


Danfoss

DG4V-3

**Soft
Shift
Valve**



Danfoss DG4V-3 Soft Shift Valve User Guide

[Home](#) » [Danfoss](#) » Danfoss DG4V-3 Soft Shift Valve User Guide 

Contents

- [1 Danfoss DG4V-3 Soft Shift Valve](#)
- [2 Product Usage Instructions](#)
- [3 Frequently Asked Questions](#)
- [4 Restrictor Plug](#)
- [5 Model Code Coil Identification Letter](#)
- [6 Orifice Changing Procedure](#)
- [7 Model Code](#)
- [8 Products we offer](#)
- [9 Contact](#)
- [10 Documents / Resources](#)
 - [10.1 References](#)

Danfoss

Danfoss DG4V-3 Soft Shift Valve



Product Specifications

- Model: Directional Control Valves CETOP 3 Size Soft Shift
- Revised: 04-01-98
- Part Numbers: 694341, 694342, 694343, 694344, 694345, 694346, 694347, 694348
- Orifice Diameter: 0.012 to 0.090 inches
- Coil Voltage Options: 12VDC, 18VDC, 24VDC, 98VDC, 110VDC, 220VDC

Product Usage Instructions

Installation

1. Identify the required orifice size based on the application.
2. Install the restrictor plug in the appropriate ports (P, T, A, or B) as needed.
3. Follow the Orifice Changing Procedure for any necessary adjustments.

Maintenance

1. Regularly check for leaks and proper functioning of the directional controls.
2. Replace worn-out parts with the corresponding part numbers mentioned in the manual.

Troubleshooting

If experiencing issues with valve operation:

- Check for clogs in the orifices.
- Ensure proper electrical connection if using coils.
- Inspect for any damaged O-rings and replace if necessary.

Frequently Asked Questions

- **Q: How do I determine the correct orifice size for my application?**
 - A: Refer to the Orifice Diameter table in the manual and select the size based on the flow requirements.

- **Q: What should I do if the valve is leaking?**

- A: Check for loose fittings and O-rings. Tighten fittings and replace O-rings if needed.

- **Q: Can I use coils with different voltage ratings?**

- A: No, always match the coil voltage with the specified ratings to ensure proper functionality of the valve.

DG4V 3 (S) – ** (L) 2 ** – (P2) – (V) M – **** (L) – ** H * – 60 – (P* – A* – B* – T*)

Models

Model	Knob	Core Tube S/A
DG4V –3–2–*	508113	02–300529
DG4V –3S –2–*	694272	02–135785
DG4V –3–2–P2 –*	508113	02–300529
<u>DG4V –3S –2–P2 –*</u>	<u>694272</u>	<u>02–135785</u>

Restrictor Plug

Install In P,T,A, Or B As Required

CODE	ORIFICE DIA.	PART #
03	0,30 (0.012)	694341
06	0,60 (0.024)	694342
08	0,80 (0.030)	694343
10	1,00 (0.040)	694344
13	1,30 (0.050)	694345
15	1,50 (0.060)	694346
20	2,00 (0.080)	694347
23	2,30 (0.090)	694348

Orifice (1 req 'd per core tube)

Refer to Orifice Changing Procedure

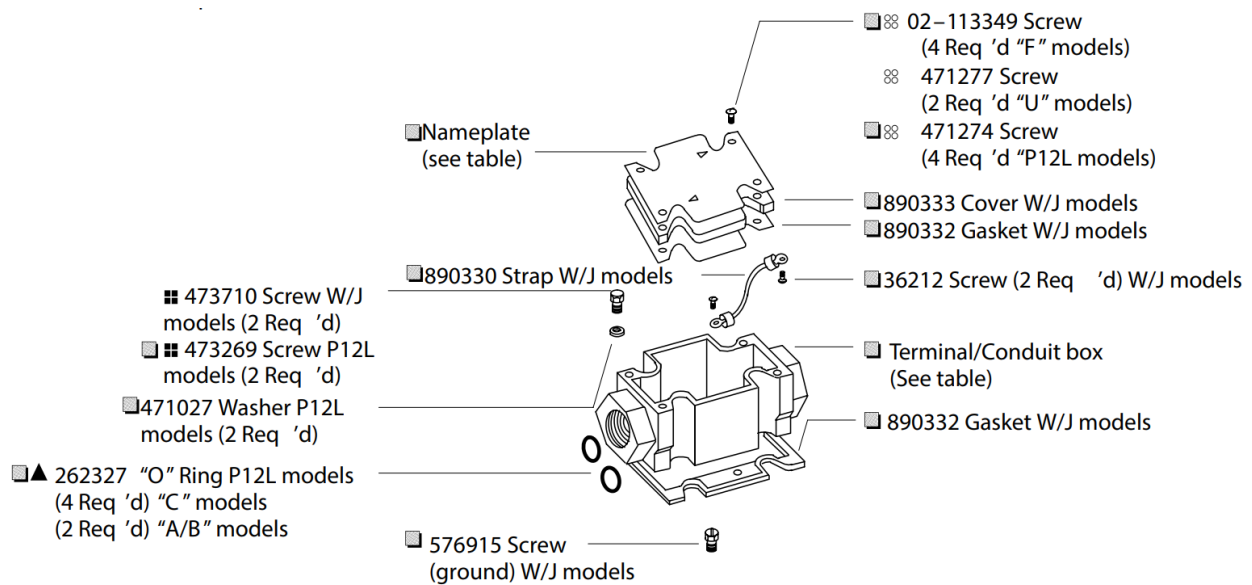
CODE	PART #	COLOR
00	Orifice omitted	
07	635134	Green
08	635135	Blue
09	893320	Purple

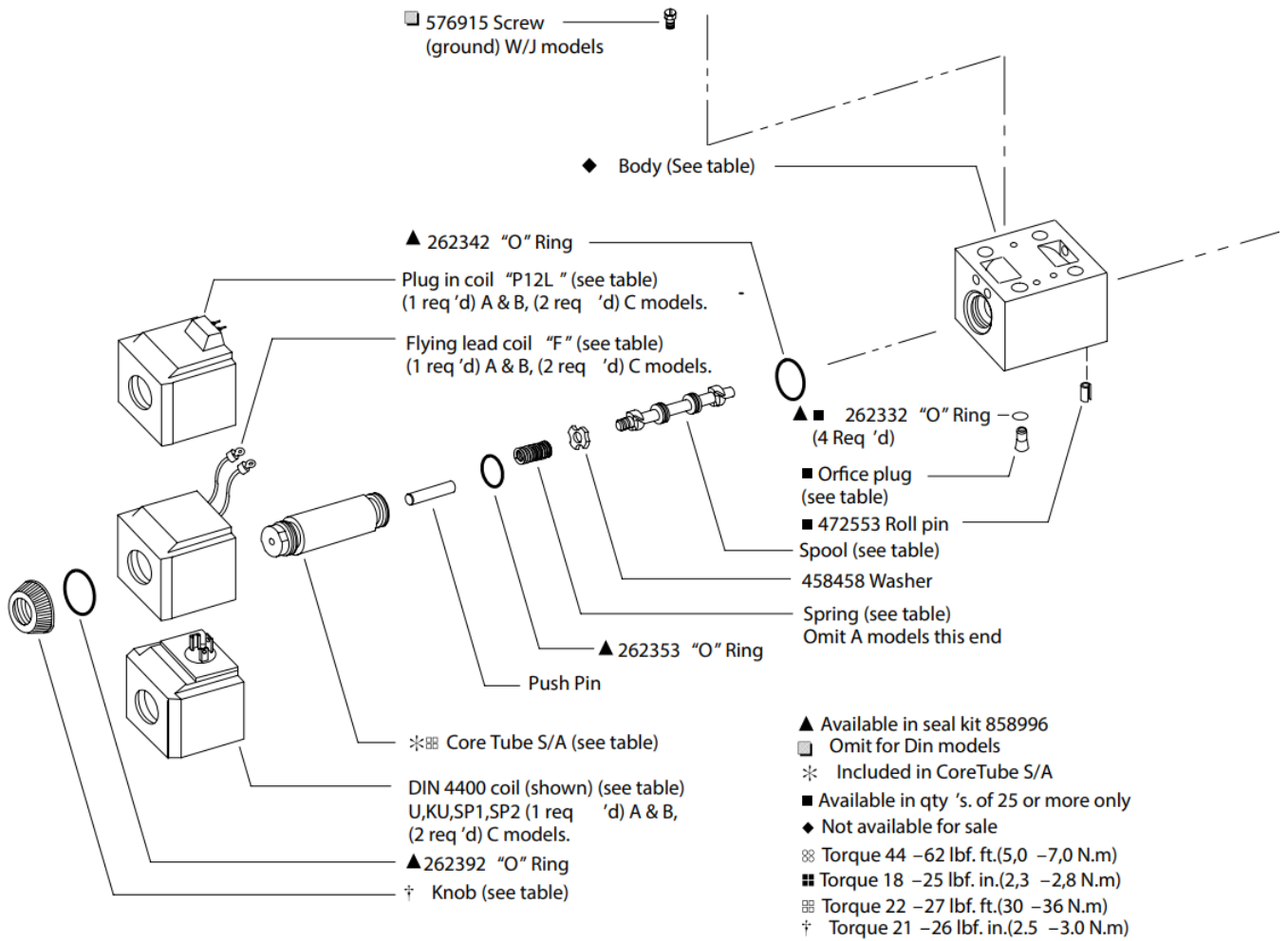
Blank Nameplates (DG4V –3S –60 Standard Valve)

Model Code		Nameplate
DG4V –3S –***–**–M–U–**60		694302
DG4V –3S –***–**–M–F/FPA3/FPA5	–**–60	694386
DG4V –3S –***–**–M–FPB –**–60		694363
DG4V –3S –***–**–M–FPBL –**–60		694362
DG4V –3S –C/N**–**–M–P –**–60		694364
DG4V –3S –A/B/F**–**–M–P –**–60		694365
DG4V –3S –AL/BL/FL ** –**–M–P –**	–60	694366

Body / Type

- 507334 Flying lead coil
- 507731 Din 4400 coil
- 866039 Plug in coil

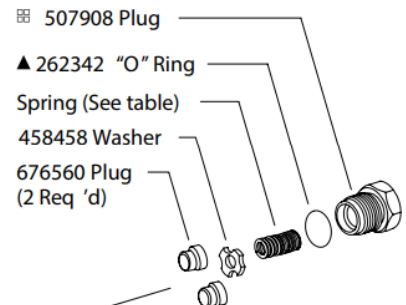




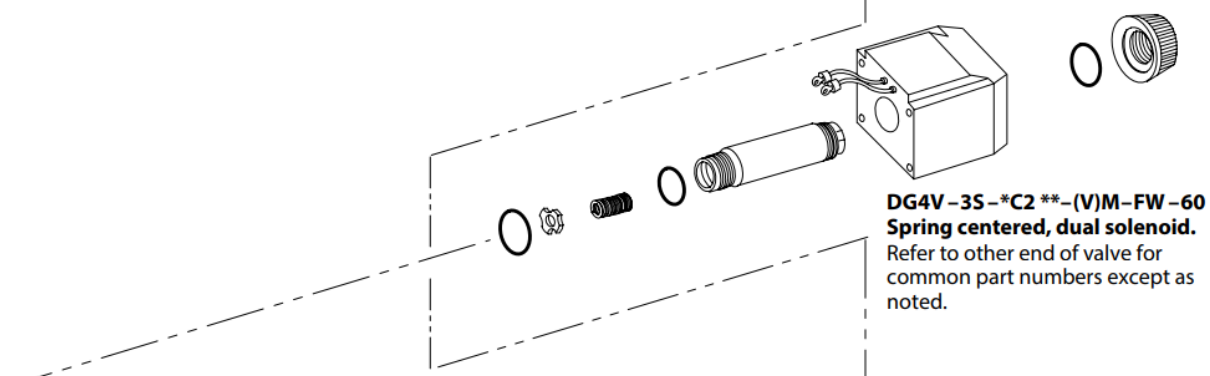
Blank Nameplates (DG4V –3–60 High Performance Valve)

Model Code	Nameplate
DG4V –3–***–**–M–U–*7–60	694303
DG4V –3–***–**–M–U–*2/*6–60	694451
DG4V –3–***–**–M–F/FPA3/FPA5 –*7–60	694387
DG4V –3–***–**–M–FPB –**–60	865929
DG4V –3–***–**–M–FPBL –**–60	865930
DG4V –3–C/N**–**–M–P–**–60	865933
DG4V –3–A/B/F**–**–M–P–**–60	865934
DG4V –3–AL/BL/FL** –**–M–P–**–60	865935

⊠ For more information on options refer to service drawing I –3886–S.

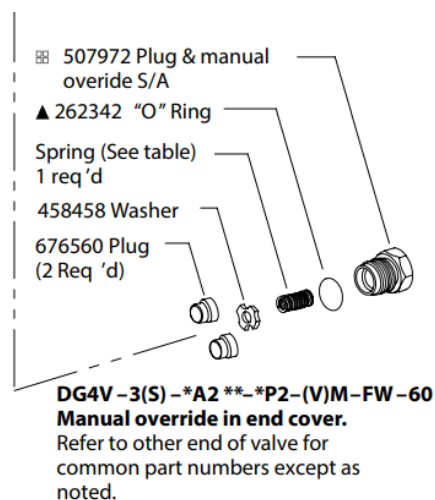


DG4V –3(S) –*A2 **–(V)M–FW –60
Spring offset to CYL. "A", shift to center.
DG4V –3(S) –*B2 **–(V)M–FW –60
Spring centered, Sol. "A" removed.
 Refer to other end of valve for common part numbers except as noted.



NOTE

Right hand assembly shown for all single solenoid valves, for left hand assembly all parts reversed except body (& spool on "B" builds) and electrical connectors (where applicable).



Model Code Coil Identification Letter

Coil Letter	Coil S/A Voltage DC	Coil S/A "F" models	Coil S/A "U" models	Coil S/A "SP1" models	Coil S/A "SP2" models	Coil S/A "KU" models	Coil S/A "P12L" models
GH	12 VDC	02-123958	02-123938	02-123950	02-123942	02-140393	02-124274
DTH	18 VDC	02-124394	02-124392	02-124719	02-124389	02-148712	02-124511
HH	24 VDC	02-123959	02-123939	02-123951	02-123943		02-124275
DJH	98 VDC	02-123960	02-123940	02-123952	02-123944		02-124238
PH	110 VDC	02-123961	02-123941	02-123953	02-123945		02-124276
SH	220 VDC	02-124260	02-124441				

Type "F" flying lead coils must be powered by DC electrical signal. Type P12L coils must be powered by 110 – 120, 50 – 60 Hz AC rectified to DC signal. DIN rectified connectors ("11" or "12" in model code) can be used to convert AC volts to DC voltage to power the valve.

Model Code	Terminal Box "W/J" Flying lead	Conduit Box "P12L" Plug in	Type
DG4V3(S)-A/B/C-W	890341		Single/double coil
DG4V3(S)-A/B/C-J	890342		
DG4V3(S)-C-P12L		866000	Double coil with rectifier
DG4V3(S)-A/B-P12L		866001	Single coil with rectifier

Rotate conduit box/rectifier/light assembly 180 for models AL, BL, and 8B with solenoid mounted on B port side of body.

Spool/Spring Arrangement DG4V3/DG4V3S Models

Model	Type	DG4V3 Spool D	G4V3 Spring D	G4V3S Spool	DG4V3S Spring
-*B/C	2*	892913	890195	892913	507889
	3*/31*	927027	507889	927027	507889
	6*	892914	507889	892914	694299
	8*	02-303660	927200	893319	507889
	33*	892915	507889	892915	507889
	0*	02-148720	890195	02-148720	694299
-*A	2A	892916	890195	892916	507889

- Assemble type “3” spool in body with narrow center land towards A port.
- Assemble type “31” spool in body with narrow center land towards B port.

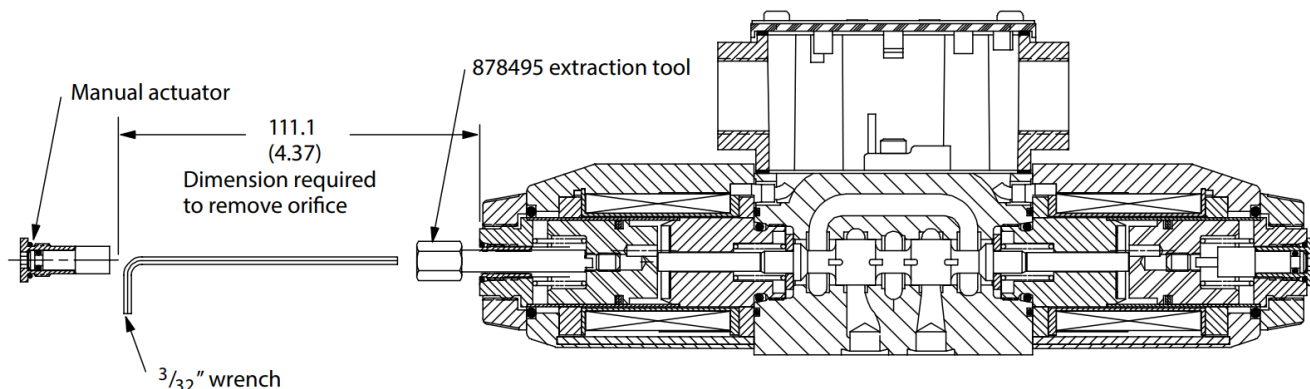
Orifice Changing Procedure

WARNING

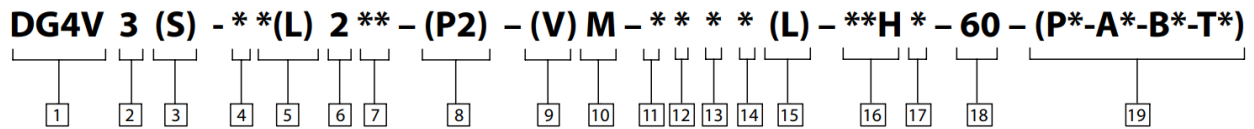
1. Before breaking a circuit connection make certain that power is off and system pressure has been released. Lower all vertical cylinders, discharge accumulators and block any load whose movement could generate pressure. Plug all removed units and cap all lines to prevent entry of dirt into the system.
2. Using a 5/32" hex key, remove manual actuator plug and spring from the end of solenoid (Tightening torque 6.2 –7.3 N.m 55–65 lbf.in.)
3. Insert extraction tool (878495) into solenoid via the manual actuator opening. Rotate tool until aligned and push pin into slot in armature.
4. Using 1/2" wrench and tool to prevent the armature from rotating, insert 3/32" hex key down the center of tool and remove orifice plug.
5. Replace by the same method, tightening orifice snug to ensure the bottoming of threads. Smaller orifices increase response times, larger orifices decrease response time.

Orifice & tool kit 02 -140211

For fine-tuning shift performance, orifice must be ordered separately. The kit includes (2) each of .7, 8 & .9 mm dia. orifices, (1) installation tool, (1) 5/32" hex key and (1) 3/32" hex key.



Model Code



1. Valve Type

- D – Directional control valve
- G – Subplate mounted
- 4 – Solenoid operated
- V – Rated pressure 350 bar (5075 psi)

2. Interface

- 3 – ISO 4401 –03, CETOP 3 (NFPA DO3)

3. Valve performance

- S – Standard performance
- Blank –High performance

4. Spool types

- 0 – Open center
- 2 – Closed center (all ports)
- 3 – P & B closed, A to T
- 6 – Closed center (P only)
- 8 – Tandem center (open crossover)
- 31 – P & A closed, B to T
- 33 – Closed center (bleed A & B)

5. Spool/Spring Arrangement

- A – Spring offset, single solenoid
- AL – Same as A but left-hand build
- B – Spring-centered, single solenoid
- BL – Same as B but left-hand build
- C – Spring centered

6. Soft shift valve

7. Soft shift orifice size

- 00 – No orifice
- 07 – 0.7 mm dia.
- 08 – 0.8 mm dia
- 09 – 0.9 mm dia.
- 20 – 2.0 mm dia *

* Minimum orifice size recommended for high performance type “8C ” spool.

8. Manual override options

- Blank –Override in solenoid end only.
- P2 – Manual override in end cap & solenoid, A & B models only.

9. Reverse solenoid identification

- Blank – ANSI B93 energizes solenoid A to give flow P to A.

- V – Solenoid identification determined by the position of the solenoid (i.e. solenoid A is at port A end of the valve, solenoid B is at port B end of the valve).

10. **Flag Symbol**

- M – (Introduces electrical features and options.)

11. **Coil Type Options**

- F – Flying lead-type coils
- U – DIN 4400 coils.
- SP1 – Single 1/4 " male spade.
- SP2 – Dual 1/4 " male spade.
- P12L – Plug-in coils W/rectifier in the junction box, lights included.
- KU – Top exit flying leads.

12. **Coil Connector Options**


("U" type coils only, omit if not required.)

- 1 – Connector fitted.
- 6 – Connector with light fitted.
- 11 – Rectifier with lights fitted.
- 12 – Rectifier fitted.

13. **Electrical Connector Options**

("F" type coils only, omit if not required.)

- GH – 12V DC
- DTH – 18V DC
- HH – 24V DC
- DJH – 98V DC (req'd. for P12L models.
- PH – 110V DC
- SH – 220V DC
- PA – Insta –plug male recpt. only.
- PA3 – 3–pin receptacle.
- PA5 – 5–pin receptacle.
- PB – Insta –plug male & female recpt.
- T – Terminal block.

 For more information on options refer to service drawing I –3886 –S.

14. **Wiring Housing Thread Options**

("F" type coils only, omit if not required.)

- W – 1/2 " NPT
- J – M20 x 1.5 – 6H
- G – G 1/2 "

15. **Solenoid Indicator Light Options**

(Not available on PA, U, SP1, SP2, omit if not required.)

16. **Coil Identification Letter Options**

- GH – 12V DC
- DTH – 18V DC
- HH – 24V DC

- DJH – 98V DC (req'd. for P12L models.
- PH – 110V DC
- SH – 220V DC

17. Tank Pressure Rating

- 2 – 10 bar (145 psi) for
- 5 – 100 bar (1450 psi) for DG4V –3S
- 7 – 207 bar (3000 psi) for DG4V –3

18. Design Number

19. Port Orifices

- 03 – 0.3 mm dia.
- 06 – 0.6 mm dia.
- 08 – 0.8 mm dia.
- 10 – 1.0 mm dia.
- 13 – 1.3 mm dia.
- 15 – 1.5 mm dia
- 20 – 2.0 mm dia.
- 23 – 2.3 mm dia.
- (Example: "P03 " = 0.3 mm dia. orifice in P port of valve. Omit if not required.)

Products we offer

- Cartridge valves
- DCV directional control valves
- Electric converters
- Electric machines
- Electric motors
- Gear motors
- Gear pumps
- Hydraulic integrated circuits (HICs)
- Hydrostatic motors
- Hydrostatic pumps
- 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 market as well as the marine sector. Building on our extensive application 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 mobile hydraulics and mobile electrification. 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.

Contact

- 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 catalogs, 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 the property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.

Documents / Resources

	<p>Danfoss DG4V-3 Soft Shift Valve [pdf] User Guide DG4V-3 Soft Shift Valve, DG4V-3, Soft Shift Valve, Shift Valve, Valve</p>
---	--

References

-  [Ibf – Learn by fun](#)
-  [Daikin Sauer Danfoss - Home](#)
-  [Engineering Tomorrow | Danfoss](#)
-  [Leading Drivetrain Manufacturer - Hydro-Gear](#)
- [User Manual](#)

Manuals+, Privacy Policy

This website is an independent publication and is neither affiliated with nor endorsed by any of the trademark owners. The "Bluetooth®" word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. The "Wi-Fi®" word mark and logos are registered trademarks owned by the Wi-Fi Alliance. Any use of these marks on this website does not imply any affiliation with or endorsement.