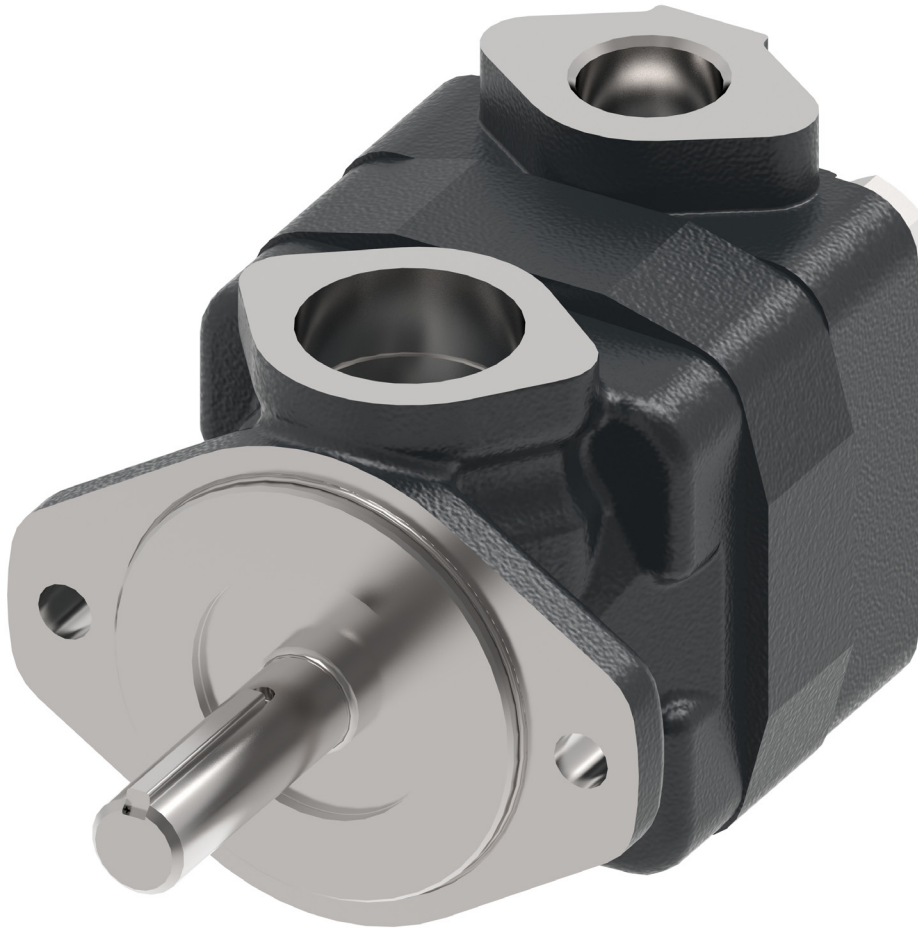


Service Guide

Vickers by Danfoss

V20H Square Vane Pump

Series - 31



Contents

1. V20HS- Standard Cover 3

2. V20HF- Flow Control Cover with RV 4

3. V20HN- Flow control with internal drain cover with RV 6

4. V20HP - Priortiy Valve Cover with RV 7

5. V20HR- Pressure relief cover 9

6. V20HD- Directional control valve manifold 10

 6.1. V20HD-139 10

 6.2. V20HD-MISC 11

7. Body Side 12

8. Model Code 14

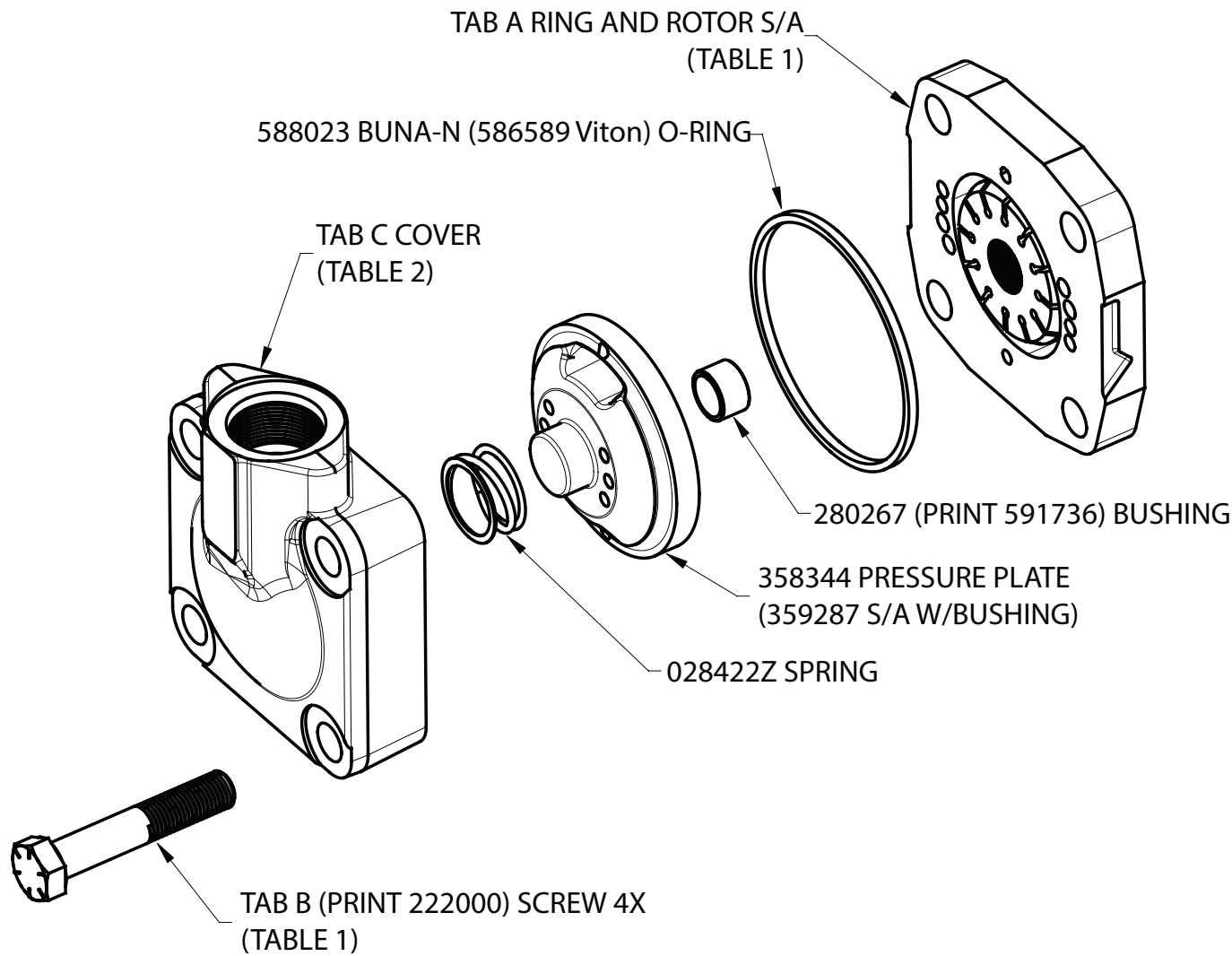
1. V20HS- Standard Cover

Table 1

V20HS Displacement Components		
GPM	Tab A	Tab B
5	02-151848	295378
6	02-151840	
7	02-151841	
8	02-151842	001318Z
9	02-151843	
10	02-151844	
11	02-151845	
12	02-151846	001319Z
13	02-151847	

Table 2

V20HS Cover Types		
Cover Type	Description	Tab C
B	G0.750 BSPF THD	703873
P	0.750 NPT THD	313657
S	SAE #12	293373
Y	SAE #10	291045
R	SAE #14	281145
F	0.687 DIA. 2-BOLT FLANGE	280690
M	M16 X 2.0 METRIC O-RING	934306
K	SAE #16	375468
H	M27 X 2.0 METRIC O-RING	934306
W	0.5 DIA. 4-BOLT FLANGE	6051116-001



2. V20HF- Flow Control Cover with RV

Table 3

V20HF Displacement Components		
GPM	Tab A	Tab B
5	02-151848	011165Z
6	02-151840	
7	02-151841	009431Z
8	02-151842	
9	02-151843	
10	02-151844	009603Z
11	02-151845	
12	02-151846	
13	02-151847	

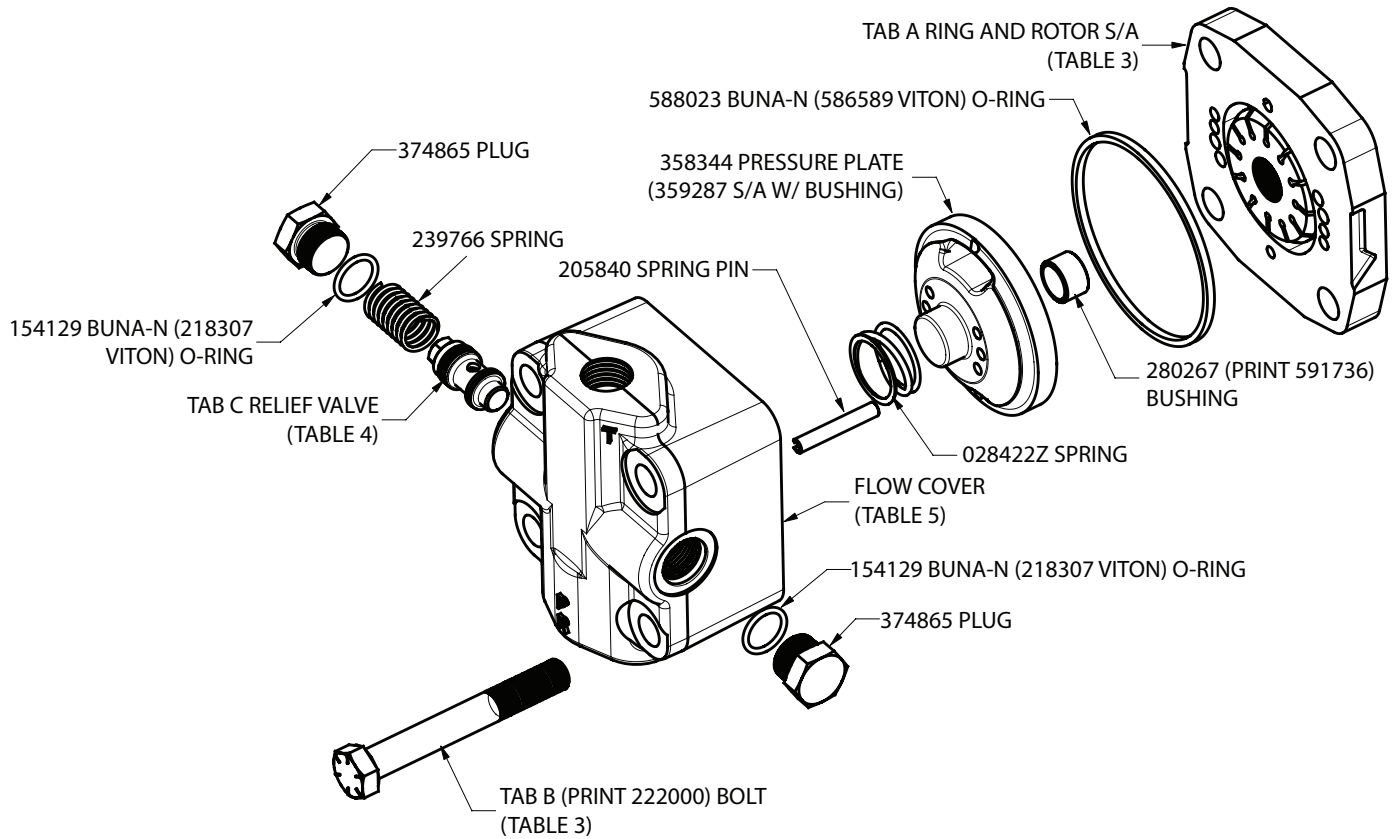
Table 4

V20HF Relief Valves		
Relief Pressure Setting	Tab C	
A	250 PSI	229613
B	500 PSI	233018
C	750 PSI	232794
D	1000 PSI	232795
E	1250 PSI	232796
F	1500 PSI	232797
G	1750 PSI	232798
H	2000 PSI	232799
M	2150 PSI	02-343027
J	2250 PSI	233019
R	2300 PSI	02-173761
P	2400 PSI	233020
K	2500 PSI	233020
L	2750 PSI	266200
N	3000 PSI	266054

Table 5

V20HF COVERS		Control Flow Rate													
OUTLET PORT THREADS		Basic	2 GPM	3 GPM	4 GPM	4.5 GPM	5 GPM	6 GPM	6.5 GPM	7 GPM	8 GPM	9 GPM	10 GPM	11 GPM	12 GPM
P	PR: 0.750-16 SAE ST THD	860417	860418	860420	860422	*	860424	860426	*	860428	860430	860432	860434	860436	860438
	TANK: 0.500 NPT														
S	PR: 0.750-16 SAE ST THD	860440	860441	860443	860445	*	860447	860449	*	860451	860453	860455	860457	860459	860461
	TANK: 1.062-12 SAE ST THD														
T	PR: 0.750-16 SAE ST THD	860463	860464	*	860466	*	860468	860470	*	860472	860474	*	860476	*	*
	TANK: 0.750-16 SAE ST THD														
M	PR: M18 X 1.5 THD	*	*	*	*	6038464-001	*	*	6038363-001	*	*	*	*	*	*
	TANK: M18 X 1.5 THD														
B	PR: G0.750 BSP ST THD	*	*	*	*	6039708-001	*	*	6039710-001	*	*	*	*	*	*
	TANK: G0.750 BSP ST THD														
N	PR: 0.750-16 SAE ST THD REAR FACING	11423002	*	*	*	*	*	*	*	*	11423322	11422958	*	*	*
	TANK: 0.750-16 SAE ST THD REAR FACING														

*Contact your Danfoss Service Rep. for development of these options



3. V20HN- Flow control with internal drain cover with RV

Table 6

V20HN Displacement Components		
GPM	Tab A	Tab B
5	503167	011165Z
6	452235	
7	452261	009431Z
8	574954	
9	452264	
10	452267	009603Z
11	574945	
12	452270	
13	452245	

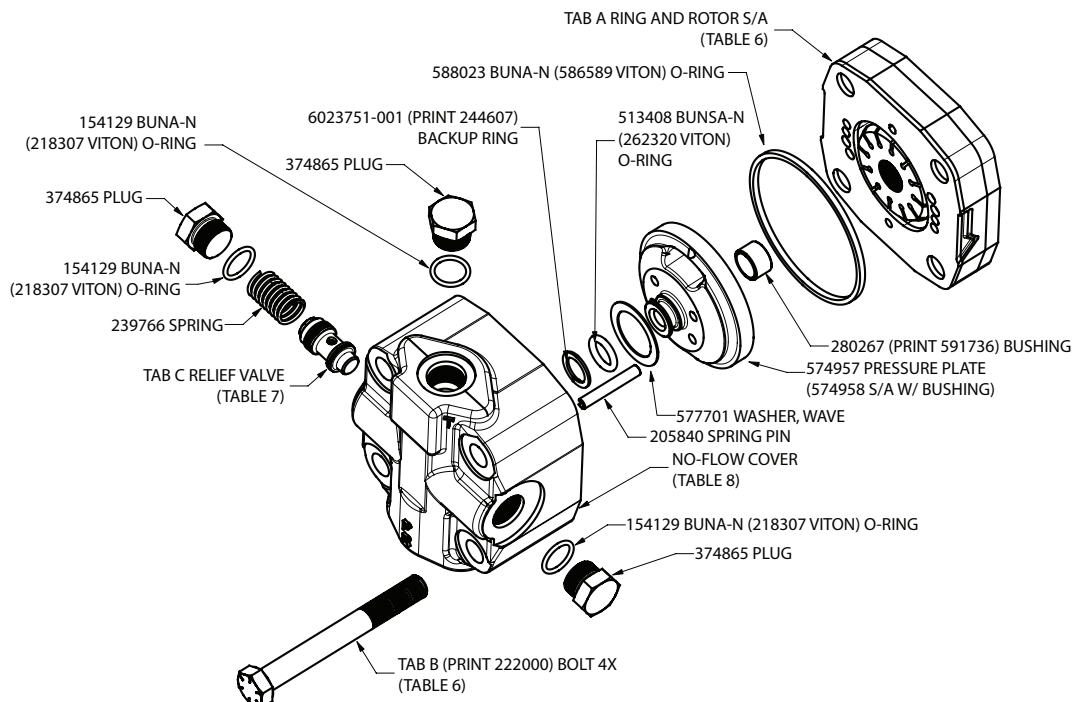
Table 7

V20HN Relief Valves		
Relief Pressure Setting		Tab C
A	250 PSI	229613
B	500 PSI	233018
C	750 PSI	232794
D	1000 PSI	232795
E	1250 PSI	232796
F	1500 PSI	232797
G	1750 PSI	232798
H	2000 PSI	232799
M	2150 PSI	02-343027
J	2250 PSI	233019
R	2300 PSI	02-173761
P	2400 PSI	233020
K	2500 PSI	233020
L	2750 PSI	266200
N	3000 PSI	266054

Table 8

V20HN COVERS		Control Flow Rate											
OUTLET PORT THREADS		Basic	2 GPM	3 GPM	4 GPM	5 GPM	6 GPM	7 GPM	8 GPM	9 GPM	10 GPM	11 GPM	12 GPM
T	0.750-16 SAE ST THD	574950	452272	452240	452242	452069	452244	574959	452071	478133	452274	*	*
Y*	0.875-14 SAE ST THD	11425649	*	*	*	*	*	11425682	11426467	*	*	*	*
S	1.0625-12 SAE ST THD	11425763	*	*	*	*	*	*	11425776	*	*	*	*

*Contact your Danfoss Service Rep. for development of these options



4. V20HP - Priority Valve Cover with RV

Table 9

V20HP Displacement Components		
GPM	Tab A	Tab B
5	02-151848	011165Z
6	02-151840	
7	02-151841	009431Z
8	02-151842	
9	02-151843	
10	02-151844	096168Z
11	02-151845	
12	02-151846	
13	02-151847	

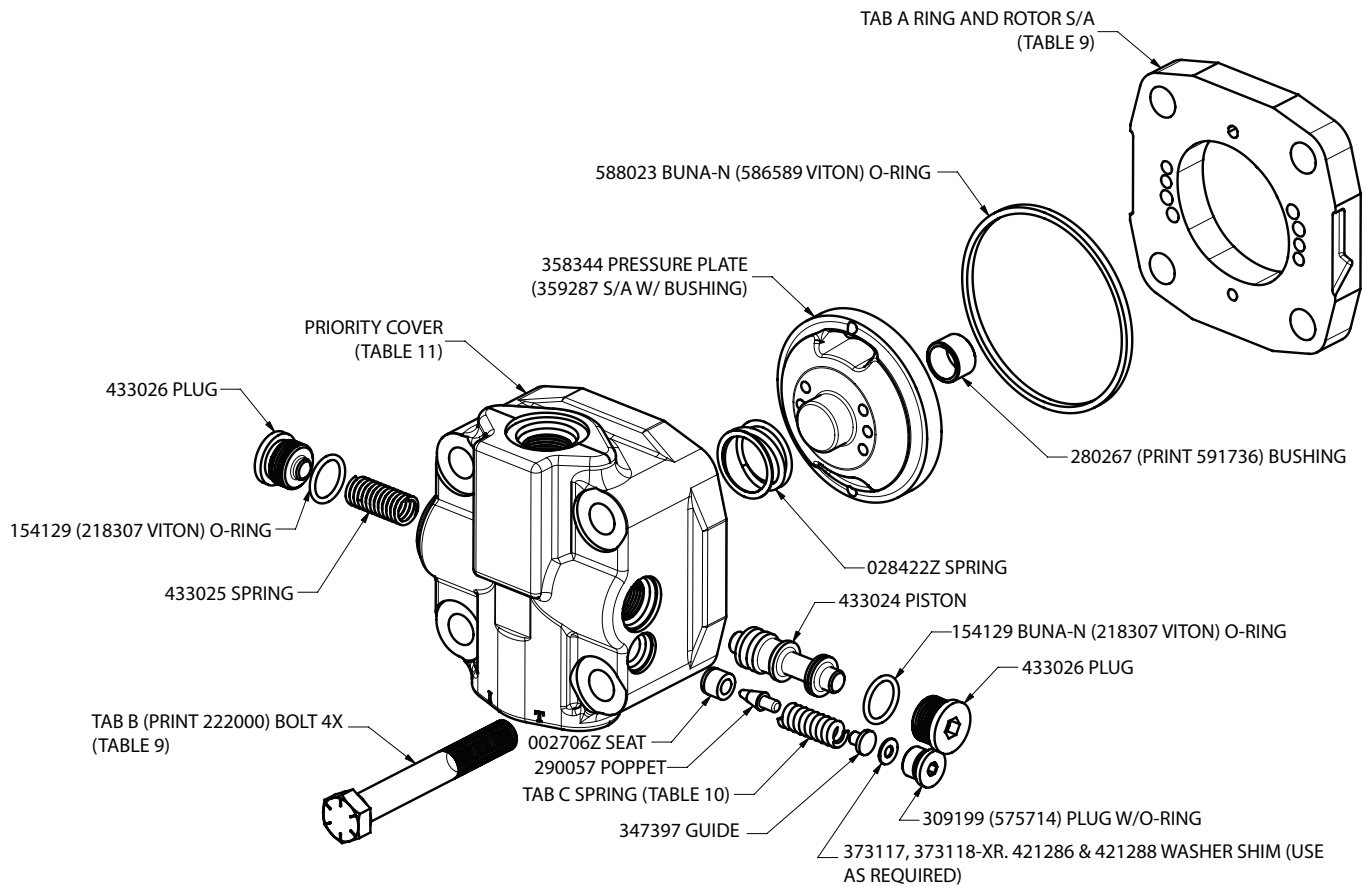
Table 11

V20HP Covers	Outlet Port Threads	T		
		PR: 0.750-16 SAE ST THD	S: 0.875-14 SAE ST THD	TANK: 0.750-16 SAE ST THD
Control Flow Rate	Basic	433028		
	2 GPM	433030		
	2.5 GPM	433031		
	3 GPM	433032		
	4 GPM	433033		
	5 GPM	433034		
	6 GPM	433035		
	7 GPM	433799		
	8 GPM	433036		
	9 GPM	*		
	10 GPM	5992486-001		
	11 GPM	*		
	12 GPM	*		

*Contact your Danfoss Service Rep. for development of these options

Table 10

V20HP Relief Springs		
Relief Pressure Setting		Tab C
A	250 PSI	252886
B	500 PSI	002280Z
C	750 PSI	
D	1000 PSI	435626
E	1250 PSI	
F	1500 PSI	002281Z
G	1750 PSI	
H	2000 PSI	
I	2150 PSI	
J	2250 PSI	
K	2500 PSI	
L	2750 PSI	



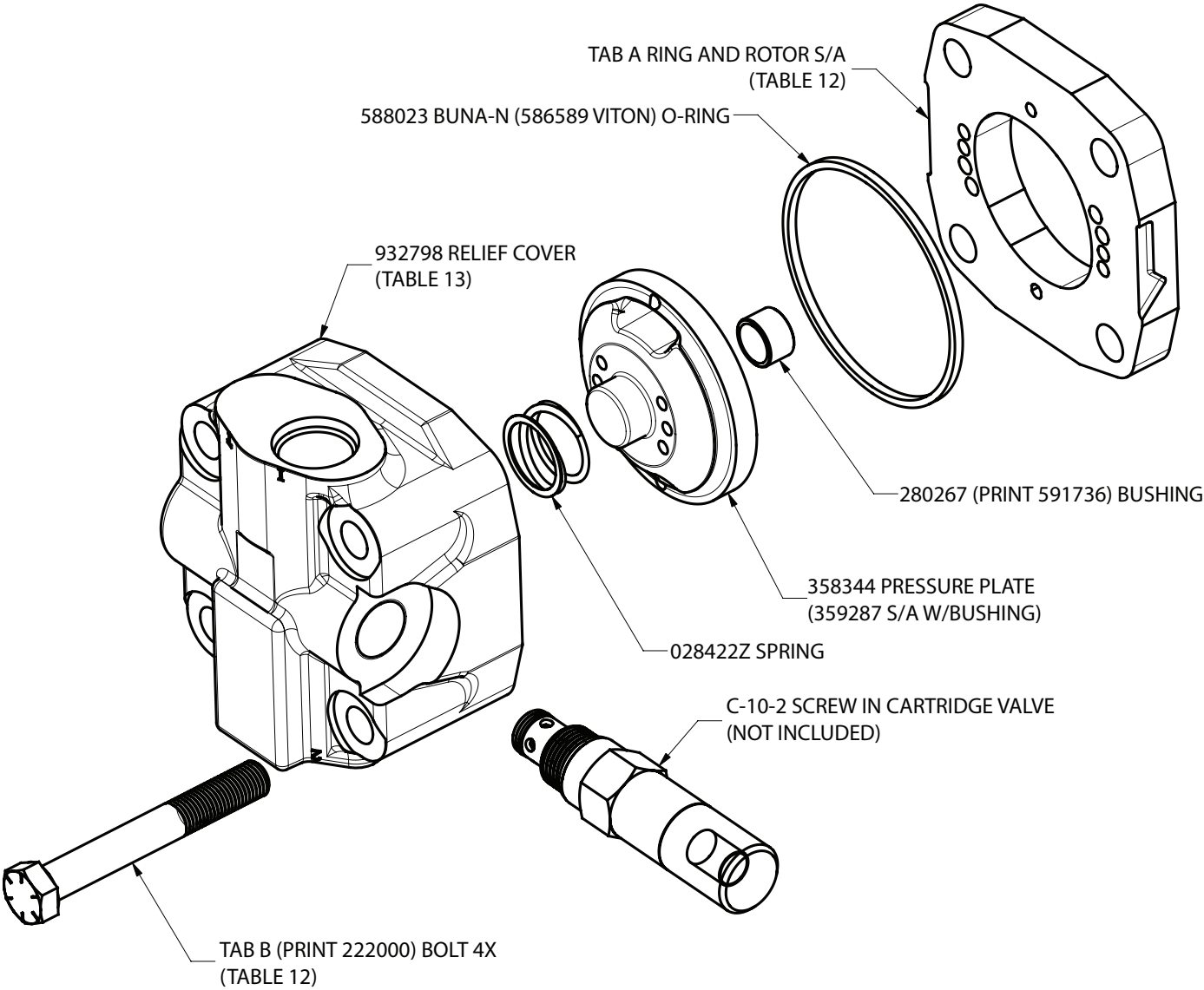
5. V20HR- Pressure relief cover

Table 12

V20HR Displacement Components		
GPM	Tab A	Tab B
5	02-151848	011165Z
6	02-151840	
7	02-151841	
8	02-151842	009431Z
9	02-151843	
10	02-151844	
11	02-151845	096168Z
12	02-151846	
13	02-151847	

Table 13

V20HR COVERS		Control Flow Rate
OUTLET PORT THREADS		0 GPM
S	PR: 0.750-16 SAE ST THD	932796
	TANK: 1.062-12 SAE ST THD	

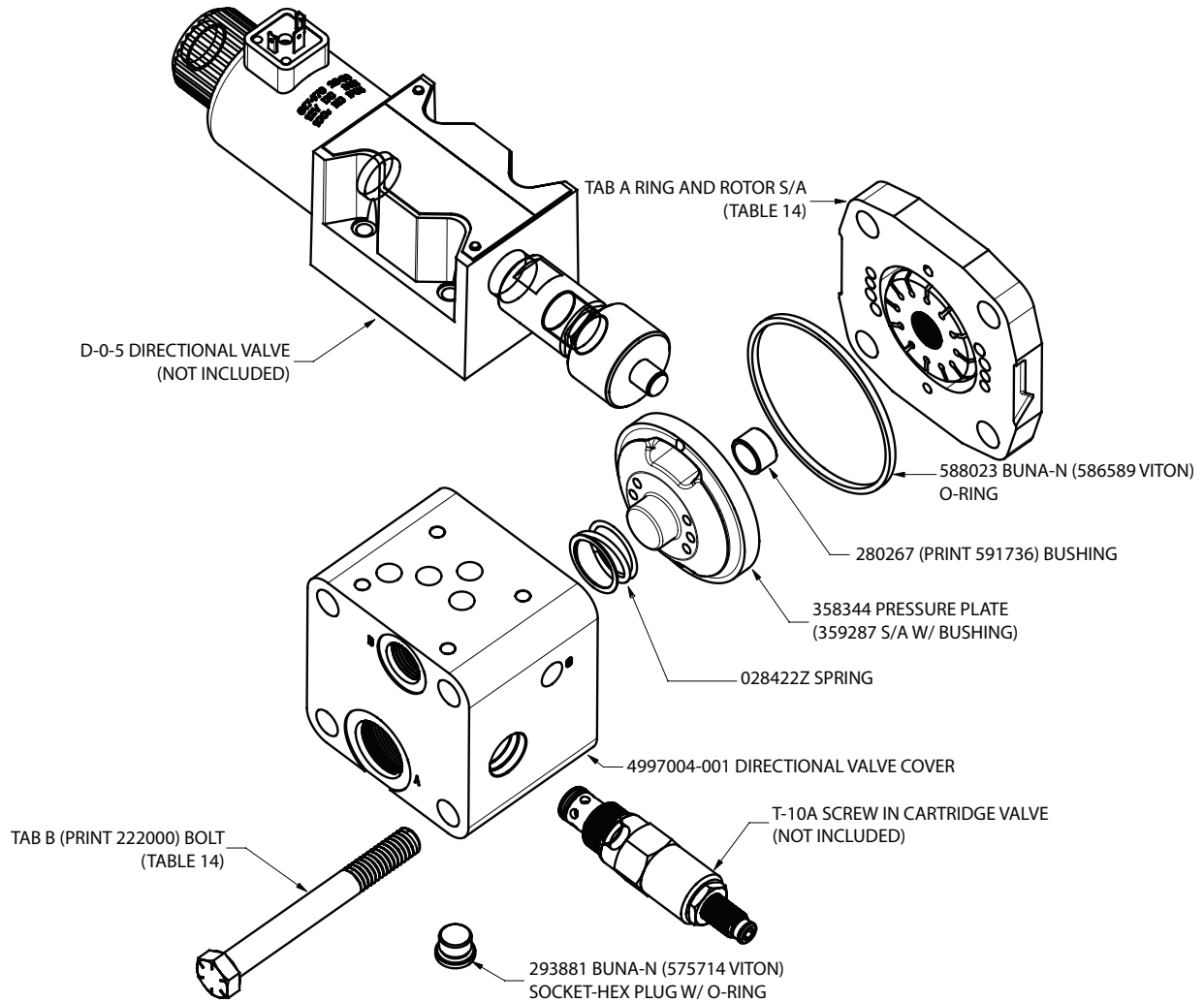


6. V20HD- Directional control valve manifold

6.1. V20HD-139

Table 14

V20HD-139 Displacement Components		
GPM	Tab A	Tab B
5	02-151848	118458
6	02-151840	
7	02-151841	035823Z
8	02-151842	
9	02-151843	
10	02-151844	060226Z
11	02-151845	
12	02-151846	
13	02-151847	



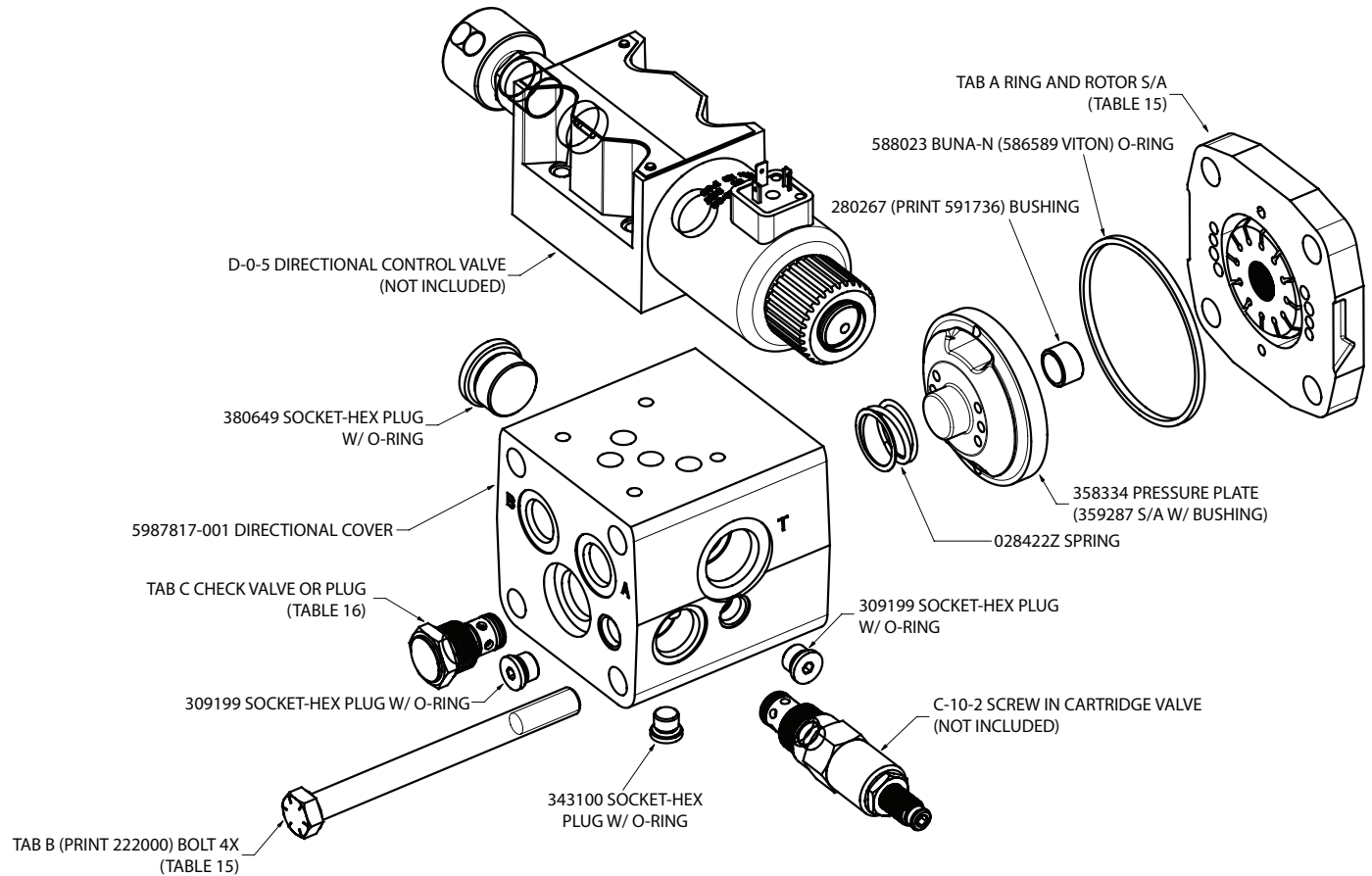
6.2. V20HD-MISC

Table 15

V20HD-MISC Displacement Components		
GPM	Tab A	Tab B
5	02-151848	118458
6	02-151840	
7	02-151841	035823Z
8	02-151842	
9	02-151843	060226Z
10	02-151844	
11	02-151845	
12	02-151846	
13	02-151847	

Table 16

V20HD-MISC Check Valves or Plug	
Suffix	Tab C
-129	292493
-183	
-130	588294
-133	565845
-153	



7. Body Side

Table 17

STD Rotational Components		
GPM	Tab A	Tab B
5	923485	002161Z
6		
7		
8	923493	002478Z
9		
10		
11	923478	016662Z
12		
13		

Table 18

Tabulation of Bodies			
Port Option	Mounting Type		
	01	04	06
D	583170	583172	*
E	345486	*	324045
F	297228	*	*
P	280689	308628	396975
R	313409	341340	*
S	294266	574155	295716
B	703874	*	*
M	502945	*	*
N	934307	*	*
W	6051118-001	*	*

*Contact your Danfoss Service Rep. for development of these options

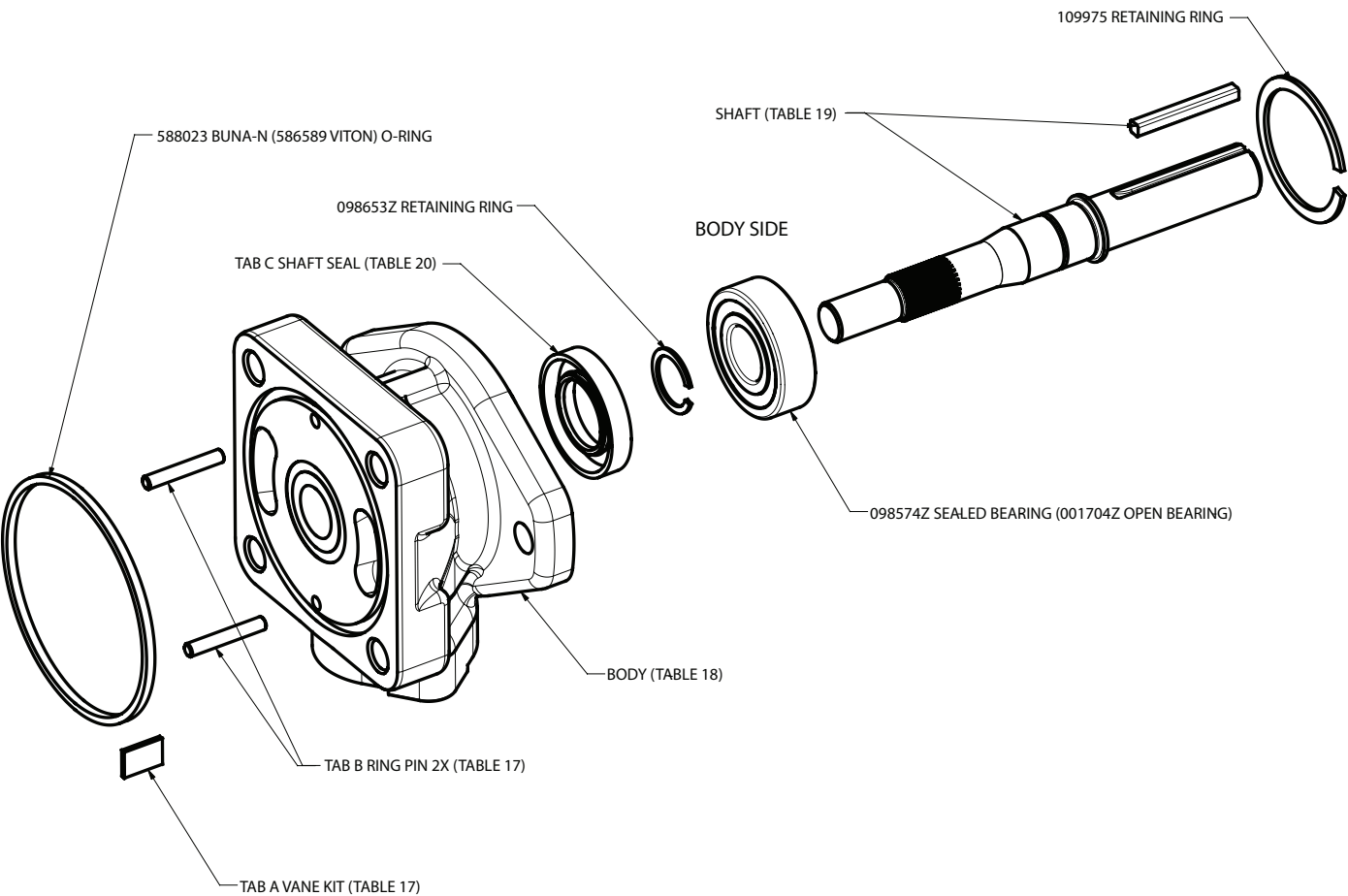


Table 19

Tabulation of Shafts				
Number	Shaft	Key	Nut	Shaft Type
000	394919	001610Z	132260	THD. & KEY-WOODRUFF
001	280372	005881Z	-	STR. KEY
003	280504	001615Z	132260	THD. & KEY-WOODRUFF
006	297330	001609Z	-	KEY-WOODRUFF
011	280515	-	-	11T-16/32 SF
015 ¹⁾	294922 5999235-001	-	-	13T-16/32 MDF
018	307817	-	-	9T-16/32 MDF
022	324039	001615Z	-	KEY-WOODRUFF
023	324047	-	-	13T-16/32 MDF
027	324049	-	-	TANG
030	410315	-	-	TANG
037	280691	-	-	11T-16/32 SF
038	328096	-	-	11T-16/32 SF
039	360699	-	-	13T-16/32 SF
055	423181	-	-	11T-16/32 SF
062	582610	-	-	9T-16/32 SF
070	574938	142843	-	STR. KEY
072 ¹⁾	051119-001 11374101	-	-	STR. KEY
079	452309	-	-	INSIDE THD. & STR. KEY
090	4995355-001	-	-	11T-16/32 SF
103	478136	001615Z	132260	THD. & KEY-WOODRUFF
111	452817	-	-	13T-16/32 MDF
138	478122	-	-	11T-16/32 SF
238	502235	-	-	11T-16/32 SF

Table 20

Shaft Seals		
LIP Type	Material	Tab C
Single	BUNA-N	229235
Single	VITON	279499
Dual	VITON	02-133102

1) Contact your Danfoss Service Rep. to find which shaft is right for your application

8. Model Code

V20	H	S	01	P	05	B	B	000	A	00	J	A	L	000	A	Z	31
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Note: Some options may require additional lead time. Please contact sales representative for details.

1 Product Type

V20 – V20 Single series vane pump

2 Pressure Type

H – High Pressure

3 Cover Type

S – Standard Cover

P – Priority Valve Cover with RV

F – Flow Control Cover with RV

N – Flow control with internal drain cover with RV

D – Directional control valve manifold

R – Pressure relief cover

4 Mounting Flange Type

01 – 2 Bolt flange SAE -A size

04 – Face mounting

06 – 2 Bolt flange SAE-B Size

5 Inlet Port Type

P – 1.25" NPT THD

S – 1.625-12 UN-2B SAE O-Ring port (SAE#20))

D – 1.3125-12 UN-2B SAE O-Ring port (SAE#16)

F – 29.37(1.156) DIA 2 Bolt flange

R – 1" NPTF THD

E – 38.1(1.50) DIA 2 Bolt flange

B – G1.250 BSPF THD

M – M26 X 1.5 Metric O-Ring port

N – M42 X 2.1 Metric O-Ring port

W – 1" Port 4 Bolt Flange, Code 61

6 Ring Capacity

05 – 5 USgpm

06 – 6 USgpm

07 – 7 USgpm

08 – 8 USgpm

09 – 9 USgpm

10 – 10 USgpm

11 – 11 USgpm

12 – 12 USgpm

13 – 13 USgpm

7 Outlet Port Type

B – G0.750 BSPF THD

P – .750 NPT THD

S – 1.0625-12 UN-2B SAE O-Ring port (SAE#12)

Y – 0.875-14 UN-2B SAE O-Ring port (SAE#10)

R – 1.1875-12 UN-2B SAE O-Ring port (SAE#14)

F – Ø.687 2 Bolt flange

T – Primary port-.750-16 UN-2B,
Secondary port-.875-14 UN-2B,
Tank port-.750-16 UN-2B

G – 2X .500 NPT With .250 NPT gage port

H – M27 X 2.0 Metric O-ring port

M – M16 X 1.5 Metric O-ring port

K – 1.3125-12 UN-2B SAE O-ring port (SAE#16)

A – Pressure port-.750-16 UN-2B,
Tank port-.500 NPT

C – Pressure port-.750-16 UN-2B,
Tank port- 1.0625-12 UN-2B

D – Pressure port-.750-16 UN-2B,
Tank port-.750-16 UN-2B

E – Pressure port : G .750 BSPF THD,
Tank port : G .750 BSPF THD

J – Pressure port : M18 X 1.5 THD,
Tank port : M18 X 1.5 THD

W – 0.5" Port 4 Bolt Flange, Code 61

8 Shaft Seal and Bearing

B – Single lip seal and sealed bearing

S – Dual lip seal and open bearing

D – Dual lip seal and sealed bearing

9 Shaft Type

000 – Key threaded.875-18 UNS-2A, DIA-1",
length- 1.89", shaft #0

001 – Straight keyed , DIA-.750", Length- 2.66",
shaft #1

003 – Key threaded.875-18 UNS-2A, DIA- .9380",
length- 2.8", shaft #3

006 – Woodruff keyed, DIA- .7485", length-
1.25", shaft #6

011 – Involute splined 11T 16/32 pitch, major
DIA-.733", length- 2.935", shaft #11

015 – Involute splined 13T 16/32 pitch, major
DIA-.873", length- 1.69", shaft #15

018 – Involute splined 9T 16/32 pitch, major
DIA-.623", length- 1.25", shaft #18

022 – Woodruff keyed , DIA-.875", length-
1.750", shaft #22

023 – Involute splined 13T 16/32 pitch, major
DIA-.873", length- 1.750", shaft #23

027 – Tang, DIA- .950", length-1.076", Shaft #27

030 – Tang, DIA- .950", length-2.0 ", shaft #30

037 – Involute splined 11T 16/32 pitch, major
DIA-.733",length- 1.750", shaft #37

038 – Involute splined 11T 16/32 pitch, major
DIA-.733", length- 1.25", shaft #38

039 – Involute splined 13T 16/32 pitch, major
DIA-.858",length- 1.67", shaft #39

055 – Involute splined 11T 16/32 pitch, major
DIA-.733", length- 1.250", shaft #55

062 – Involute splined 9T 16/32pitch, major
DIA-.608", length- 1.245", shaft #62

070 – Straight Keyed, DIA-.750,length-1.875",
shaft #70

079 – Straight Keyed, 1/4 - 28 UNF-2B Hole in
end , shaft #79

090 – Involute splined 11T 16/32 pitch, major
DIA-.733",length- 1.50" shaft #90

103 – Woodruff key threaded.875-18 UNS- 2A,
DIA-.9380", SHAFT #3, length-2.795", shaft
#103

111 – Involute splined 13T 16/32 pitch, major
DIA-.873",length- 1.448", shaft #111

138 – Involute splined 11T 16/32 pitch, major
DIA-.733",length- .915", shaft #138

238 – Involute splined 11T 16/32 pitch, major
DIA-.733",length-1.25", shaft #238

NOTE: Underlined shaft options denotes
standard options

10 Outlet Port Orientation

- A** – Opposite to inlet port
- B** – 90° CCW From inlet port
- C** – Inline with inlet port
- D** – 90° CW from inlet port

11 Flow Rate Thru Orifice Cover

- 00** – No flow control
- 02** – 2 GPM
- 03** – 3 GPM
- 04** – 4 GPM
- 45** – 4.5 GPM
- 05** – 5 GPM
- 06** – 6 GPM
- 65** – 6.5 GPM
- 07** – 7 GPM
- 08** – 8 GPM
- 09** – 9 GPM
- 10** – 10 GPM

11 – 11 GPM

12 – 12 GPM

12 Relief Pressure Setting

- A** – 250 PSI
- B** – 500 PSI
- C** – 750 PSI
- D** – 1000 PSI
- E** – 1250 PSI
- F** – 1500 PSI
- G** – 1750 PSI
- H** – 2000 PSI
- M** – 2150 PSI
- J** – 2250 PSI
- R** – 2300 PSI
- P** – 2400 PSI
- K** – 2500 PSI
- L** – 2750 PSI
- N** – 3000 PSI
- Z** – No pressure setting

13 Seals Type

- A** – NBR Seals
- B** – Viton

14 Shaft Rotation

- L** – LH CCW Rotation viewed from shaft end
- R** – RH CW Rotation viewed from shaft end

15 Special Feature Suffix

- 000** – No Special Feature
- Contact sales team for specific options

16 Paint Type

- A** – Standard black per 504H0335
- Z** – No Paint

17 Customer Identification

- Z** – Non-specific

18 Design Code

- 31** – Design Code

Cartridge valves

- DCV directional control valves
- Electric converters
- Electric machines
- Electric motors
- Fluid Conveyance
- Gear motors
- Gear pumps
- Hydraulic integrated circuits (HICs)
- Hydrostatic motors
- Hydrostatic pumps
- Industrial hydraulics
- Orbital motors
- PLUS+1[®] controllers
- PLUS+1[®] displays
- PLUS+1[®] joysticks and pedals
- PLUS+1[®] operator interfaces
- PLUS+1[®] sensors
- PLUS+1[®] software
- PLUS+1[®] software services, support and training
- Position controls and sensors
- PVG proportional valves
- Steering components and systems
- Telematics

Danfoss Power Solutions is a global manufacturer and supplier of high-quality hydraulic and electric components. We specialize in providing state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway and industrial markets as well as the marine sector. Building on our extensive applications expertise, we work closely with you to ensure exceptional performance for a broad range of applications. We help you and other customers around the world speed up system development, reduce costs and bring vehicles and vessels to market faster.

Danfoss Power Solutions – your strongest partner in hydraulics and mobile

Go to www.danfoss.com for further product information.

We offer you expert worldwide support for ensuring the best possible solutions for outstanding performance. And with an extensive network of Global Service Partners, we also provide you with comprehensive global service for all of our components.

Local address:

Hydro-Gear

www.hydro-gear.com

Daikin-Sauer-Danfoss

www.daikin-sauer-danfoss.com

Danfoss

Power Solutions (US) Company

2800 East 13th Street
Ames, IA 50010, USA
Phone: +1 515 239 6000

Danfoss

Power Solutions GmbH & Co. OHG

Krokamp 35
D-24539 Neumünster, Germany
Phone: +49 4321 871 0

Danfoss

Power Solutions ApS

Nordborgvej 81
DK-6430 Nordborg, Denmark
Phone: +45 7488 2222

Danfoss

Power Solutions Trading (Shanghai) Co., Ltd.

Building #22, No. 1000 Jin Hai Rd Jin Qiao,
Pudong New District Shanghai, China 201206
Phone: +86 21 2080 6201

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequent changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.