Table of Contents

Order Code - Single Pump 2
Order Code - Double Pump 3
Performance Data - 20V 4
Performance Data - 25V 5
Performance Data - 35V 6
Performance Data - 45V 7
Installation Dimension - 20V 8
Installation Dimension - 25V 9
Installation Dimension - 35V 10
Installation Dimension - 45V 11
Installation Dimension - 2520V 12
Installation Dimension - 3520V 13
Installation Dimension - 3525V 14
Installation Dimension - 4520V 15
Installation Dimension - 4525V 16
Installation Dimension - 4535V 17
SAE 4-Bolt Flanges 18

(F3) - 25V 17 A - 1 C 22 L

1 2 3 4 5 6 7 8

1 Special Seals

Omit - (Standard)
F3 - Viton Seals

2 Series No

20V 25V 35V
45V

3 Pump (GPM)

(@1200 RPM, 100 PSI)

20V	25V	35V
2	10	25
5	12	30
8	14	32
9	17	35
11	19	38
12	21	
14		

45V
42
45
50
60
75

4 Port Connection

A - SAE 4-Bolt Flange (Standard)

5 Shaft Type

1 - Straight Keyed (Standard)
151 - Splined (20V Only)
11 - Splined
86 - Straight Keyed (Heavy Duty Except 20V)

6 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

7 Design Number

22 - (Standard)
10 - Design Change

8 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)			MIN SPEED (RPM)
		ANTI-WEAR OIL	WATER GLYCOL	WATER-IN-OIL EMULSION	ANTI-WEAR OIL	WATER GLYCOL	WATER-IN-OIL EMULSION	ALL FLUIDS
20V	2	1800	1500	1200	2000	2000	1000	600
	5,8,9,11				3000	2300	1000	
	12				2300	2000	1000	
	14				2000	2000	1000	
25V	10,12,14,17,19,21				2500	2300	1000	
35V	25,30,32,35,38				2500	2300	1000	
45V	42,45,50,60				2500	2300	1000	
	75				2000	2000	1000	

HYFORCE

(F3) - 2520V 17 A 11 - 1 C C 22 L

1 2 3 4 5 6 7 8 9 10

1 Special Seals

Omit - (Standard)
F3 - Viton Seals

2 Series No

2520V	3520V	3525V
4520V	4525V	4535V

3 Shaft End Pump (GPM)

(@1200 RPM, 100 PSI)

25**V	35**V	45**V
10	25	42
12	30	45
14	32	50
17	35	60
19	38	75
21		

4 Port Connection

A - SAE 4-Bolt Flange (Standard)

5 Cover End Pump (GPM)

(@1200 RPM, 100 PSI)

**20V	**25V	**35V
2	10	25
5	12	30
8	14	32
9	17	35
11	19	38
12	21	
14		

6 Shaft Type

1 - Straight Keyed (Standard)
11 - Splined
86 - Straight Keyed (Heavy Duty)

7 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

8 Outlet No 2 Port Position

(View From Cover End of Pump)
All Series Except 4535V
A - 135° CCW From Inlet
B - 45° CCW From Inlet
C - 45° CW From Inlet (Standard)
D - 135° CW From Inlet

Series 4535V
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

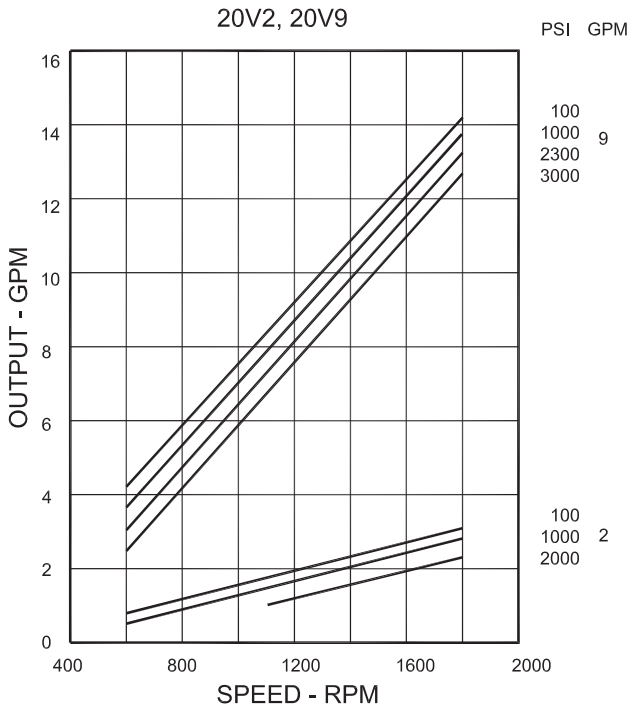
(View From Shaft End of Pump)
Omit - Right Hand Rotation (Standard)
L - Left Hand Rotation

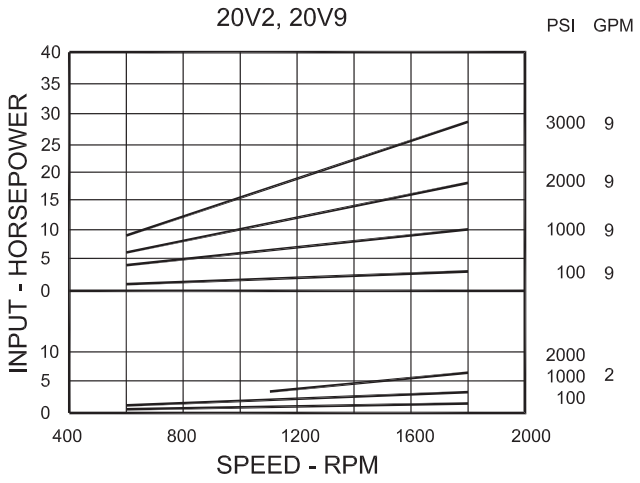
NOTE: See Respective Pump Performance in V Pump Performance for Double Pump Performance.

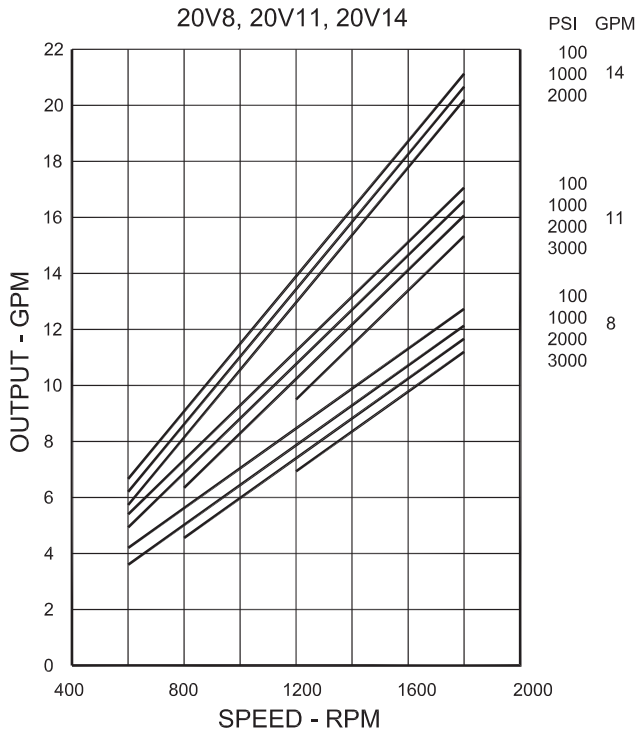


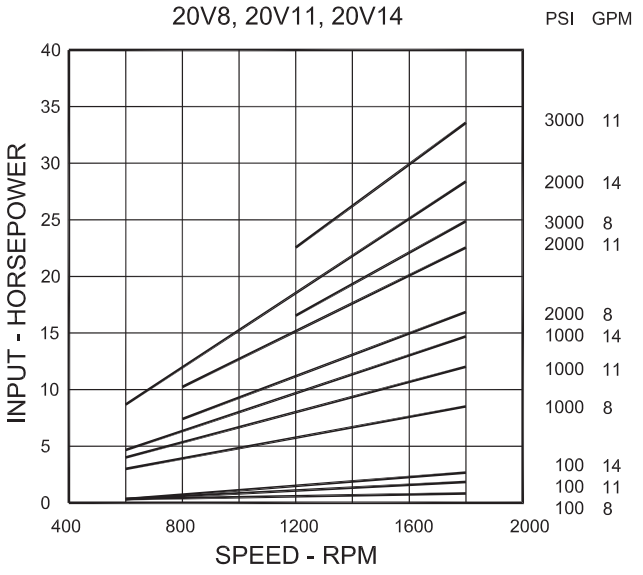
SERIES NO	PUMP (GPM)	MAX SPEED (RPM)			MAX PRESSURE (PSI)			MIN SPEED (RPM)
		ANTI-WEAR OIL	WATER GLYCOL	WATER-IN-OIL EMULSION	ANTI-WEAR OIL	WATER GLYCOL	WATER-IN-OIL EMULSION	ALL FLUIDS
**20V	2	1800	1500	1200	2000	2000	1000	600
	5,8,9,11				3000	2300	1000	
	12				2300	2000	1000	
	14				2000	2000	1000	
25**V **25V	10,12,14,17,19,21				2500	2300	1000	
35**V **35V	25,30,32,35,38				2500	2300	1000	
45**V	42,45,50,60				2500	2300	1000	
	75				2000	2000	1000	

HYFORCE





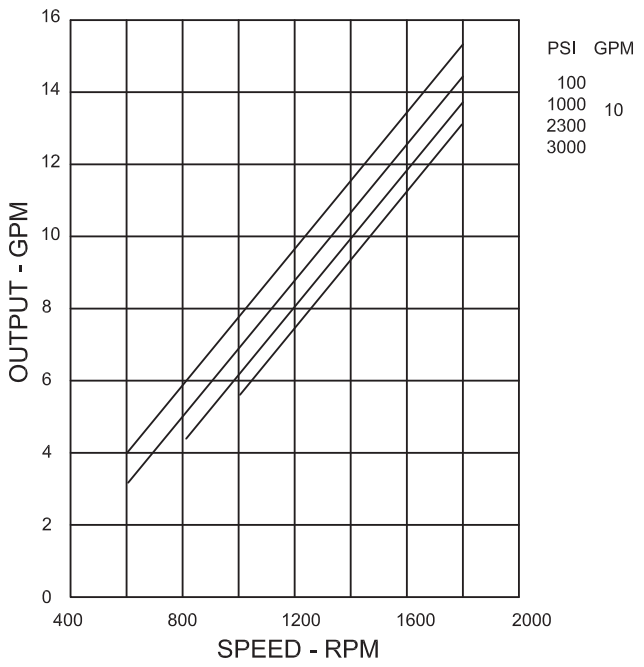




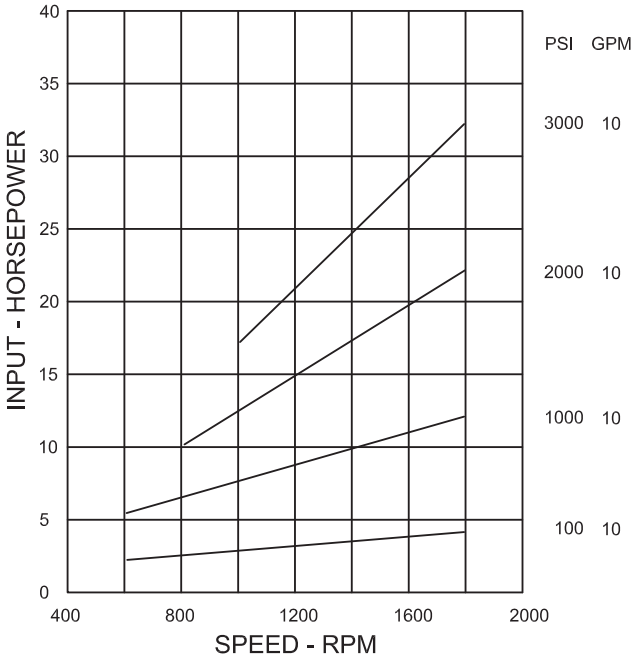
Data Based on SAE 10W Fluid @ 120°F and Pump Inlet @ 0 PSIG (14.7 PSIA)

HYFORCE

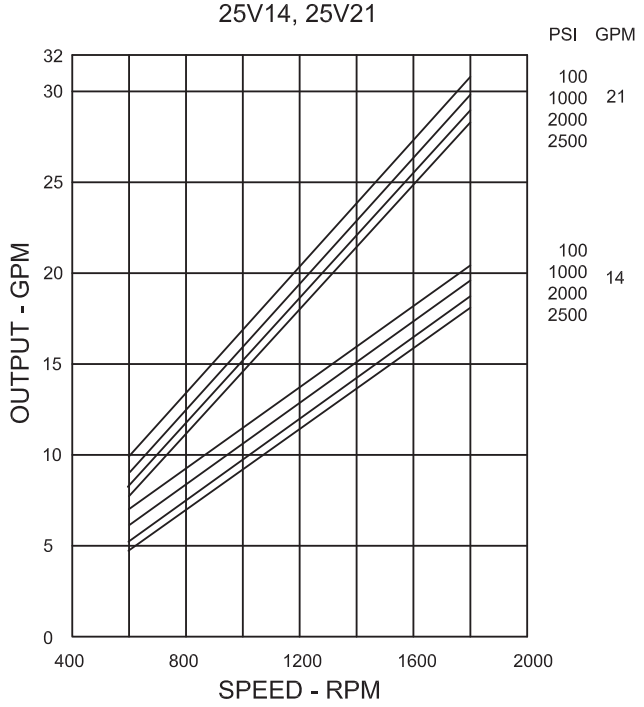
25V10



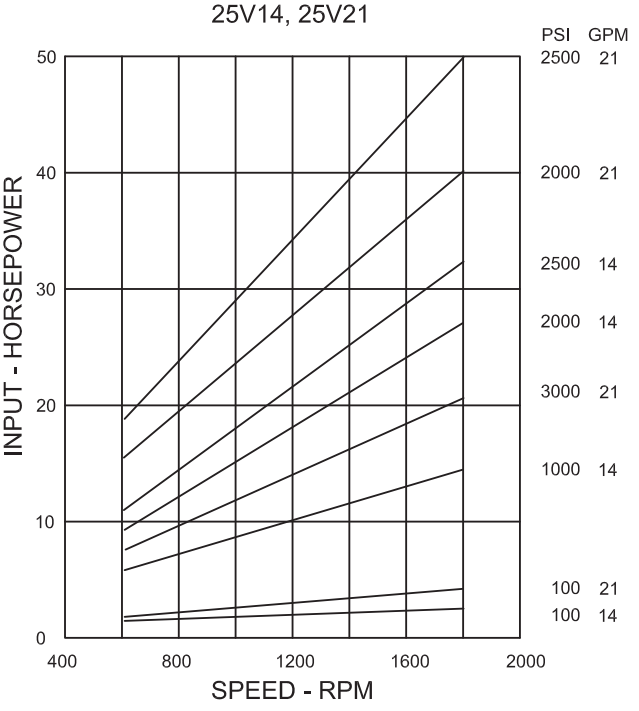
25V10



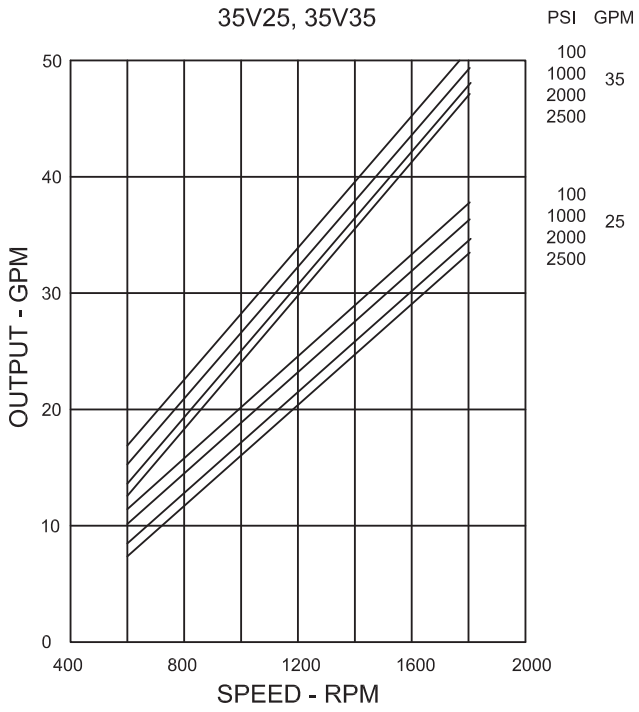
25V14, 25V21

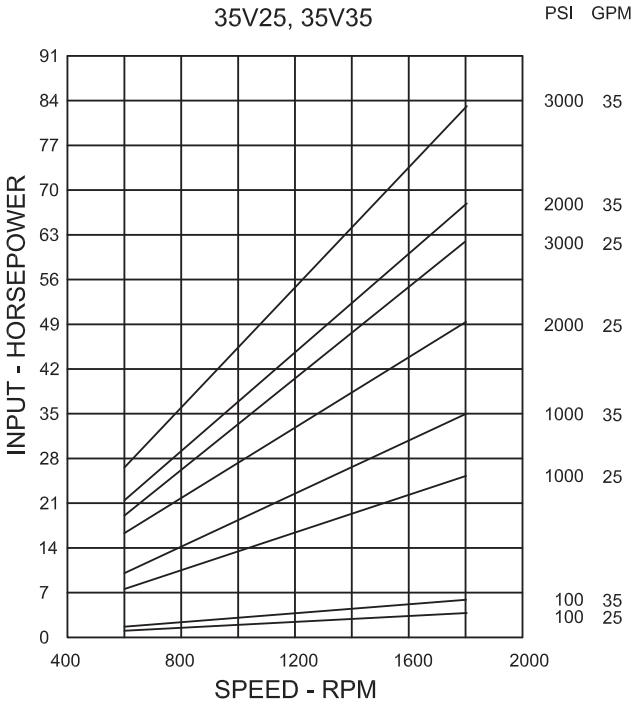


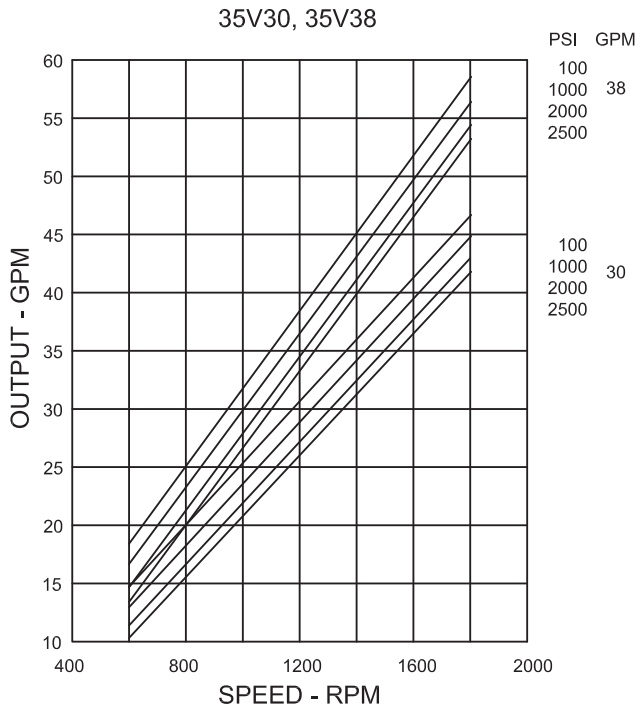
25V14, 25V21

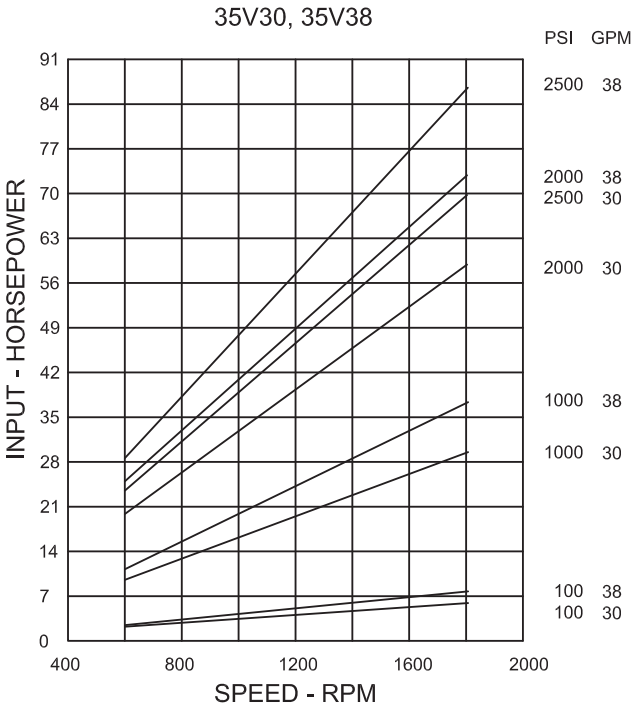


Data Based on SAE 10W Fluid @ 120°F and Pump Inlet @ 0 PSIG (14.7 PSIA)



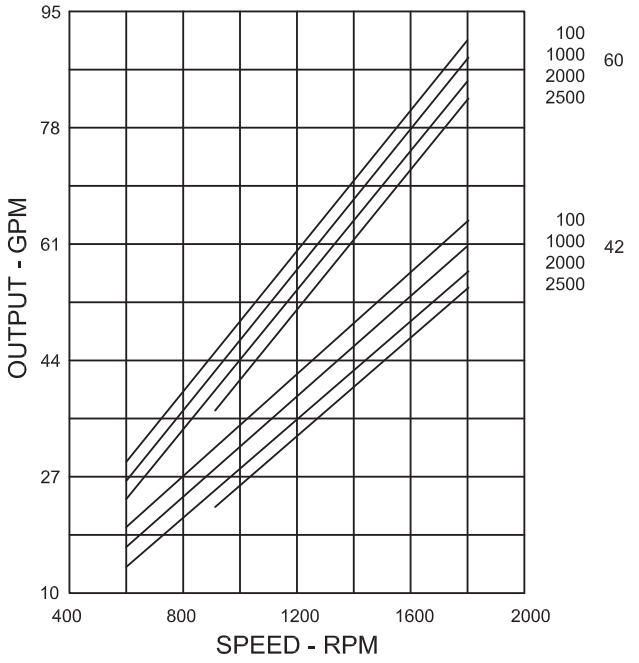




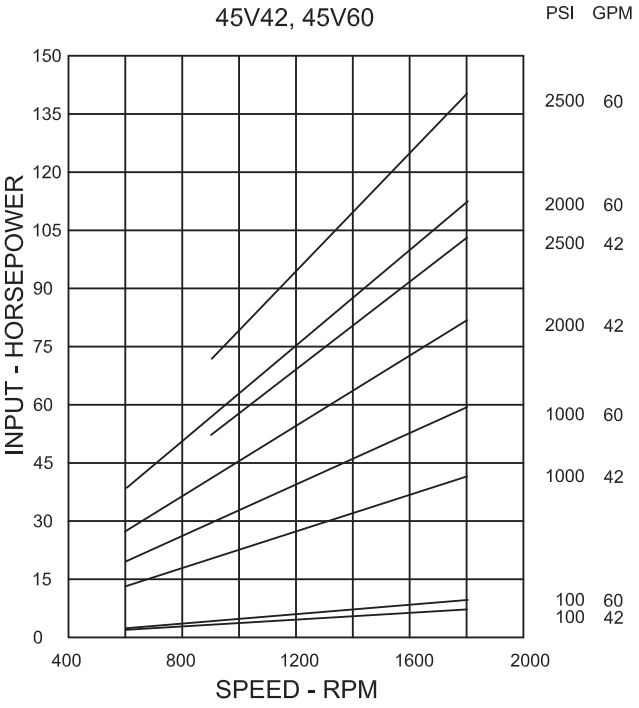


Data Based on SAE 10W Fluid @ 120°F and Pump Inlet @ 0 PSIG (14.7 PSIA)

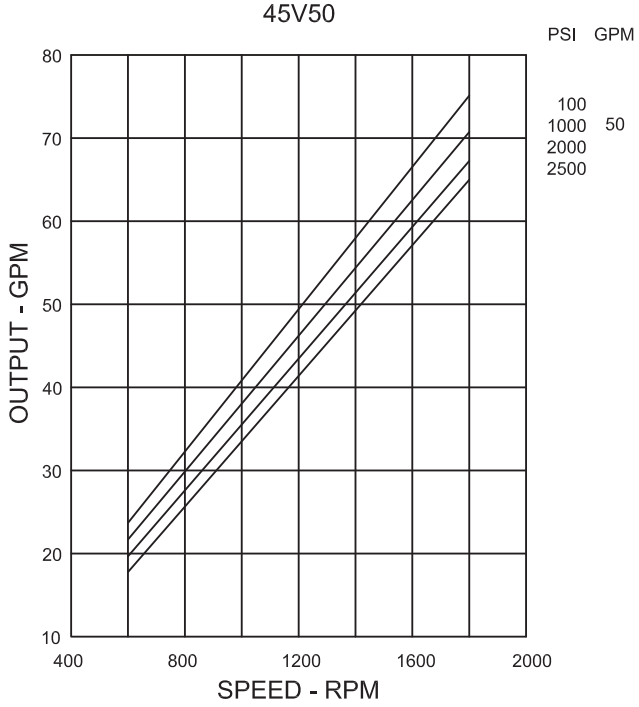
45V42, 45V60



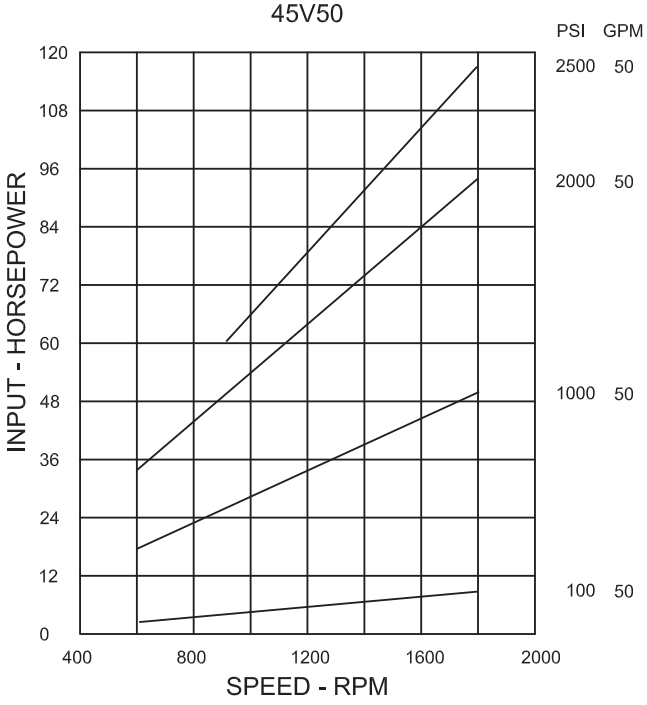
45V42, 45V60



45V50

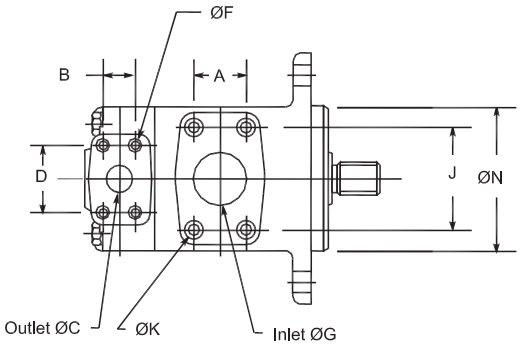


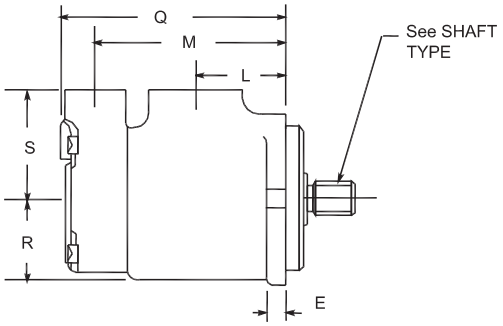
45V50

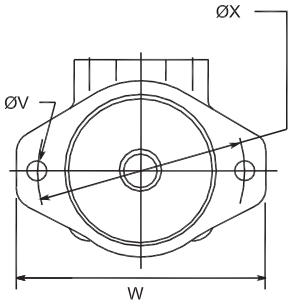


Data Based on SAE 10W Fluid @ 120°F and Pump Inlet @ 0 PSIG (14.7 PSIA)

20V INSTALLATION DIMENSION

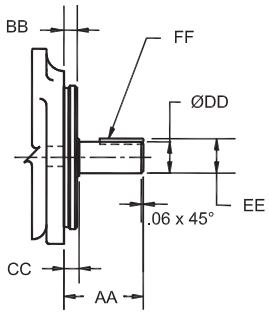




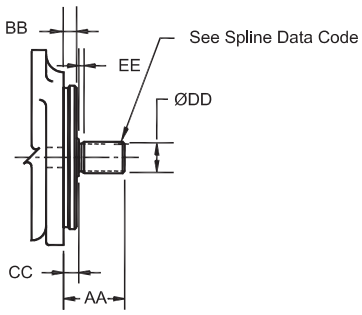


SHAFT TYPE

#1 Straight Shaft



#151 Splined Shaft



BODY

A	B	øC	D	E	øG	J	L	M	øN
1.41	0.875	0.75	1.87	0.50	1.50	2.75	2.5	5.22	4.000/3.998

Q	R	S	øV x 2	W	øX
6.12	2.2	3.00	0.56	6.875	5.75

PORT CONN.

ØF x 4 Holes	ØK x 4 Holes	Outlet Flange	Intlet Flange
3⁄8”-16UNC-2B x 0.75	1⁄2”-13UNC-2B x 0.83	F1-6-	F1-12-

SHAFT TYPE

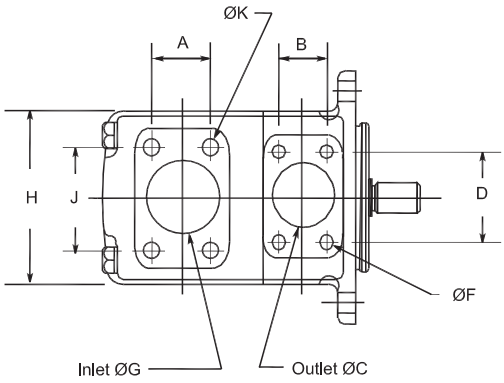
Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	2.32	.375	.476	.875/.874	.966/.961	.187x1.25

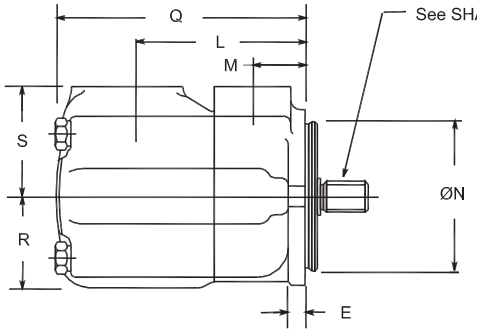
Shaft Type	AA	BB	CC	ØDD	EE	Spline Data Code
151	1.62	.375	.437	1.09	.156	A (See Below Chart)

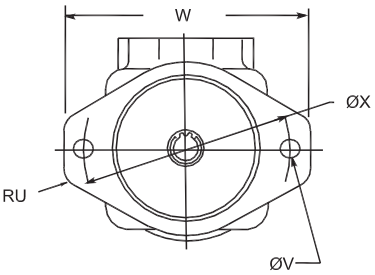
Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
A	13	16/32	.873/.872	.749	.734/.723	Major dia. fit

HYFORCE

25V INSTALLATION DIMENSION

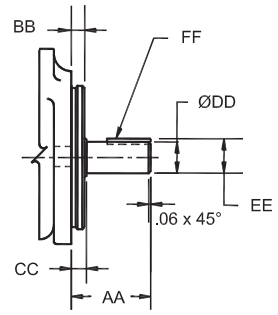




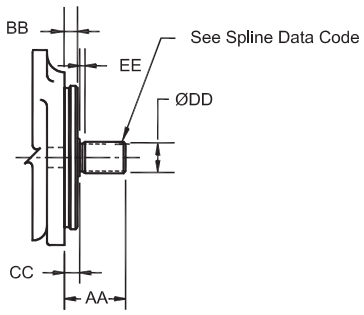


SHAFT TYPE

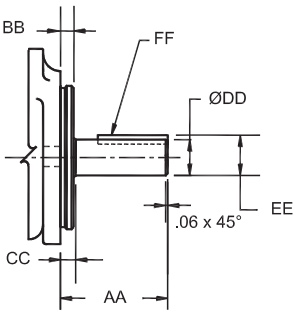
#1 Straight Shaft



#11 Splined Shaft



#86 Straight Shaft



BODY

A	B	øC	D	E	øG	H	J	L	M	øN
1.41	1.03	1.00	2.06	0.50	1.50	4.62	2.75	4.76	1.50	4.000/3.998

Q	R	S	RU	øV x 2	W	øX
6.38	2.50	3.00	0.55	0.56	6.88	5.75

PORT CONN.

ØF x 4 Holes	ØK x 4 Holes	Outlet Flange	Intlet Flange
3⁄8"-16UNC-2B x 0.75	1⁄2"-13UNC-2B x 0.94	F1-8-	F1-12-

SHAFT TYPE

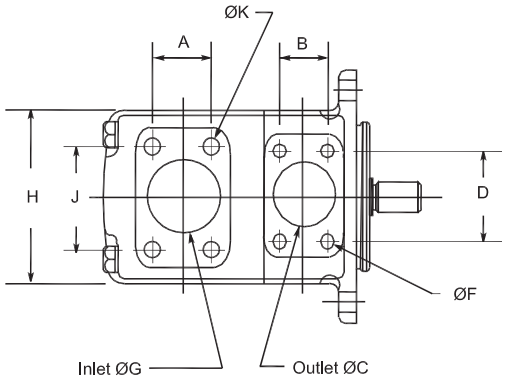
Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	2.32	.375	.437	.875/.874	.966/.961	.187x1.25
86	3.06	.375	.437	.999/.998	1.11/1.10	.250x2.00

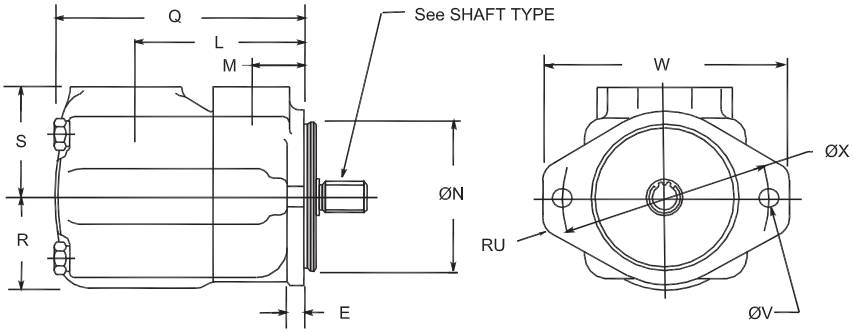
Shaft Type	AA	BB	CC	ØDD	EE	Spline Data Code
11	1.75	.375	.437	1.09	.156	A (See Below Chart)

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

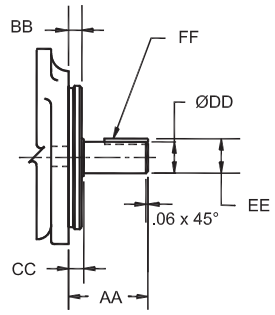
35V INSTALLATION DIMENSION



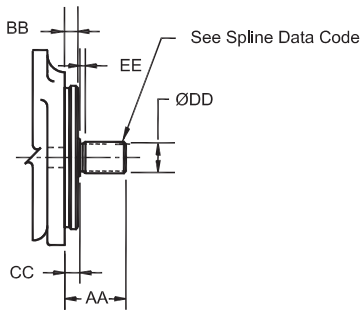


SHAFT TYPE

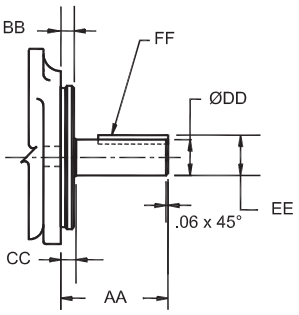
#1 Straight Shaft



#11 Splined Shaft



#86 Straight Shaft



BODY

A	B	øC	D	E	øG	H	J	L	M	øN
1.69	1.19	1.25	2.31	0.63	2.00	5.50	3.06	4.94	1.50	5.000/4.998

Q	R	S	RU	øV x 2	W	øX
7.28	2.75	3.25	0.63	0.69	8.38	7.13

PORT CONN.

ØF x 4 Holes	ØK x 4 Holes	Outlet Flange	Intlet Flange
7/16"-14UNC-2B x 0.88	1⁄2 "-13UNC-2B x 0.88	F1-10-	F1-16-

SHAFT TYPE

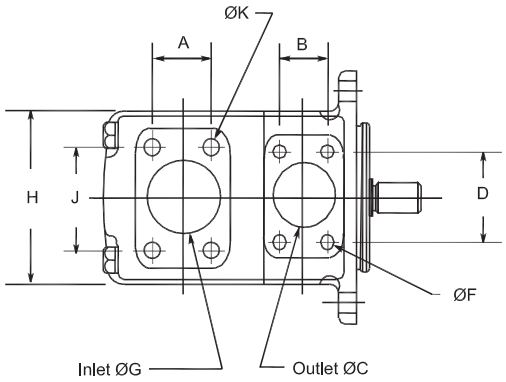
Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	2.88	.375	.437	1.250/1.248	1.392/1.382	.313x1.50
86	3.88	.375	.437	1.374/1.373	1.518/1.508	.312x2.13

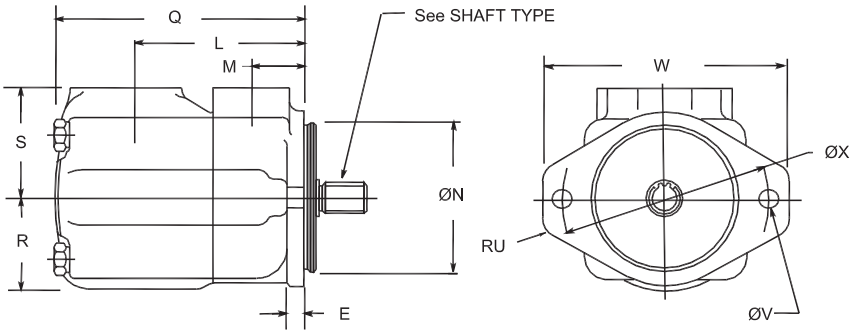
Shaft Type	AA	BB	CC	ØDD	EE	Spline Data Code
11	2.31	.375	.437	1.38	.25	D (See Below Chart)

Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
D	14	12/24	1.248/1.247	1.07	1.063/1.050	Major dia. fit

HYFORCE

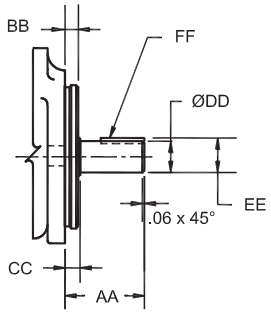
45V INSTALLATION DIMENSION



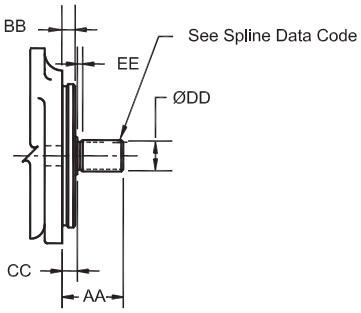


SHAFT TYPE

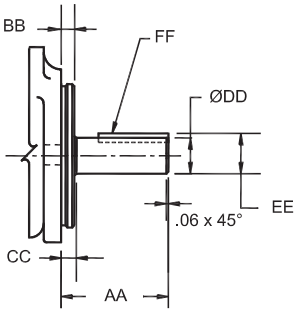
#1 Straight Shaft



#11 Splined Shaft



#86 Straight Shaft



BODY

A	B	øC	D	E	øG	H	J	L	M	øN
2.43	1.41	1.50	2.75	0.63	3.00	6.25	4.19	6.03	1.69	5.000/4.998

Q	R	S	RU	øV x 2	W	øX
8.50	3.25	3.69	0.63	0.69	8.38	7.13

PORT CONN.

ØF x 4 Holes	ØK x 4 Holes	Outlet Flange	Intlet Flange
1/2"-13UNC-2B x 0.94	5/8 "-11UNC-2B x 1.18	F1-12-	F1-24-

SHAFT TYPE

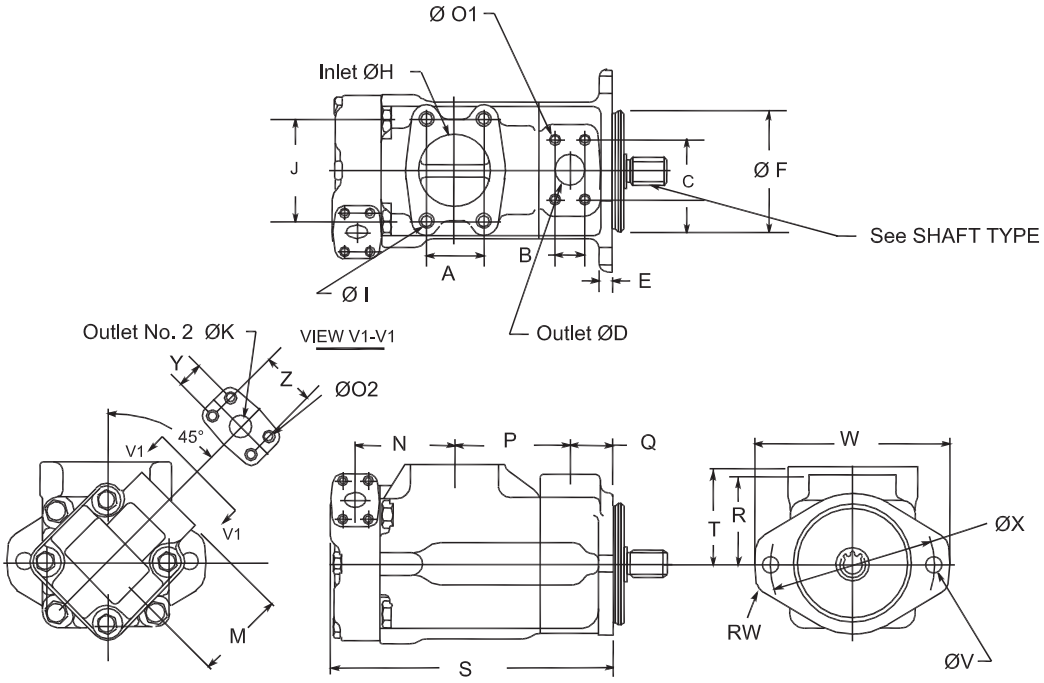
Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	2.44	.500	.560	1.250/1.248	1.390/1.380	.312x1.12
86	3.44	.500	.560	1.499/1.498	1.669/1.659	.375x2.00

Shaft Type	AA	BB	CC	ØDD	EE	Spline Data Code
11	2.44	.500	.565	1.56	.38	D (See Below Chart)

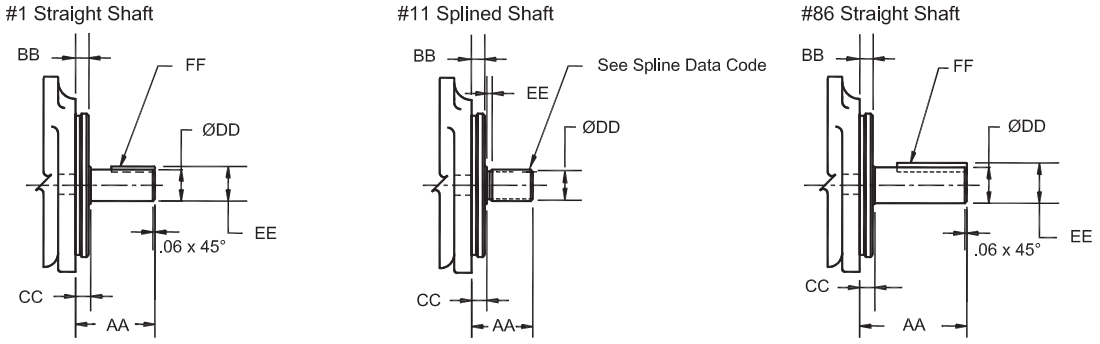
Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
D	14	12/24	1.248/1.247	1.07	1.063/1.050	Major dia. fit

HYFORCE

2520V INSTALLATION DIMENSION



SHAFT TYPE



BODY

A	B	C	øD	E	øF	øH	J	øK	M	N	P	Q	R
2.00	1.03	2.06	1.00	0.50	4.000/3.998	2.50	3.50	0.75	3.00	3.47	4.00	1.50	3.00

S	T	øV x 2	RW	W	øX	Y	Z
9.94	3.31	0.56	0.55	6.88	5.75	0.88	1.88

PORT CONN.

ØO1 x 4 Holes	ØO2 x 4 Holes	Ø I x 4 Holes	Outlet No 1 Flange	Outlet No 2 Flange	Intlet Flange
3⁄8”-16UNC-2B x 0.75	3⁄8”-16UNC-2B x 0.75	1⁄2”-13UNC-2B x 0.94	F1-8-	F1-6-	F1-20-

SHAFT TYPE

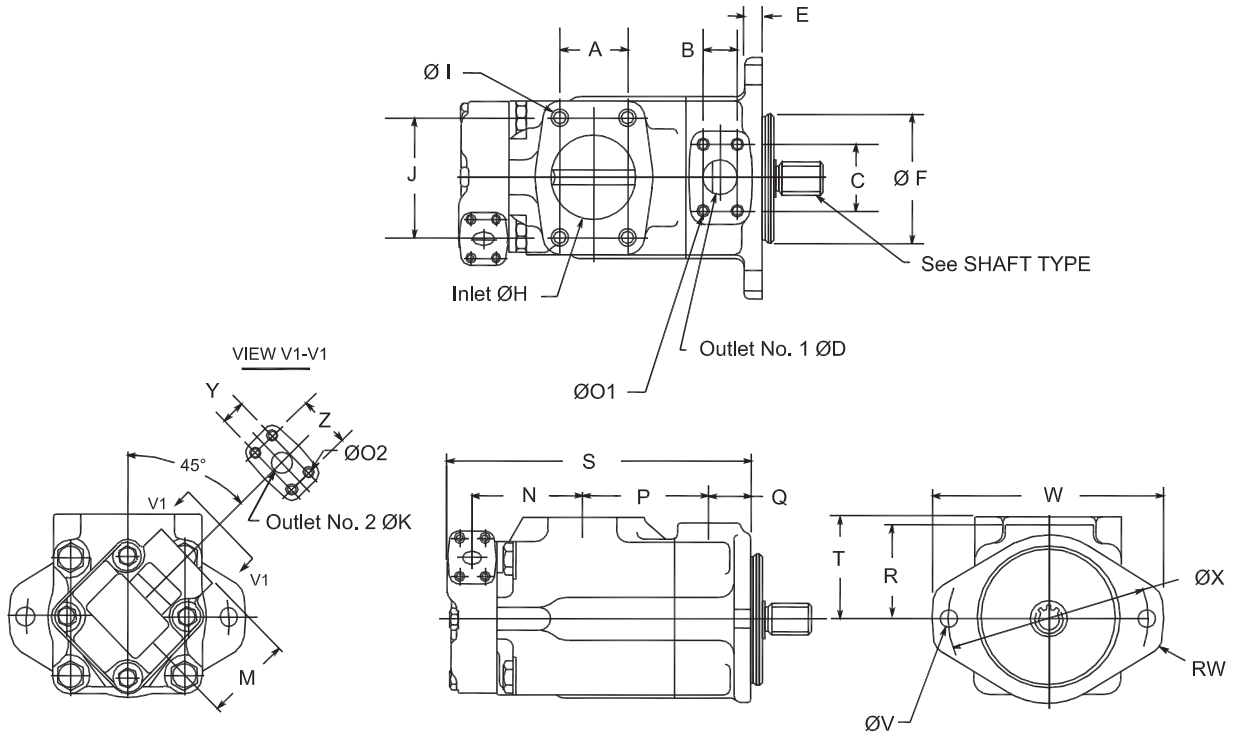
Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	2.32	.375	.437	.875/.874	.966/.961	.187x1.25
86	3.06	.375	.437	.999/.998	1.11/1.10	.250x2.00

Shaft Type	AA	BB	CC	ØDD	EE	Spline Data Code
11	1.75	.375	.437	1.09	.156	A (See Below Chart)

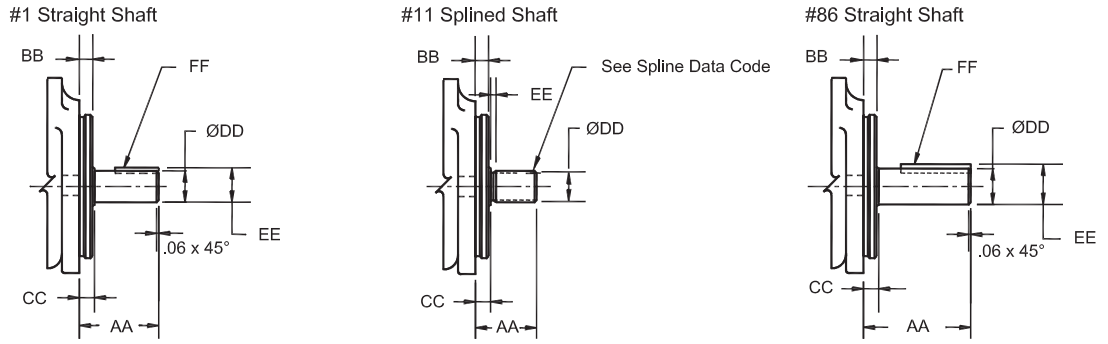
Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
A	13	16/32	.873/.872	.749	.734/.723	Major dia. fit

HYFORCE

3520V INSTALLATION DIMENSION



SHAFT TYPE



BODY

A	B	C	øD	E	øF	øH	J	øK	M	N	P	Q	R
2.44	1.19	2.31	1.25	0.62	5.000/4.998	3.00	4.19	0.75	3.00	3.92	4.50	1.50	3.25

S	T	øV x 2	RW	W	øX	Y	Z
10.9	3.50	0.69	0.63	8.38	7.13	0.88	1.88

PORT CONN.

ØO1 x 4 Holes	ØO2 x 4 Holes	Ø I x 4 Holes	Outlet No 1 Flange	Outlet No 2 Flange	Intlet Flange
7⁄16”-14UNC-2B x 0.88	3⁄8”-16UNC-2B x 0.75	5⁄8”-11UNC-2B x 1.125	F1-10-	F1-6-	F1-24-

SHAFT TYPE

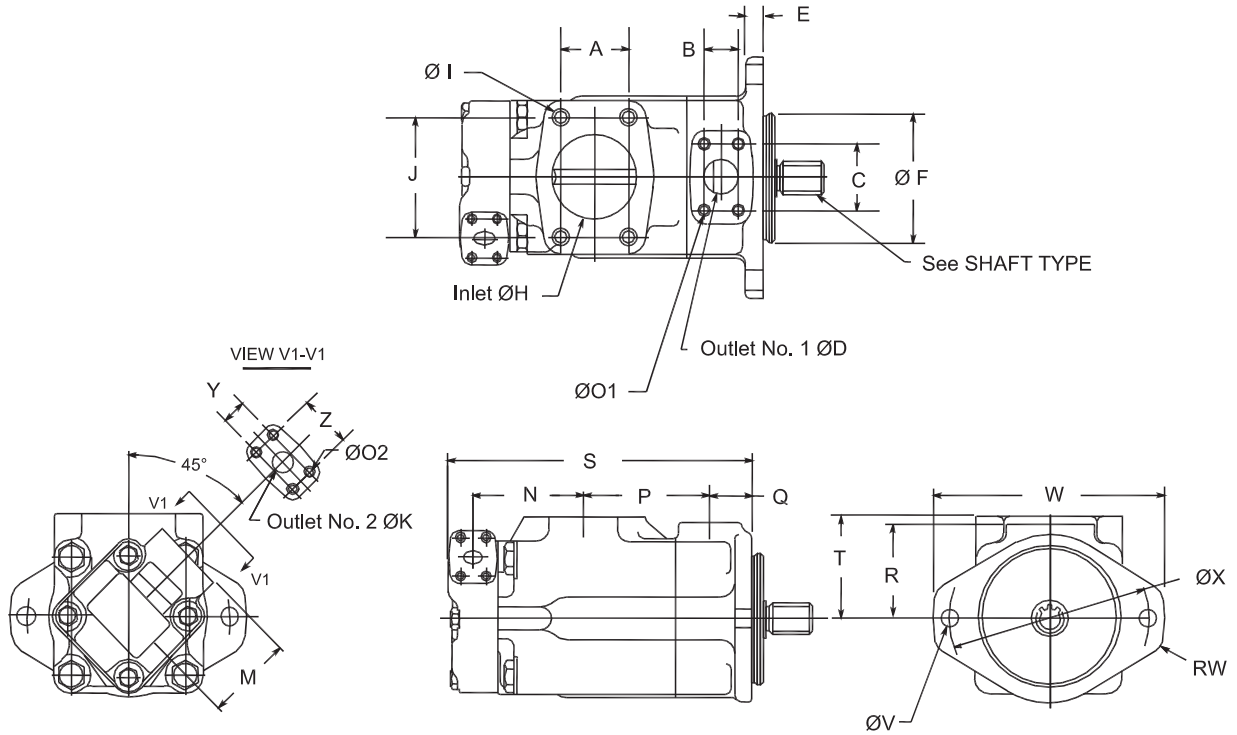
Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	2.88	.375	.437	1.250/1.248	1.392/1.382	.313x1.50
86	3.88	.375	.437	1.374/1.373	1.518/1.508	.312x2.13

Shaft Type	AA	BB	CC	ØDD	EE	Spline Data Code
11	2.31	.375	.437	1.38	.25	D (See Below Chart)

Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
D	14	12/24	1.248/1.247	1.07	1.063/1.050	Major dia. fit

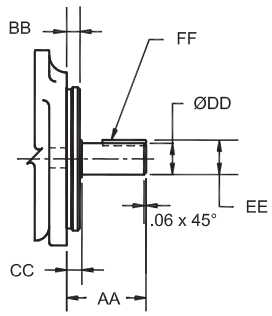
HYFORCE

3525V INSTALLATION DIMENSION

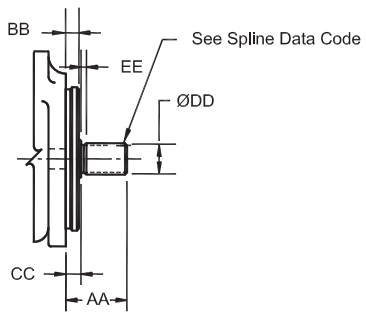


SHAFT TYPE

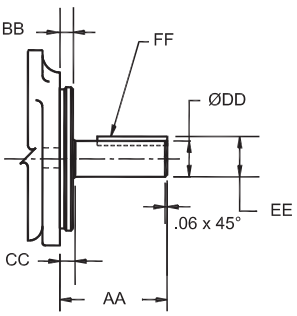
#1 Straight Shaft



#11 Splined Shaft



#86 Straight Shaft



BODY

A	B	C	øD	E	øF	øH	J	øK	M	N	P	Q	R
2.44	1.19	2.31	1.25	0.62	5.000/4.998	3.00	4.19	1.00	2.94	4.31	4.50	1.50	3.25

S	T	øV x 2	RW	W	øX	Y	Z
11.57	3.50	0.69	0.63	8.38	7.13	1.03	2.06

PORT CONN.

ØO1 x 4 Holes	ØO2 x 4 Holes	Ø I x 4 Holes	Outlet No 1 Flange	Outlet No 2 Flange	Intlet Flange
7⁄16”-14UNC-2B x 0.88	3⁄8”-16UNC-2B x 0.66	5⁄8”-11UNC-2B x 1.125	F1-10-	F1-8-	F1-24-

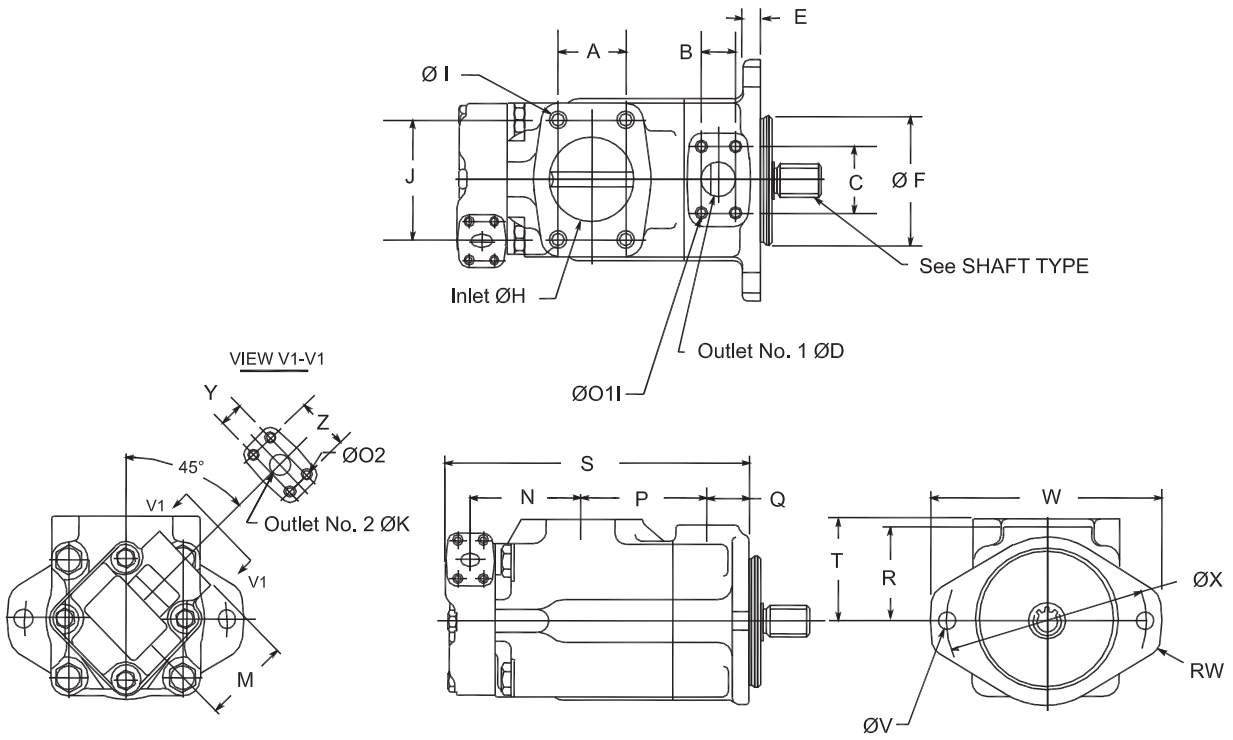
SHAFT TYPE

Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	2.88	.375	.437	1.250/1.248	1.392/1.382	.313x1.50
86	3.88	.375	.437	1.374/1.373	1.518/1.508	.312x2.13

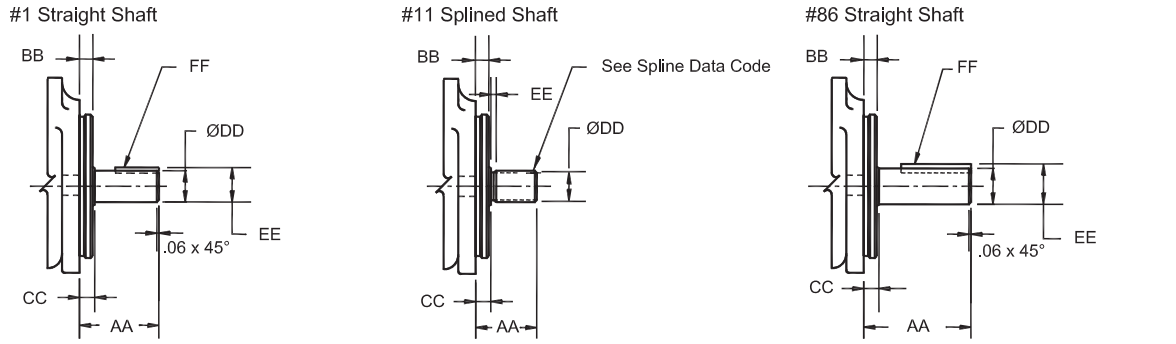
Shaft Type	AA	BB	CC	ØDD	EE	Spline Data Code
11	2.31	.375	.437	1.38	.25	D (See Below Chart)

Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
D	14	12/24	1.248/1.247	1.07	1.063/1.050	Major dia. fit

4520V INSTALLATION DIMENSION



SHAFT TYPE



BODY

A	B	C	øD	E	øF	øH	J	øK	M	N	P	Q	R
2.75	1.41	2.75	1.50	0.62	5.000/4.998	3.50	4.75	0.75	3.00	4.72	4.70	1.69	3.69

S	T	øV x 2	RW	W	øX	Y	Z
12.08	4.03	0.69	0.63	8.38	7.13	0.88	1.88

PORT CONN.

ØO1 x 4 Holes	ØO2 x 4 Holes	Ø I x 4 Holes	Outlet No 1 Flange	Outlet No 2 Flange	Intlet Flange
1⁄2”-13UNC-2B x 0.94	3⁄8”-16UNC-2B x 0.75	5⁄8”-11UNC-2B x 1.25	F1-12-	F1-6-	F1-28-

SHAFT TYPE

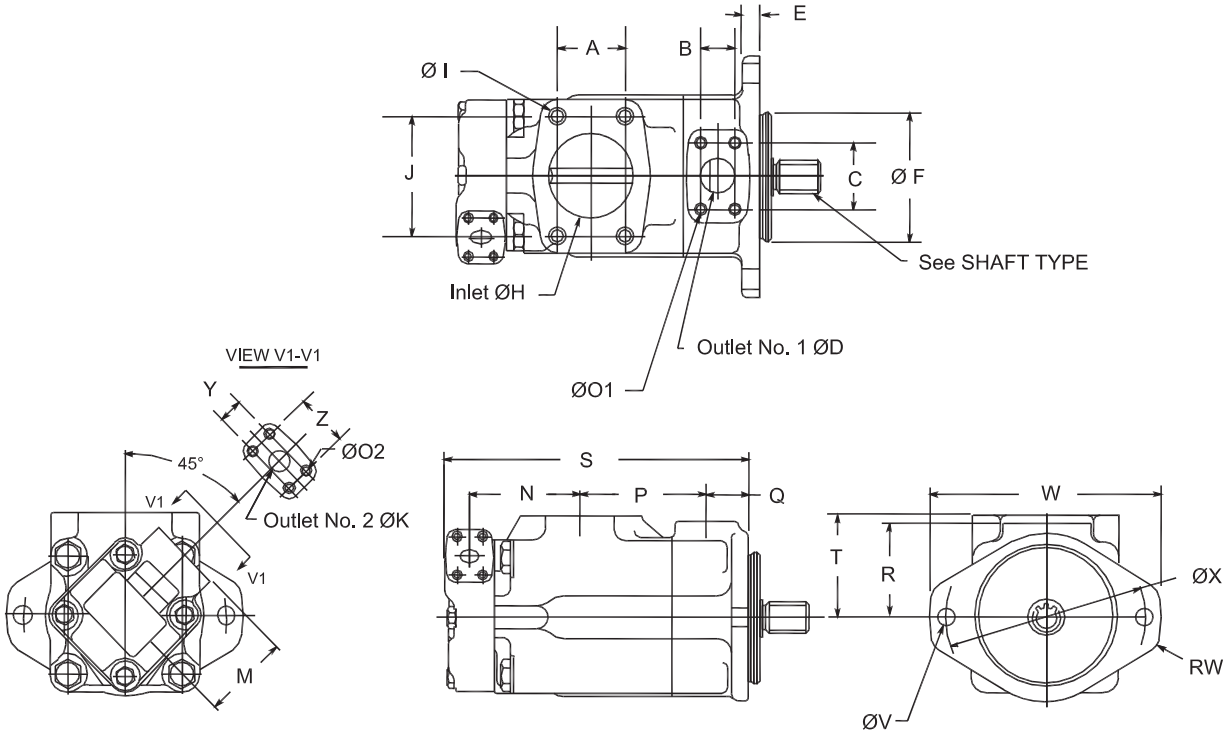
Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	2.44	.500	.560	1.250/1.248	1.390/1.380	.312x1.12
86	3.44	.500	.560	1.499/1.498	1.669/1.659	.375x2.00

Shaft Type	AA	BB	CC	ØDD	EE	Spline Data Code
11	2.44	.500	.565	1.56	.38	D (See Below Chart)

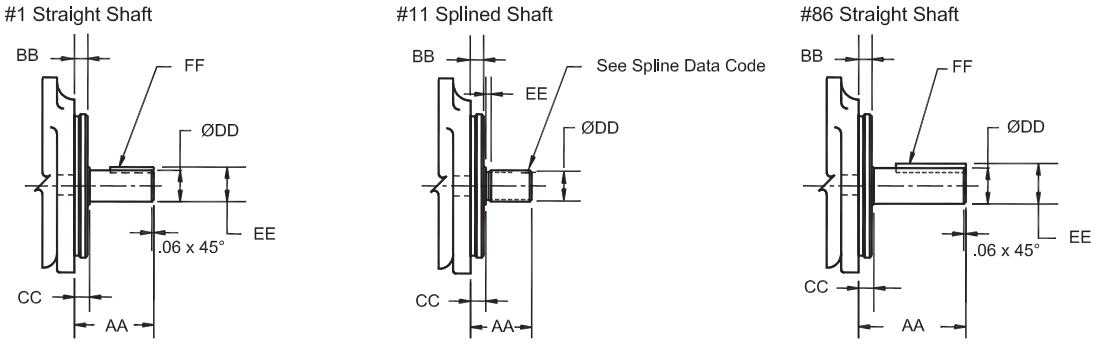
Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
D	14	12/24	1.248/1.247	1.07	1.063/1.050	Major dia. fit

HYFORCE

4525V INSTALLATION DIMENSION



SHAFT TYPE



BODY

A	B	C	øD	E	øF	øH	J	øK	M	N	P	Q	R
2.75	1.41	2.75	1.50	0.62	5.000/4.998	3.50	4.75	1.00	2.94	5.35	4.70	1.69	3.69

S	T	øV x 2	RW	W	øX	Y	Z
13.0	4.03	0.69	0.63	8.38	7.13	1.03	2.06

PORT CONN.

ØO1 x 4 Holes	ØO2 x 4 Holes	Ø I x 4 Holes	Outlet No 1 Flange	Outlet No 2 Flange	Intlet Flange
1⁄2”-13UNC-2B x 0.94	3⁄8”-16UNC-2B x 0.66	5⁄8”-11UNC-2B x 1.25	F1-12-	F1-8-	F1-28-

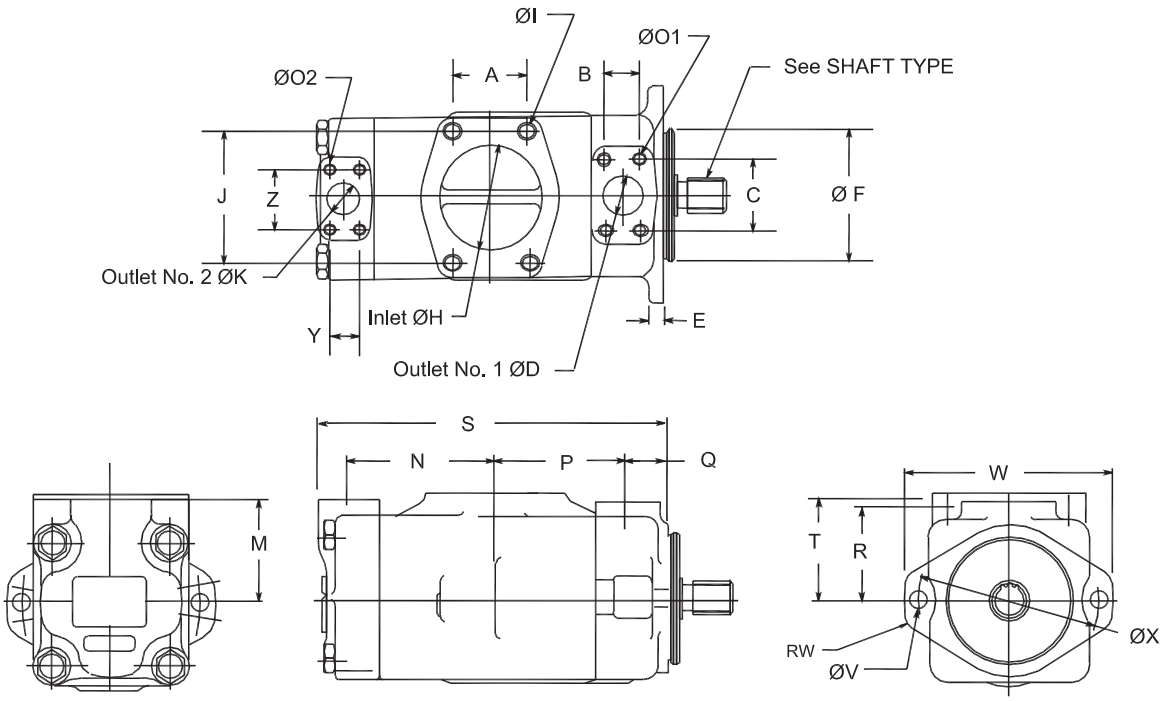
SHAFT TYPE

Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	2.44	.500	.560	1.250/1.248	1.390/1.380	.312x1.12
86	3.44	.500	.560	1.499/1.498	1.669/1.659	.375x2.00

Shaft Type	AA	BB	CC	ØDD	EE	Spline Data Code
11	2.44	.500	.565	1.56	.38	D (See Below Chart)

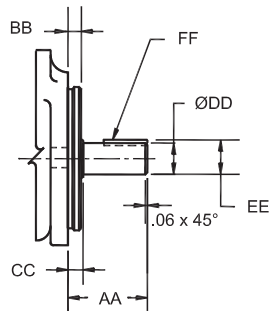
Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
D	14	12/24	1.248/1.247	1.07	1.063/1.050	Major dia. fit

4535V INSTALLATION DIMENSION

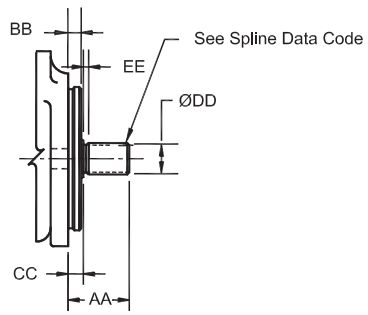


SHAFT TYPE

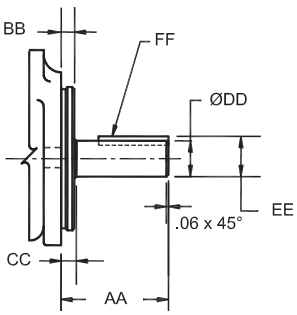
#1 Straight Shaft



#11 Splined Shaft



#86 Straight Shaft



BODY

A	B	C	øD	E	øF	øH	J	øK	M	N	P	Q	R
3.06	1.41	2.75	1.50	0.62	5.000/4.998	4.00	5.13	1.25	4.00	5.84	5.25	1.69	3.69

S	T	øV x 2	RW	W	øX	Y	Z
13.9	4.03	0.69	0.63	8.38	7.13	1.19	2.31

PORT CONN.

ØO1 x 4 Holes	ØO2 x 4 Holes	Ø I x 4 Holes	Outlet No 1 Flange	Outlet No 2 Flange	Intlet Flange
1⁄2”-13UNC-2B x 0.94	7⁄16”-14UNC-2B x 0.88	5⁄8”-11UNC-2B x 1.25	F1-12-	F1-10-	F1-32-

SHAFT TYPE

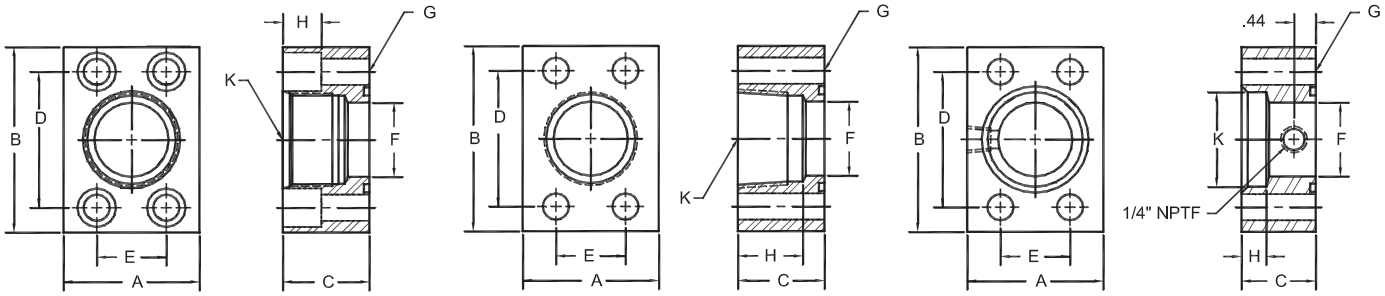
Shaft Type	AA	BB	CC	øDD	EE	FF Key Width x Length
1	2.44	.500	.560	1.250/1.248	1.390/1.380	.312x1.12
86	3.44	.500	.560	1.499/1.498	1.669/1.659	.375x2.00

Shaft Type	AA	BB	CC	ØDD	EE	Spline Data Code
11	2.44	.500	.565	1.56	.38	D (See Below Chart)

Spline Data Code	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
D	14	12/24	1.248/1.247	1.07	1.063/1.050	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