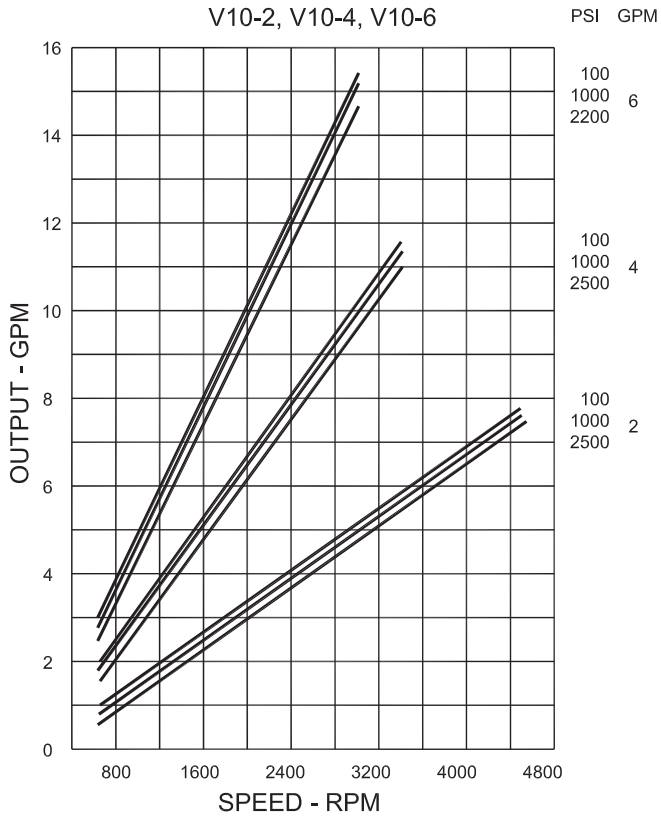


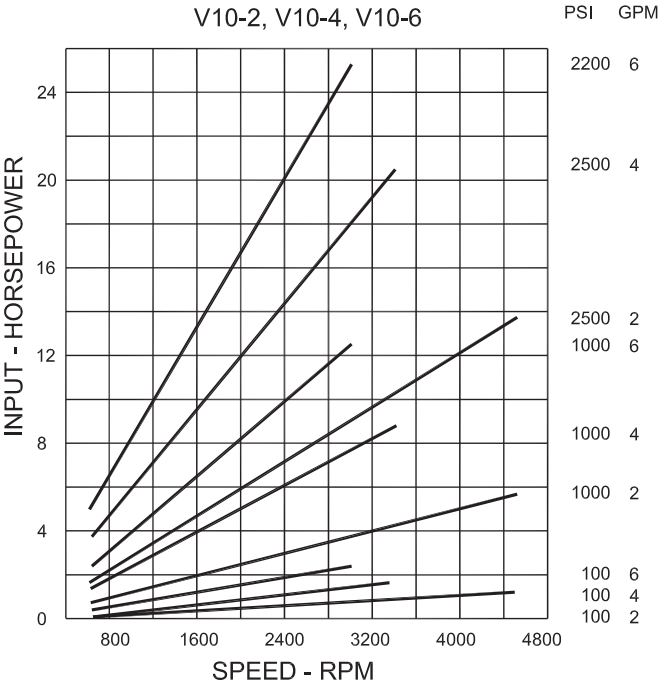
SERIES NO	V20** (FOR V2010 & V2020)			V**10 (F0R V2010)			V**20 (FOR V2020)		
	PUMP CODE	MAX SPEED (RPM)	MAX PRESSURE (PSI)	PUMP CODE	MAX SPEED (RPM)	MAX PRESSURE (PSI)	PUMP CODE	MAX SPEED (RPM)	MAX PRESSURE (PSI)
V2010 V2020	6	3000	2500	1	3000	2500	6	3000	2500
	7			2			7		
	8	2800		3			8	2800	
	9			4			9		
	11	2500		5			11	2500	
	12	2400	2200	6		2200			
	13			7	2800	2000			

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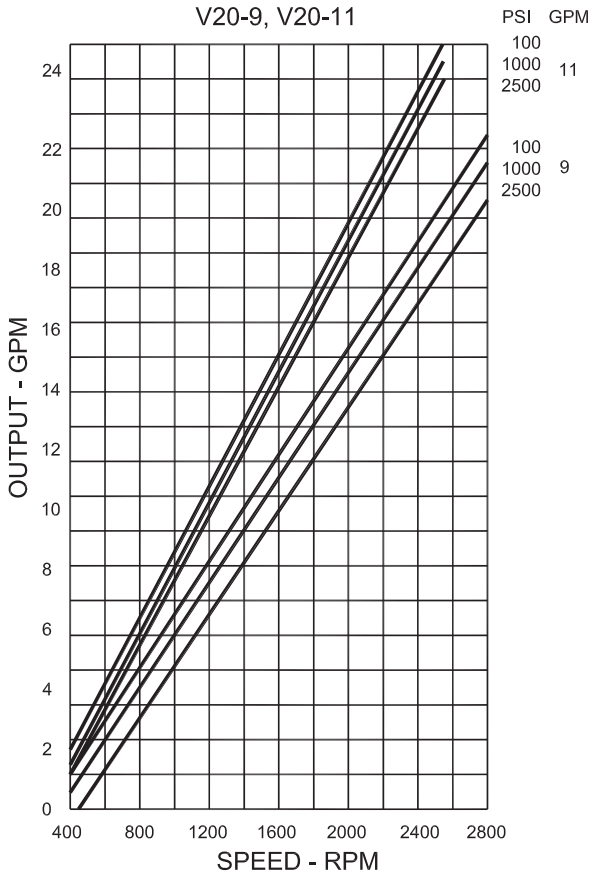


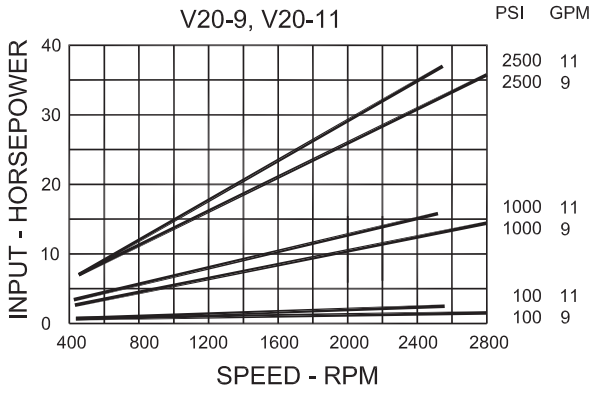


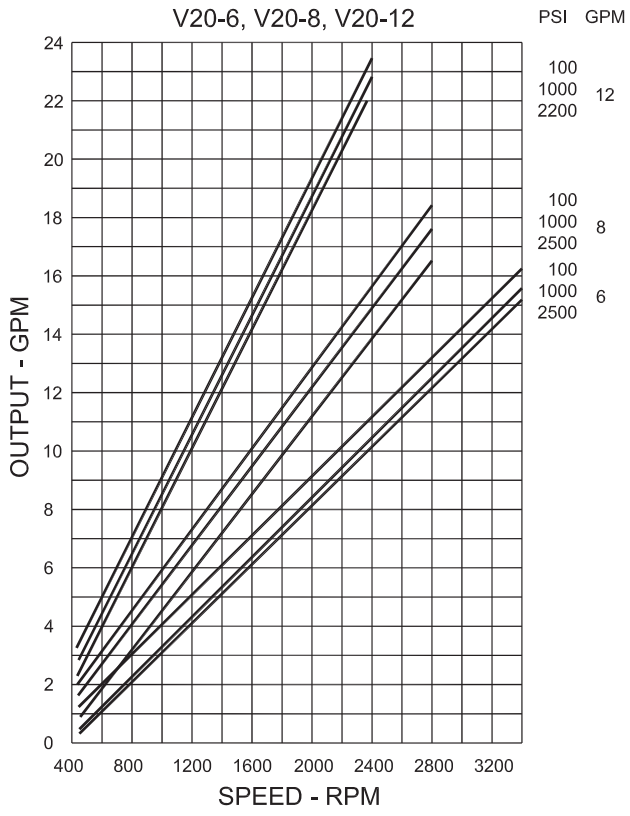


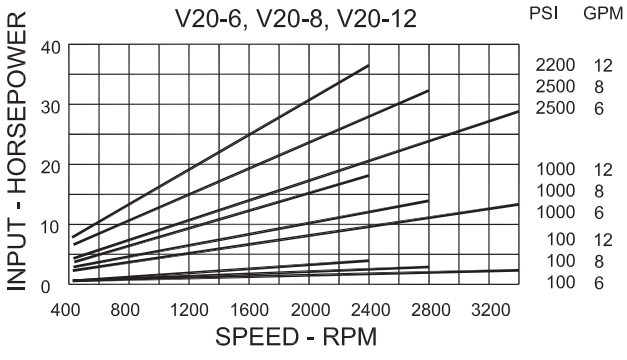
Data Based on Oil Temperature @ 120°F and Pump Inlet @ 0 PSIG (14.7 PSIA)

HYFORCE







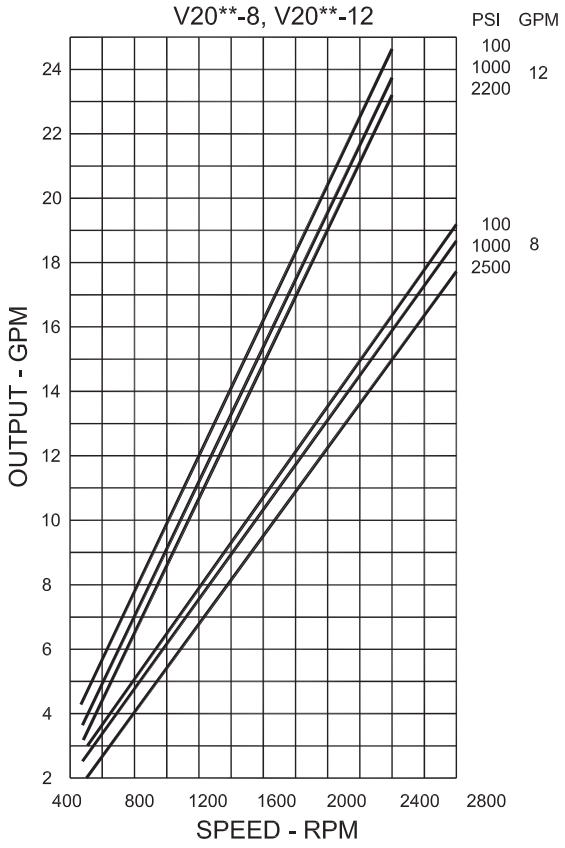


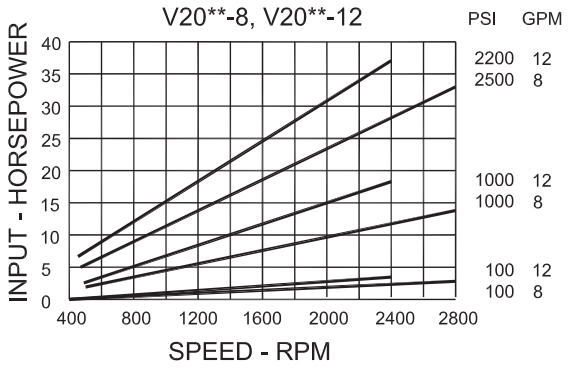
Data Based on Oil Temperature Fluid @ 120°F and Pump Inlet @ 0 PSIG (14.7 PSIA)

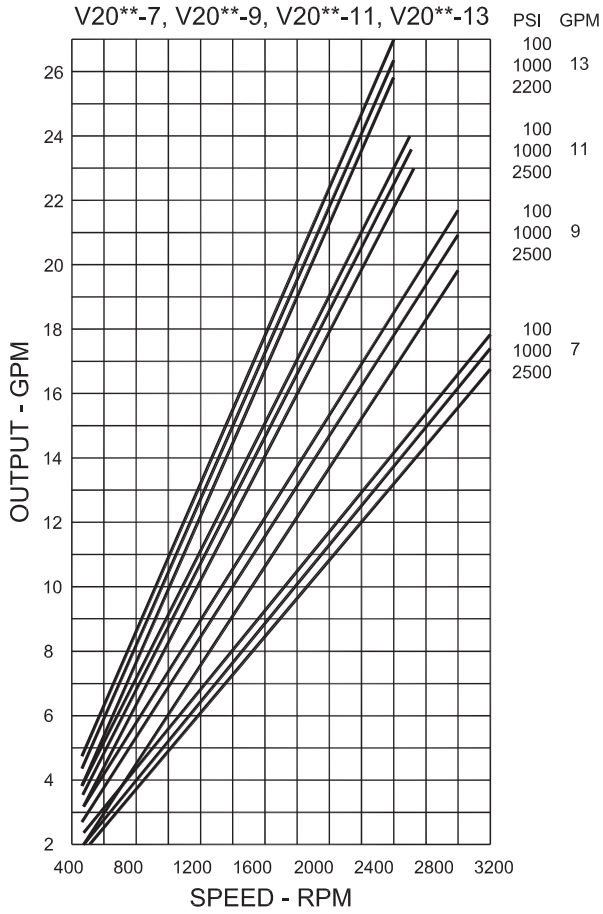
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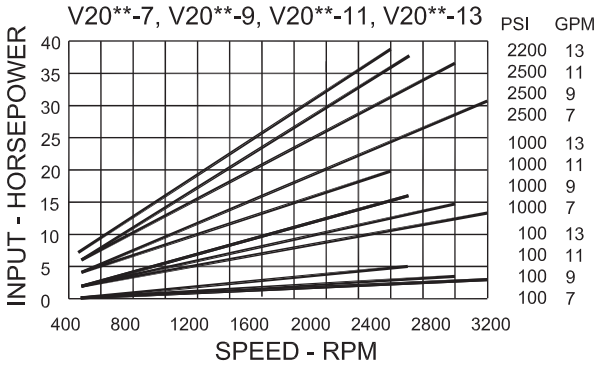
V2010 & V2020 Shaft End Pump

Data Based on Oil Temperature @ 120°F and Pump Inlet @ 0 PSIG (14.7 PSIA)



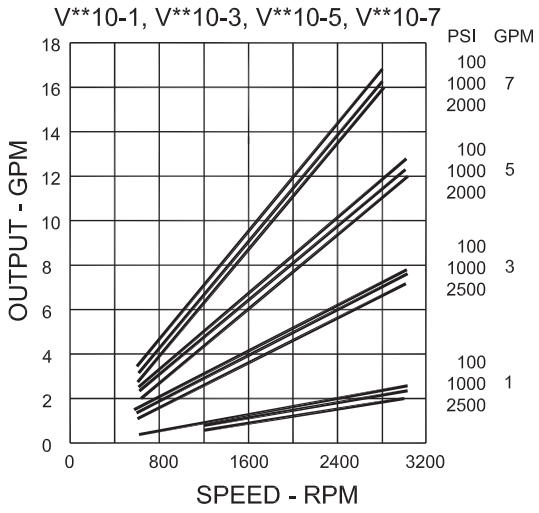


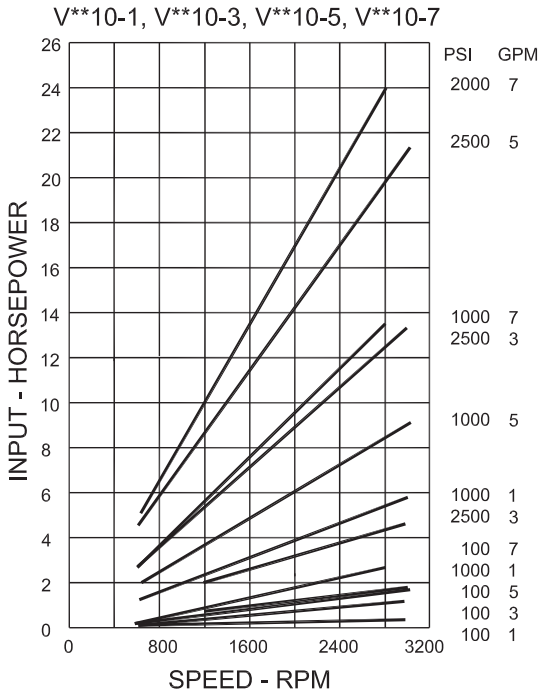


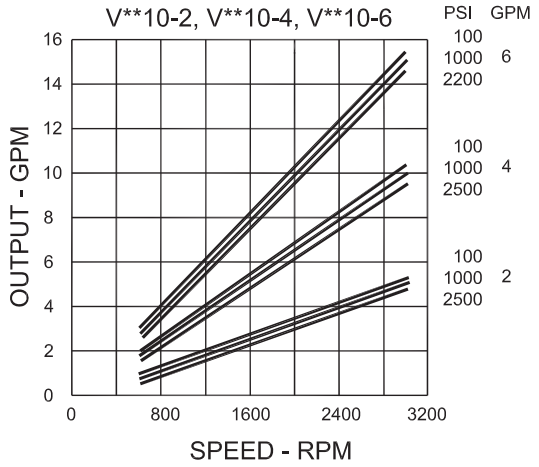


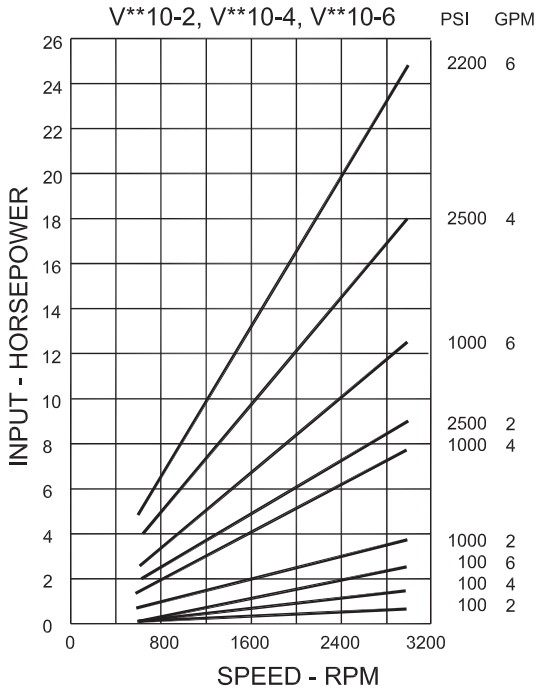
HYFORCE

Data Based on Oil Temperature @ 120°F and Pump Inlet @ 0 PSIG (14.7 PSIA)

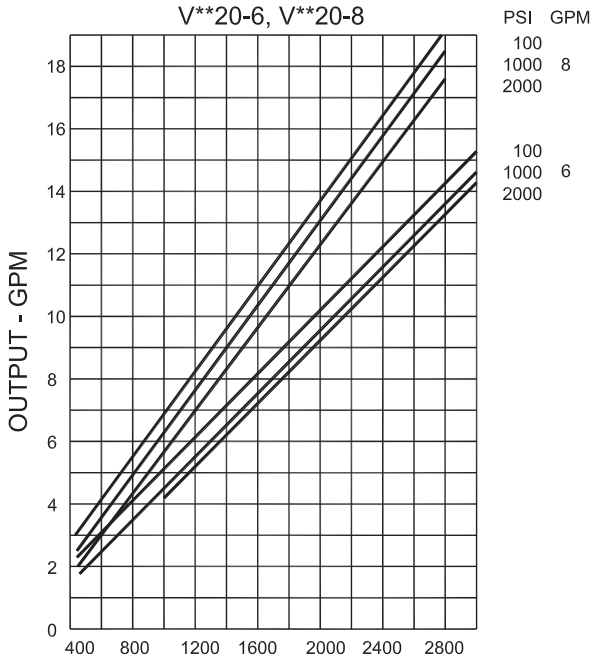


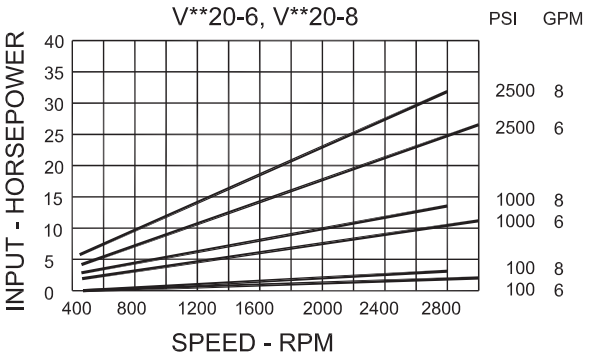


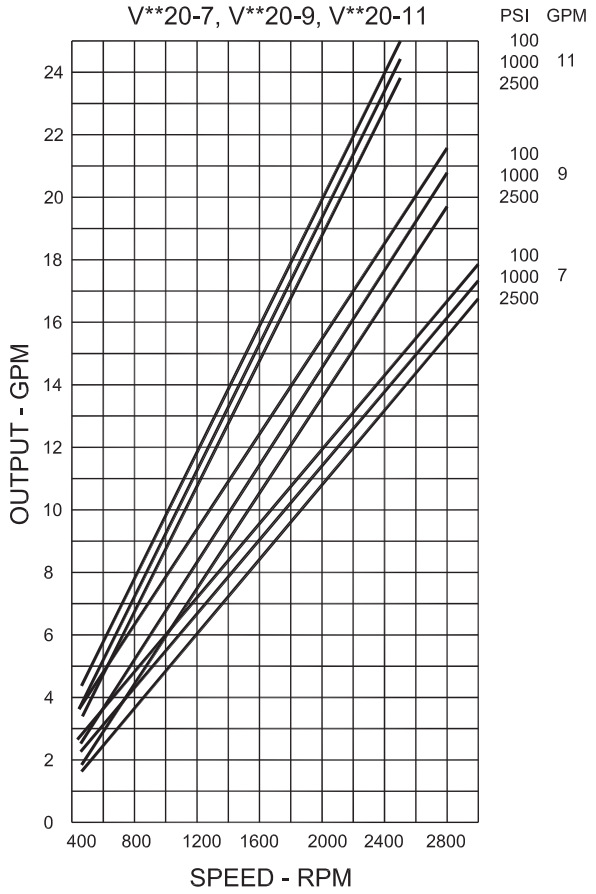


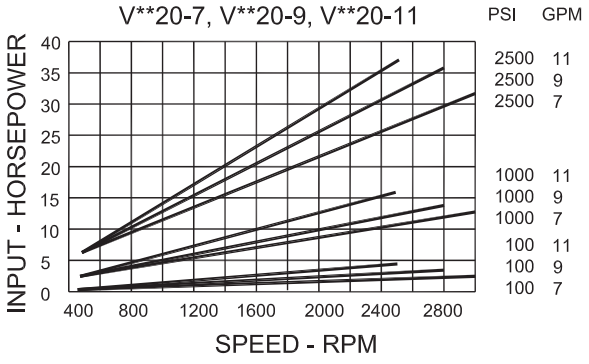


Data Based on Oil Temperature @ 120°F and Pump Inlet @ 0 PSIG (14.7 PSIA)

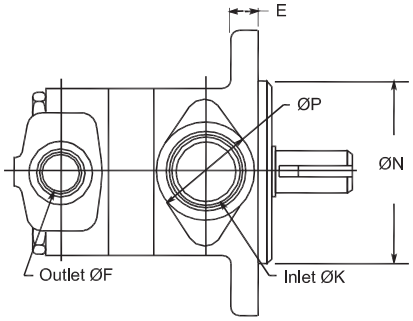


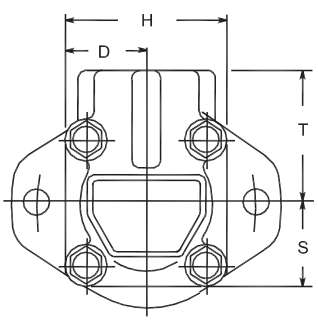


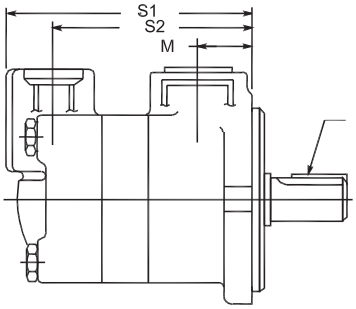


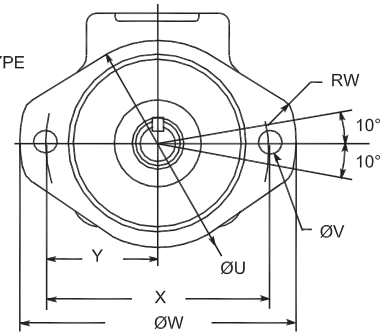


V10 INSTALLATION DIMENSION



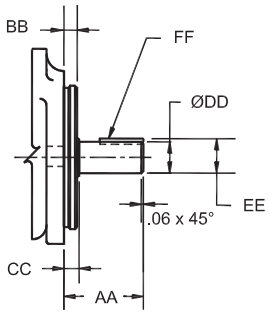




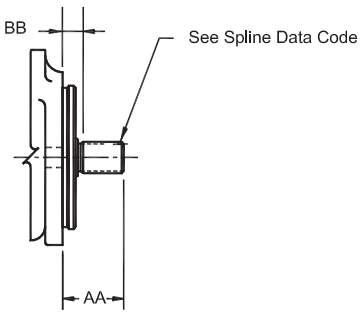


SHAFT TYPE

#1 Straight Shaft



#11 Splined Shaft



BODY

D	E	H	M	øN	ØP	T	S	RW	øU	ØV x 2	ØW	X	Y
1.50	0.50	3.00	0.97	3.250/3.248	1.81	2.47	1.50	0.47	3.75	0.437	5.12	4.19	2.09

V10 (GPM)	1,2,3		4,5		6,7	
	S1	S2	S1	S2	S1	S2
	4.55	3.62	4.80	3.87	5.00	4.07

PORT CONN.

Outlet ØF	Inlet Øk
3/4”-16UNF-2B or 1/2" NPT	1 5⁄16”-12UNF-2B or 1" NPT

SHAFT TYPE

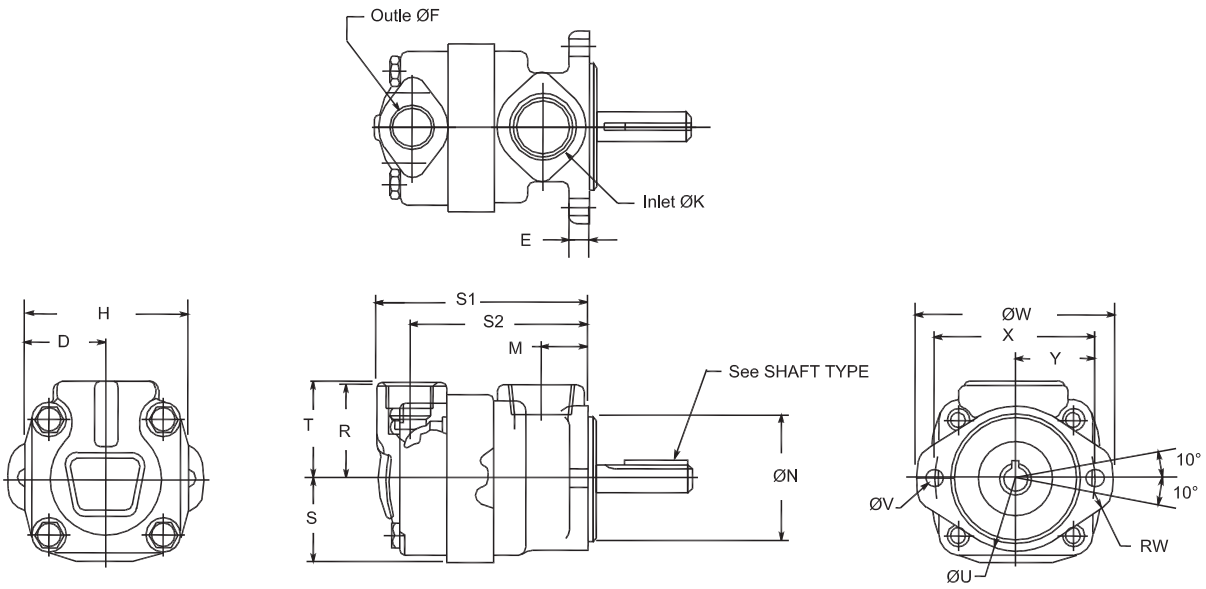
Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	1.75	.250/.240	.31	.750/.749	.832/.827	.187x1.00

Shaft Type	AA	BB	Spline Data Code
11	1.25	.58	G (See Below Chart)

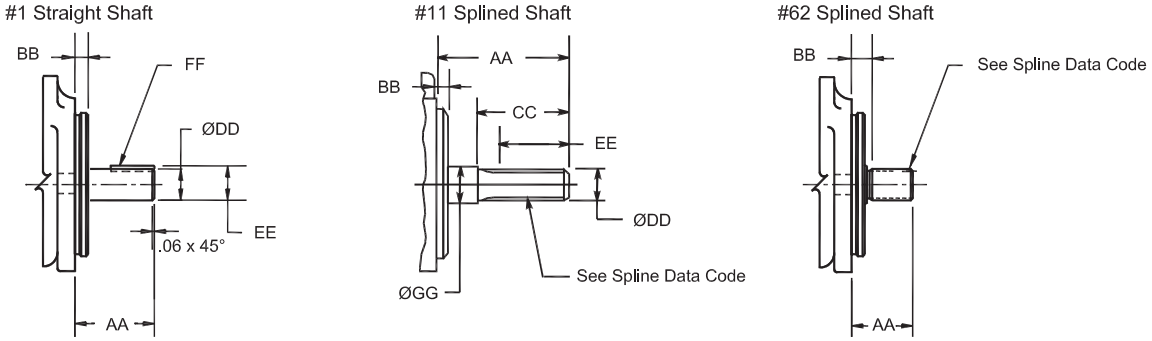
Spline Data Code	Number of Teeth	Pitch	Major Diameter	Pitch Diameter	Minor Diameter	Minor Diameter
G	9	16/32	.623/.622	.5625	.4835/.4725	Major dia. fit

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V20 INSTALLATION DIMENSION



SHAFT TYPE



BODY

D	E	H	M	øN	S	T	R	RW	øU	ØV x 2	ØW	X	Y
2.19	0.50	4.38	1.22	3.250/3.248	2.19	2.60	2.44	0.47	3.75	0.437	5.12	4.19	2.09

V20 (GPM)	6		7,8,9		11		12,13	
	S1	S2	S1	S2	S1	S2	S1	S2
	4.93	4.02	5.18	4.27	5.38	4.47	5.52	4.61

PORT CONN.

Outlet ØF	Inlet Øk
1 1/16”-12 UN-2B or 3/4" NPT	1 5⁄8”-12UN-2B or 1 1/4" NPT

SHAFT TYPE

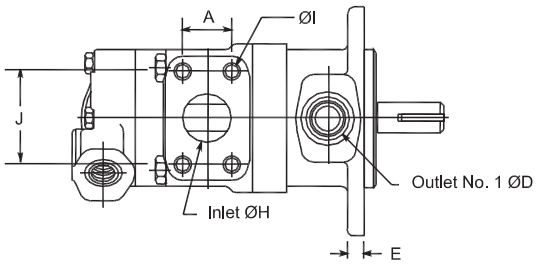
Shaft Type	AA	BB	ØDD	EE	FF Key Width x Length
1	2.66	.156	.750/.749	.832/.827	.1875x1.62

Shaft Type	AA	BB	CC	ØDD	EE	GØG	Spline Data Code
11	2.94	.156	2.00	.751/.749	1.47	.751/.749	F (See Below Chart)
62	1.25	.58					G (See Below Chart)

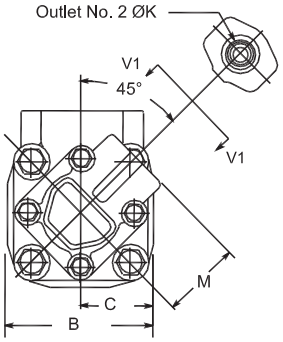
Spline Data Code	Number of Teeth	Pitch	Major Diameter	Pitch Diameter	Minor Diameter	Minor Diameter	Pressure Angle
F	11	16/32					30°
G	9	16/32	.623/.622	.5625	.4835/.4725	Major dia. fit	

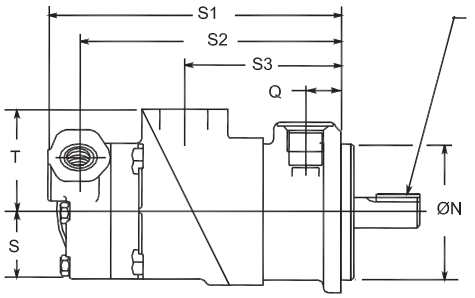
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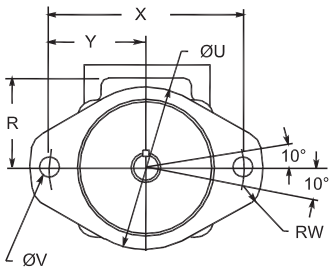
V2010 INSTALLATION DIMENSION



VIEW V1-V1

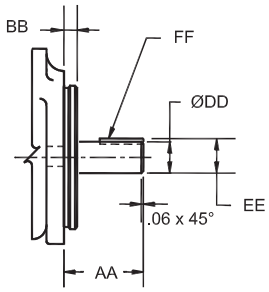




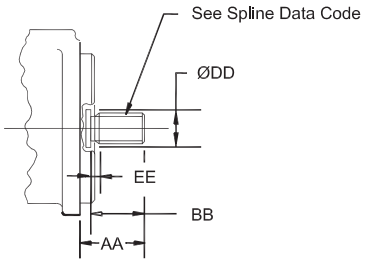


SHAFT TYPE

#1 Straight Shaft



#11 Splined Shaft



BODY

A	B	C	E	ØH	J	M	øN	Q	S	T	R	RW	øU
2.00	4.38	2.19	0.50	1.50	3.50	2.38	4.000/3.998	1.06	2.00	3.00	2.62	0.56	4.75

			V20** (GPM)	V**10 (GPM)	V20** (GPM)	V**10 (GPM)	V20** (GPM)	V**10 (GPM)	V20** (GPM)	V**10 (GPM)
			7,8,9	1,2,3	7,8,9	4,5	7,8,9	6,7	11	1,2,3
ØV x 2	X	Y	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3
0.56	5.75	2.88	8.39	7.45	4.46	8.64	7.70	4.46	8.84	7.90	4.46	8.59	7.65	4.65

V20** (GPM)		V**10 (GPM)		V20** (GPM)		V**10 (GPM)		V20** (GPM)		V**10 (GPM)		V20** (GPM)		V**10 (GPM)	
11		4,5		11		6,7		12,13		1,2,3		12,13		4,5		12,13		6,7	
S1	S2	S3		S1	S2	S3		S1	S2	S3		S1	S2	S3		S1	S2	S3	
8.84	7.90	4.65		9.04	8.10	4.79		8.73	7.79	4.79		8.97	8.03	4.79		9.17	8.23	4.79	

PORT CONN.

Outlet No 1 ØD	Outlet No 2 ØK	ØI x 4 Holes	Intlet Flange
1 1/16"-12 UN-2B	3/4"-16 UNF-2B	1/2"-13 UNC-2B x 0.88	F1-12-

SHAFT TYPE

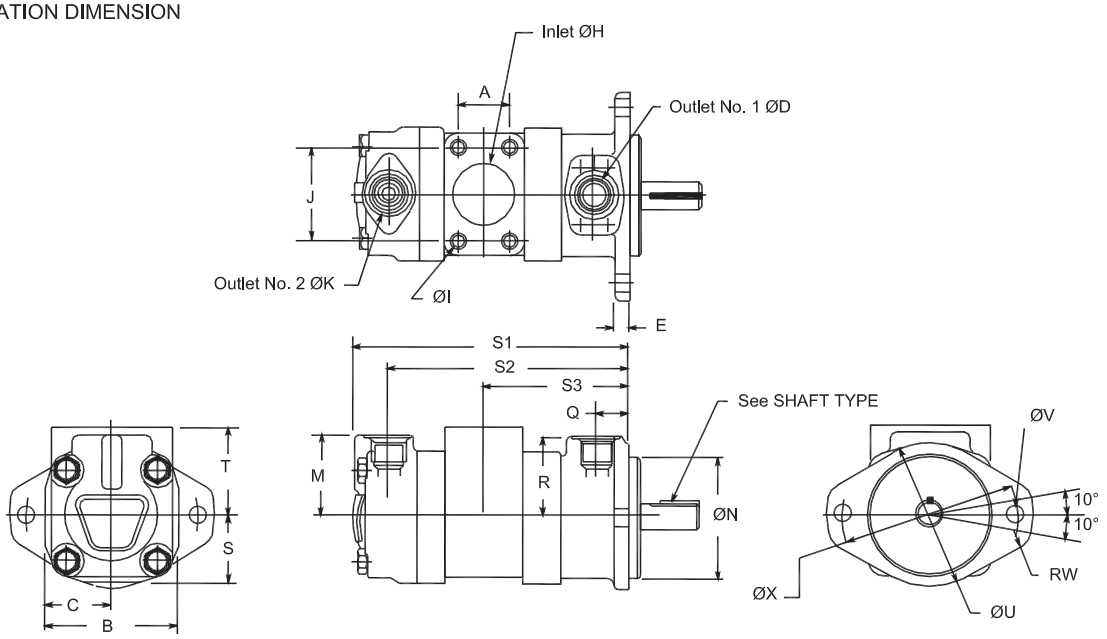
Shaft Type	AA	BB	ØDD	EE	FF Key Width x Length
1	2.32	.375	.875/.874	.996/.961	.1875x1.25

Shaft Type	AA	BB	ØDD	EE	Spline Data Code
11	1.62	1.31	1.15	.16	A (See Below Chart)

Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
A	13	16/32	.873/.872	.749	.734/.723	Major dia. fit

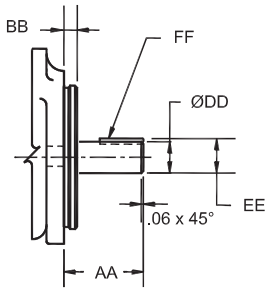
HYFORCE

V2020 INSTALLATION DIMENSION

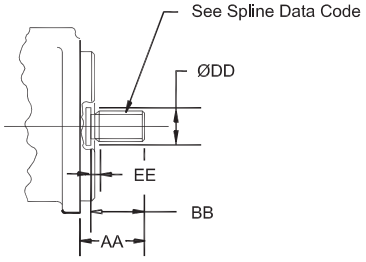


SHAFT TYPE

#1 Straight Shaft



#11 Splined Shaft



BODY

A	B	C	E	ØH	J	M	øN	Q	S	T	R	RW	øU
1.69	4.38	2.19	0.50	1.94/2.00	3.06	2.75	4.000/3.998	1.06	2.19	2.94	2.62	0.56	4.75

		V20** (GPM)		V**20 (GPM)		V20** (GPM)		V**20 (GPM)		V20** (GPM)		V**20 (GPM)		V20** (GPM)		V**20 (GPM)	
		7,8,9		6		7,8,9		7,8,9		11		6		11		7,8,9	
ØV x 2	ØX	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3
0.56	5.75	8.41	7.39	4.49	8.66	7.64	4.49	8.61	7.59	4.69	8.86	7.84	4.69						

V20** (GPM)		V**20 (GPM)		V20** (GPM)		V**20 (GPM)		V20** (GPM)		V**20 (GPM)		V20** (GPM)		V**20 (GPM)	
11		11		12,13		6		12,13		7,8,9		12,13		11	
S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3
9.05	8.03	4.69	8.75	7.73	4.82	8.99	7.97	4.82	9.19	8.17	4.82						

PORT CONN.

Outlet No 1 ØD	Outlet No 2 ØK	ØI x 4 Holes	Intlet Flange
1 1/16”-12 UN-2B	1 1/16”-12 UN-2B	1/2"-13 UNC-2B x 0.94	F1-16-

SHAFT TYPE

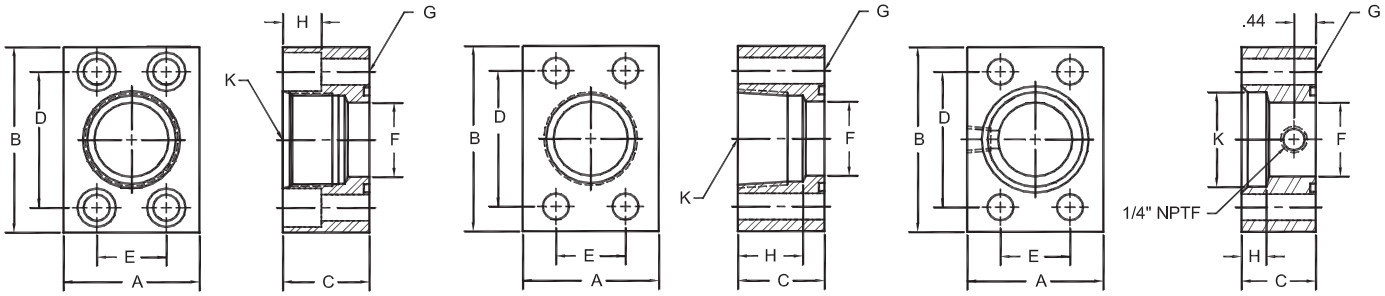
Shaft Type	AA	BB	ØDD	EE	FF Key Width x Length
1	2.32	.37	.875/.874	.996/.961	.1875x1.25

Shaft Type	AA	BB	ØDD	EE	Spline Data Code
11	1.62	1.31	1.15	.16	A (See Below Chart)

Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
A	13	16/32	.873/.872	.749	.734/.723	Major dia. fit

HYFORCE

SAE 4-Bolt Flange



SAE Flange NPT Flange Weld Flange

SAE Straight Threaded	Flange Size	A	B	C	D	E	F	G	H	K	BOLT SIZE ①
F1-6-S	3/4	1.75	2.62	1.5	1.875	0.875	0.75	0.41	0.59	1 1/16-12	3/8-16 x 1 1/2
F1-8-S	1	2	2.82	1.5	2.062	1.031	1	0.41	0.59	1 5/16-12	3/8-16 x 1 1/2
F1-10-S	1 1/4	2.5	3.19	1.5	2.312	1.188	1.25	0.47	0.71	1 5/8-12	7/16-14 x 1 1/2
F1-12-S	1 1/2	2.75	3.75	1.75	2.75	1.406	1.5	0.53	0.78	1 7/8-12	1/2-13 x 1 3/4

NPTF Pipe Threaded	Flange Size	A	B	C	D	E	F	G	H	K (NPTF)	BOLT SIZE ①
F1-6-P	3/4	1.75	2.62	1.25	1.88	0.88	0.75	0.41	1.06	3/4	3/8-16 x 2
F1-8-P	1	2.00	2.82	1.50	2.06	1.03	1.00	0.41	1.25	1	3/8-16 x 2 1/4
F1-10-P	1 1/4	2.50	3.19	1.50	2.31	1.19	1.25	0.47	1.31	1 1/4	7/16-14 x 2 1/4
F1-12-P	1 1/2	2.75	3.75	1.75	2.75	1.41	1.50	0.53	1.31	1 1/2	1/2-13 x 2 1/2
F1-16-P	2	3.25	4.00	1.75	3.06	1.69	1.94	0.53	1.31	2	1/2-13 x 2 1/2
F1-20-P ②	2 1/2	4.00	4.50	2.00	3.50	2.00	2.44	0.53	1.75	2 1/2	1/2-13 x 2 3/4
F1-24-P ③	3	4.50	5.50	2.25	4.19	2.44	2.94	0.66	2.00	3	5/8-11 x 3 1/2

Pipe Welded	Flange Size	A	B	C	D	E	F	G	H	K	BOLT SIZE ①
F1-8-W	1	2.00	2.82	1.25	2.062	1.031	1.00	0.41	0.50	1.335	3/8-16 x 2
F1-10-W	1 1/4	2.50	3.19	1.25	2.312	1.188	1.25	0.47	0.50	1.680	7/16-14 x 2
F1-12-W	1 1/2	2.75	3.75	1.25	2.750	1.406	1.50	0.53	0.50	1.920	1/2-13 x 2
F1-16-W	2	3.25	4.00	1.50	3.062	1.688	1.94	0.53	0.62	2.411	1/2-13 x 2 1/4
F1-20-W ②	2 1/2	4.00	4.50	1.75	3.500	2.000	2.44	0.53	0.75	2.911	1/2-13 x 2 1/2
F1-24-W ③	3	4.50	5.31	2.00	4.188	2.438	2.94	0.66	0.75	3.540	5/8-11 x 3
F1-28-W ④	3 1/2	5.00	6.00	1.50	4.750	2.750	3.44	0.66	0.75	4.045	5/8-11 x 2 1/2
F1-32-W ④	4	5.50	6.38	1.50	5.125	3.062	3.94	0.66	0.75	4.550	5/8-11 x 2 1/2

① Order Seperately
② 2500 PSI Max
③ 2000 PSI Max
④ 500 PSI Max