

VG35EH Open-Center Directional Control Valve

Build Program

Bulletin HY14-2007-B1/US

Refer to PL HY14-2000/US
for current pricing information

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



ENGINEERING YOUR SUCCESS.

Technical Information

General Description..... 1

Operation..... 1

Features 1

Specifications 2

Weights..... 2

Connections 2

Ordering Information

Inlet Covers 3

Main Relief covers 3

Outlet Covers..... 3

Power Beyond Outlet Covers..... 3

Stud Assembly Kits..... 4

Pilot Generating/Regulating Section 4

Work Sections 4

Offer of Sale II

Safety Guide II



WARNING – USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

OFFER OF SALE

The items described in this document are hereby offered for sale by Parker-Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the detailed "Offer of Sale" elsewhere in this document or available at www.parker.com/hydraulicvalve.

SAFETY GUIDE

For safety information, see Safety Guide SG HY14-1000 at www.parker.com/safety or call 1-800-CParker.

© Copyright 2012, Parker Hannifin Corporation, All Rights Reserved

Bul HY14-2007-B1.indd, dd

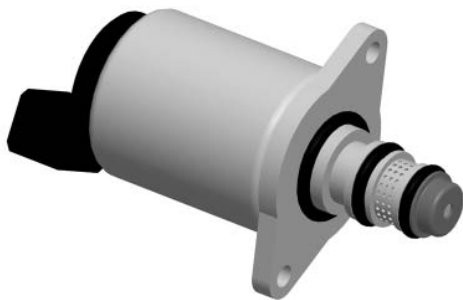


General Description

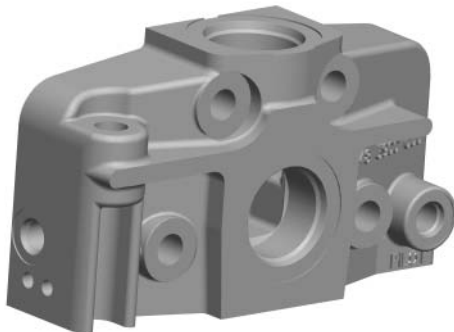
The VG35 has been a strong and reliable player in the 170-246 LPM (45-65 GPM) open-center, directional control valve market for many years. Now it has a new, electrohydraulic package designed for open-center systems and for those customers wanting to take machine control to the next level.

The offering consists of the following:

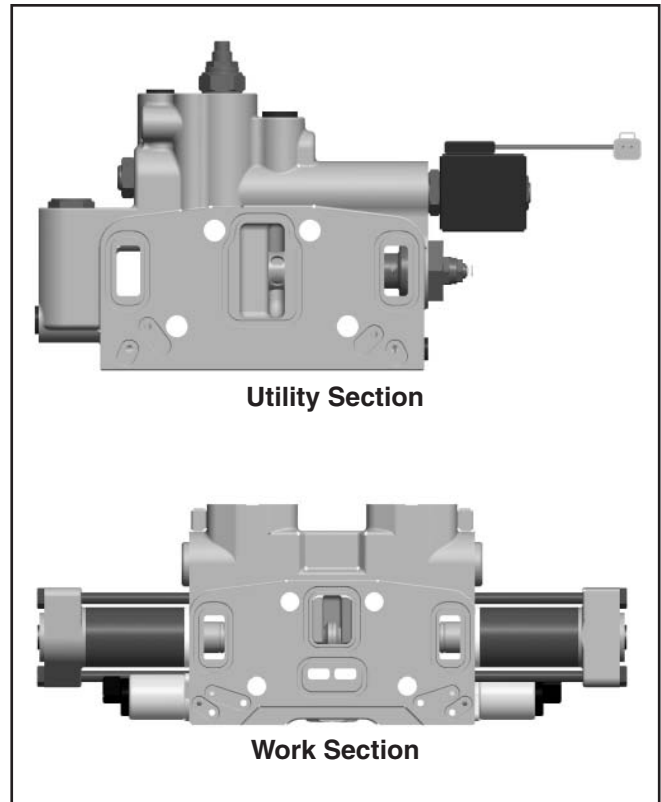
- A global solenoid (pwm) that can be used for proportional or on/off control. The connector options are Amp Jr., Deutsch and Weather Pak.
- Work sections rated to 275 Bar (4000 PSI): 4-way, 3-position; and 3-way, 3-position.
- A pilot generating/regulating section that is referred to as a “utility section”. The purpose of this section is to generate and regulate pilot pressure in an open-center circuit. This section is positioned adjacent to the inlet.
- An outlet that can accept an external regulated signal. This is an option, when a pilot generating/regulating or “utility” section is not required.



Solenoid



Outlet



Operation

Open-center valves that are operated by either hydraulic-remote or electrohydraulic require a way to generate and regulate the pilot pressure. For hydraulic-remote operation, the regulated pilot pressure is needed for the pilot controllers. For electrohydraulic operation, the regulated pilot pressure is required for the work section solenoids. Generation and regulation of the pilot signal can be accomplished externally with an in-line solution, however, this approach requires extra plumbing.

The VG35 has an integrated section that selectively generates and regulates the pilot pressure to be sent to the hydraulic-remote controllers, or the solenoids installed in the work section.

When an operator selects a spool, a signal is sent to a normally open solenoid in the “utility” section. Pressure will then build until it reaches the setting of relief valve. This is sufficient pressure to move the main spool, so that it can be connected to the load pressure. At that point, the inlet of the valve will see system pressure, and the pressure-reducing valve in the “utility section” will regulate the pilot pressure to the hydraulic-remote controllers or the work section solenoids.

For electrohydraulic operation, optimizing machine control is achieved by having a dedicated drain for the work section solenoids. Therefore, the VG35EH package isolates the solenoid within the control valve, and the solenoid drain port is located in the “utility section”.

Specifications

Pressures	Pump Inlet Ports: 275 Bar (4000 PSI) Service Ports: 45 Bar (5000 PSI) Pilot: 35 Bar (508 PSI) (input or internal supply) Tank Return Ports: 15 Bar (220 PSI) Solenoid Drain: 2 Bar (29 PSI)
Flow Rates (maximum recommended)	246 LPM (65 GPM)
Leakage Performance	With mineral oil, 100 SUS@ 49°C (120° F) at 75.9 Bar (1100 PSI) differential Workport w/Steel Plug of no accessory: 30cc/min max. Workport w/RV or RV+AC: 35cc/min max.
Hydraulic Fluid	Mineral Base oil For other fluids consult factory Viscosity, working range: 15-380mm ² /s (15-380 cSt)
Hydraulic Oil Temperature	Recommended Operating Range without Solenoid Operation: -30° to 90°C (-22 to 194°F) Recommended Operating Range with Solenoid Operation: -20° to 80°C (-4 to 176°F)
Filtration (ISO4406)	20/18/14 in Main Flow Paths 18/16/13 Pilot Supply

Weights

Inlet with relief	7.2 kg (15.8 lbs)
Work section – manual spring return	8.4 kg (18.4 lbs)
Work section – hydraulic remote	10.4 kg (22.8 lbs)
Work section – solenoid operated	10.8 kg (23.8 lbs)
Work section – pilot generation	9.6 kg (21.1 lbs)
Add for port relief	0.3 kg (0.65 lbs)
Outlet	4.8 kg (10.6 lbs)

Solenoid Specifications

Voltage	12 or 24 VDC
Frequency	100 ±10 Hz
Pilot	35 Bar (508 PSI) 15-23 LPM (4-6 GPM)
Current Input (I)	1.5A for 12 VDC 0.75A for 24 VDC
Current (mA) for Spool Shift	12V 24V
Start Shift	550 225
Full Shift	150 575
Insulation Material	Class H
Duty Cycle	100%
R20 Ohm	5.3 (±5%) for 12 VDC 21.2 (±5%) for 24 VDC
Fluid Cleanliness	17/14 per ISO 4406
Ambient Temperature	-30° to 80°C (-22 to 176°F)
Fluid Temperature	-20° to 80°C (-4 to 194°F)

Connections

O-ring boss ports SAE-J1926-1
 BSPP ports ISO 1179-1

Description	SAE#	Thread Size	
		O-ring boss	BSPP
Inlet port, Top or Side	16	1-5/16"-12 UNF	1"-11
Inlet port, Top or Side	20	1-5/8"-12 UNF	1-1/4"-11
Outlet port, Top or Side	16	1-5/16"-12 UNF	1"-11
Outlet port, Top or Side	20	1-5/8"-12 UNF	1-1/4"-11
Work Ports	16	1-5/16"-12 UNF	1"-11
Work Ports	12	1-1/16"-12 UNF	3/4"-14



VG35EH Inlet Covers

Product Code	Part Number	SAE-16 Top	SAE-16 Side	SAE-20 Top	SAE-20 Side	Blocked Pilots
DVG35-A990	348 9175 009			X	X	
DVG35-A880	348 9175 008	X	X			
VG35-A990-BP	348 9155 034			X	X	X

- NOTES:**
1. VG35-A990-BP is required when a pilot generation utility section is NOT used.
 2. This inlet has face machining that terminates the internal pilot and drain galleries.



VG35EH Main Relief Options

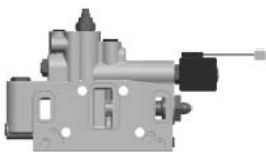
Product Code	Part Number	800-2000 PSI	2000-2500 PSI	2500-3500 PSI	No R/V Option
DVA35-MRV-1	391 1873 003	X			
DVA35-MRV-2	391 1873 004		X		
DVG35-HMRV	391 1873 137			X	
DV-MRVP	391 1873 005				X



VG35EH Outlet Covers

Product Code	Part Number	SAE-20 Side	SAE-20 Top	SAE-24 Side	No Machined Ports	Ext Pilot & Drain SAE-6
VG35-ZT99000	348 9106 285	X	X			
VG35-ZT99022	348 9106 287	X	X			X
VG35-ZT100000	348 9106 304			X		
VG35-ZT100022	348 9106 305			X		X
VG35-ZT00000	348 9106 306				X	

- NOTES:**
1. External pilot and drain ports are required to bring an outside pilot supply into the valve stack.
 2. The external pilot and drain ports are NOT required when using a pilot generation utility section.



VG35EH Pilot Generating Utility Sections

Product Code	Part Number	12V	24V	Deutsch
VG35EH-PGP2DA	348 9159 001	X		X
SOL-12V-DUMP	DSL103AD012LWD6R	X		X
SOL-24V-CONVT	S10LWD6RD024		X	X

- NOTES:**
1. SOL-12V-DUMP can be added to the Utility section. This allows for selective operation of VG35 work sections.
 2. SOL-24V-CONVT coil will convert the Utility section from 12 volt to 24 volt.
 3. Solenoids have 6" leadwires terminated with Deutsch DT04-2P receptacle with pin terminals.



VG35EH Stud Assembly Kits

Product Code	Part Number	No of Sections
DVG35-TSK-1	391 1873 138	1
DVG35-TSK-2	391 1873 139	2
DVG35-TSK-3	391 1873 140	3
DVG35-TSK-4	391 1873 141	4
DVG35-TSK-5	391 1873 142	5
DVG35-TSK-6	391 1873 143	6
DVG35-TSK-7	391 1873 144	7
DVG35-TSK-8	391 1873 145	8

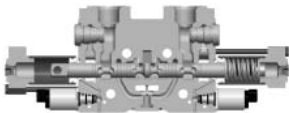
NOTE: Remember to count pilot generating section as one section when ordering studs.



VG35EH Power Beyond Outlet Covers

Product Code	Part Number	SAE-20 Top	SAE-20 Side	Non Ported
DVG35-TPB99	348 9176 008	X	X	
DVG35-TPB00	348 9176 011			X

- NOTES:**
1. Power Beyond Outlets have application limitations.
 2. An outside pilot supply cannot be fed into them.
 3. Additionally, a last in-line work section is required.
 4. Consult factory for these special part numbers.



VG35EH Work Sections

Product Code	Part Number	12 Volt 4-Way 3-Pos Hold in Neutral	12 Volt 4-Way 3-Pos Float in Neutral	12 Volt 3-Way 3-Pos Hold in Neutral	24 Volt 4-Way 3-Pos Hold in Neutral	24 Volt 4-Way 3-Pos Float in Neutral	24 Volt 3-Way 3-Pos Hold in Neutral	Solenoid Push Pin Override
VG35-HP2AS899	348 9152 161	X						
VG35-LP2AS899	348 9152 162		X					
VG35-JP2AS809	348 9151 020			X				
VG35-HP4AS899	348 9152 164				X			
VG35-LP4AS899	348 9152 165					X		
VG35-JP4AS809	348 9151 021						X	
VG35-HP2AOS899	348 9152 033	X						X
VG35-LP2AOS899	348 9152 062		X					X
VG35-JP2AOS809	348 9151 012			X				X
VG35-HP4AOS899	348 9152 127				X			X
VG35-LP4AOS899	348 9152 128					X		X
VG35-JP4AOS809	348 9151 022						X	X
Solenoid connector	391 1823 417	Pre-terminated AMP Jr. then 6" leadwires then Packard.						

- NOTES:**
1. Port Accessories are same as DVA/DVG from Distributor Valve Program Bulletin HY14-2000/US.
 2. Work sections listed have SAE-16 workports.
 3. Work sections listed use "AMP Junior Power Timer" connectors.
 4. Use adapter kit 391 1823 417 to convert from AMP Jr. to Packard, or AMP Jr. to leadwires.
 5. Series circuit work sections are not available at this time.

Extensive Hydraulic Product Offering

Accumulators



Piston, bladder and diaphragm type accumulators, gas bottles and KleenVent reservoir isolators.

www.parker.com/accumulator

Compact Hydraulics



Self-contained with a motor, gear pump, reservoir, internal valving, load hold checks and relief valves.

www.parker.com/oildyne

Cylinders



Standard and custom hydraulic cylinders for industrial and mobile applications.

www.parker.com/hydcyl

Electronics/Remote Controls



Parker's unique IQAN approach combines sturdy, well-tested hardware with intelligent, flexible computing power.

www.parker.com/iqan

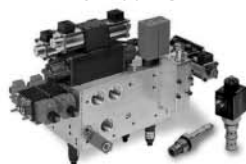
Filtration



Pressure and return line filters enhances machine life, reduces maintenance and lowers costs.

www.parker.com/hydraulicfilter

Integrated Hydraulic Circuits



Solutions for complex circuits that include threaded cartridge valves integrated into a single manifold.

www.parker.com/hcs

Motors



Full line of high and low speed motors provides power up to 15,000 in-lbs of torque.

www.parker.com/pumpmotor

Power Take Off



Parker Chelsea leads the industry for engineering, innovation and performance in auxiliary power systems.

www.parker.com/chelsea

Power Units



The most complete line of standard, pre-engineered, cataloged hydraulic power units in the industry.

www.parker.com/pumpmotor

Pumps



Broad line of energy-efficient hydraulic pumps that includes piston, vane and gear pumps.

www.parker.com/mobpump

Rotary Actuator



Industry leader in the design and manufacture of hydraulic rack and pinion, and vane style rotary actuators.

www.parker.com/actuator

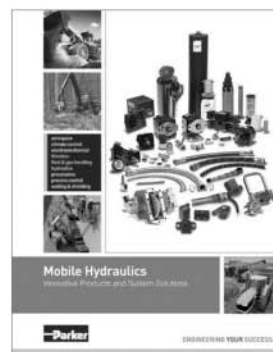
Valves and Controls



Hydraulic valves for virtually every hydraulic equipment application, from simple to precise control.

www.parker.com/hydraulicvalve

Covering the Industrial and Mobile markets, each catalog is paired with an interactive DVD. Call for your comprehensive guides today. 1-800-C-Parker.



Mobile Hydraulics
Bulletin HY19-1012/US



Industrial Hydraulics
Bulletin HY01-1001/US

Parker Hydraulics International Sales Offices

North America

Hydraulics Group Headquarters

6035 Parkland Boulevard
Cleveland, OH 44124-4141 USA
Tel: 216-896-3000
Fax: 216-896-4031

Parker Canada Division

160 Chisholm Drive
Milton, Ontario, L9T 3G9 Canada
Tel: 905-693-3000
Fax: 905-876-1958

Mexico

Parker Hannifin de México

Industrial Hydraulic Sales
Eje Uno Norte No. 100
Parque Industrial Toluca 2000
Toluca, Edo. de Mexico CP 50100
Tel: 52 72 2275 4200
Fax: 52 72 2279 9308

Europe

Hydraulics Group Headquarters

La Tuillière 6
CH-1163 Etoy, Switzerland
Tel: 41 21 821 8500
Fax: 41 21 821 8580

Latin America

Parker Hannifin Ind. e Com. Ltda Hydraulics Division

Av. Frederico Ritter, 1100
94930-000 Cachoeirinha RS, Brazil
Tel: 55 51 3470 9144
Fax: 55 51 3470 9215

Parker Hannifin Argentina S.A.I.C.

Stephenson 2711
1667-Tortuguitas-Malvinas Argentinas
Pcia. de Buenos Aires, Argentina
Tel: 54 3327 44 4129
Fax: 54 3327 44 4199

Pan American Division

7400 NW 19th Street, Suite A
Miami, FL 33126 USA
Tel: 305-470-8800
Fax: 305-470-8808

Industrial Sales

Central Region

1042 Maple Avenue
Unit 331
Lisle, IL 60532 USA
Tel: 630-964-0796

Great Lakes Region

6035 Parkland Boulevard
Cleveland, OH 44124-4141 USA
Tel: 216-896-3000
Fax: 216-896-4031

Gulf Region

20002 Standing Cypress Drive
Spring, TX 77379 USA
Tel: 817-473-4431
Fax: 888-227-9454

Southwest Region

700 S. 4th Avenue
Mansfield, TX 76063 USA
Tel: 817-473-4431
Fax: 888-227-9454

Mid Atlantic & Southeast Regions

1225 Old Alpharetta Rd
Suite 290
Alpharetta, GA 30005 USA
Tel: 770-619-9767
Fax: 770-619-9806

Midwest Region

8145 Lewis Road
Minneapolis, MN 55427 USA
Tel: 763-513-3535
Fax: 763-544-3418

Northeast Region

P.O. Box 396
Pine Brook, NJ 07058 USA
Tel: 973-227-2565
Fax: 973-227-2467

Northwest Region

6458 North Basin Avenue
Portland, OR 97217 USA
Tel: 503-283-1020
Fax: 866-611-7308

Pacific and Plains Region

8460 Kass Drive
Buena Park, CA 90621 USA
Tel: 714-228-2509
Fax: 714-228-2511

Mobile Sales

Mobile Sales Organization and Global Sales

850 Arthur Avenue
Elk Grove Village, IL 60007 USA
Tel: 847-258-6200
Fax: 847-258-6299

Asia Pacific

Parker Hannifin Shanghai Ltd.

280 Yunqiao Road,
Jin Qiao Export Processing Zone
Shanghai 201206, China
Tel: 86 21 2899 5000
Fax: 86 21 5834 8975

Parker Hannifin Hong Kong Ltd.

Suites 01-04, 20/F,
Tower 2, The Gateway,
Harbour City, Tsimshatsui,
Hong Kong
Tel: 852 2428 8008
Fax: 852 2480 4256

Parker Hannifin Korea Ltd.

18F KAMCO Yangjae Tower
949-3 Dogok1-dong, Gangnam-gu
Seoul, 135-860, Korea
Tel: 82 2 559 0408
Fax: 82 2 556 8187

Parker Hannifin India Pvt Ltd.

Plot No. EL-26, MIDC,
TTC Industrial Area
Mahape, Navi Mumbai, 400 709, India
Tel: 91 22 6513 7081
Fax: 91 22 2768 6841

Parker Hannifin Australia

Parker Hannifin Pty Ltd.
9 Carrington Road
Castle Hill, NSW 2154, Australia
Tel: 612 9634 7777
Fax: 612 9842 5111

South Africa

Parker Hannifin Africa Pty Ltd

10 Berne Avenue
Aeroporto
Kempton Park 1620,
Republic of South Africa
Tel: 19 610 700
Fax: 13 927 213

