Farval R DUALINE® Measuring Valves Bulletin DL-600

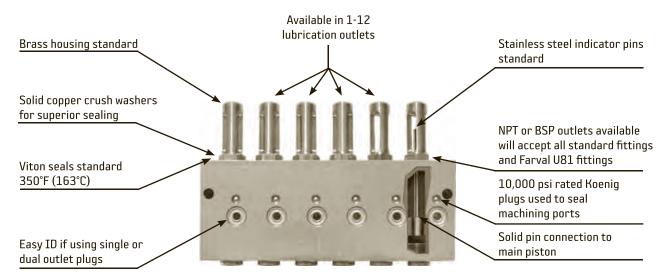
When you need reliable lubrication, stick with Farval.

Dualine[®] lubricating systems are found in virtually every industry in which continuous duty operation is required. From steel production to pulp and paper, from mining equipment to machine tools, automatic application of the lubricant provides significant benefits to the equipment user.



TOP REASONS TO USE FARVAL

- + Over 80 years of experience
- + Ensures lubrication of every bearing and slide
- + Prevents over- and under-lubrication
- + Saves lubrication time
- + Eliminates lubricant contamination
- + Prevents personal injury hazards
- + Promotes continuous high-speed machine operation
- + Reduces repairs and downtime
- + Prolongs machine life
- + Increase production output
- + Reduces operating costs



Every DD50 Series valve is supplied with Teflon/Silicon indicator cover caps and crossport/singling kit

BIJUR DELIMON INTERNATIONAL 2685 Airport Road • Kinston, NC 28504 Tel. 800-227-1063 • Fax: 252-527-9232 website: www.bijurdelimon.com



MEASURING VALVES FOR GREASE OR OIL SYSTEMS

TABLE OF CONTENTS

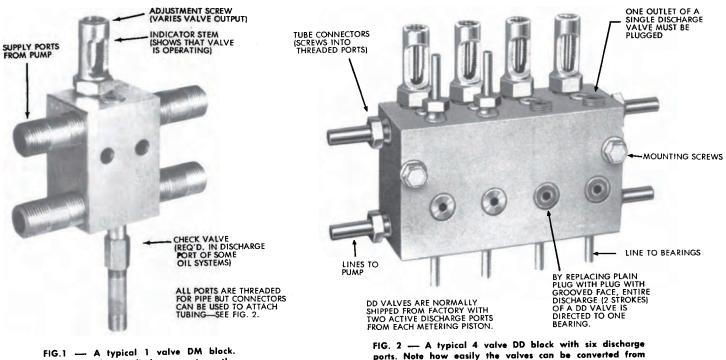
Application
General Description1
Ordering Information2
How Measuring Valves Operate4
The Various Models:
Model DD Valves
DD 20 Series With Indicator Stem and With Adjustment - Small Capacity6
DD 20 Series Without Indicator Stem but With Adjustment - Small Capacity8
DD 50 Series With Indicator Stem and With Adjustment - Large Capacity10
Model DM Valves
With Indicator Stem and With Adjustment - Large Capacity

Application 1.

Farval dual line measuring valves distribute and proportion lubricant from the pump to bearing injection points.

Description 2.

Measuring valves are manufactured in blocks of one, two, three, or four valves and with one or two discharge ports per valve. The DM series always has one discharge port per valve as shown in Fig. 1 while the DD series can have one or two discharge ports per valve as shown in Fig. 2. Valve bodies are of steel and indicator stems are of stainless steel.

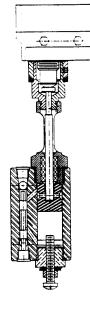


Each valve has a discharge port on the bottom. A 4 valve block would have four discharge ports.

ports. Note how easily the valves can be converted from dual to single discharge by the cross porting kit. It can be later re-converted to dual discharge.

MICRO SWITCH KIT FOR DUALINE VALVES

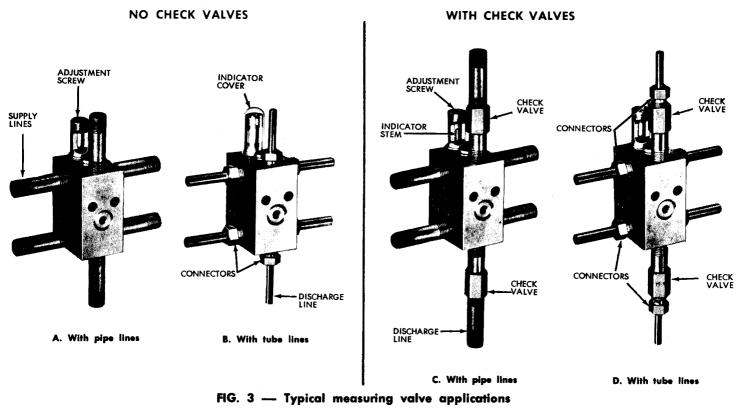
KIT13025B	FOR DM30 SERIES
KIT13009B	FOR DM60 SERIES
KIT13014B	FOR DD50 & DM50 SERIES
KIT13009B4	FOR DM60 WITH NEMA 4 SWITCH
39145	FOR DD50 & DM50 WITH NEMA 4 SWITCH



NOTE: VALVE BODY ASSEMBLY FOR REFERENCE ONLY

Ordering Information 3.

Typical applications with tube connectors, check valves, cross porting kits, and indicator covers in place are illustrated in Figs. 1, 2, and 3. Order both the valves and valve accessories as described below.



Order all valve blocks and all connectors for standard size tubing listed in Table I by the code number described on page 3. Order connectors for non-standard size tubing listed in Table I, as well as check valves, cross porting kits, and indicator covers by part number.

TABLE 1 -	- TUBING SIZES	DISCHARGE PORT C	HECK VALVES,	AND TUBING CONNECTORS
-----------	----------------	------------------	--------------	-----------------------

MEASURING		SUPPLY	PORT					
VALVE	PIPE THREAD SIZE	TUBE SIZE †	CONNECTOR (PIPE TO TUBE)	PIPE THREAD SIZE	TUBE SIZE †	CONNECTOR (PIPE TO TUBE)	CHECK VALVE (PIPE TO PIPE)	INDICATOR COVER
DD2X	1/8''	1/4"	U-81B1	1/8''	3/16"	U-81AA1	U-1975A1	U1732A
DD2X Non Std*	1/8'	3/8''	U-83D1	1/8''	1/4''*	U-83B1**	U-1975B1	U1732A
DD5X	3/8''	3/8''	U-81D3	1/4''	1/4''	U-81B2	U-1972B ***	U1732E
DM3X	3/8''	3/8''	U-81D3	1/8''	1/4''	U-81B1	U-1975B1	U1732C
DM4X, DM5X, DM6X	3/8**	3/8''	U-81D3	1/4''	1/4"	U-81B2	U-1972B***	U1732D,E.F

*Refer to this line for DD2X valves using 3/8" supply tube or 1/4" discharge tube — Both are non-standard

**Select U-81B1 if check valve is used; U-83B1 if check valve is NOT used.

***For these valves, order one 1/4" pipe nipple U-151-32 with the check valve.

†Fractions indicate nominal tube size

NOTES

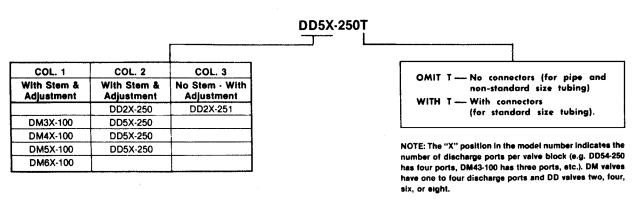
1. To prevent line drainage in oil systems, during periods when pump is not operating, install a check valve in each discharge port in use

Install U-1975A1 when connecting 1/8" pipe.

- Install U-1975A1 with U-81AA1 in its outlet port when connecting 3/16" tubing.
- Install U-1975B1 with U-81B1 in its outlet port when connecting 1/4" tubing.
- 2. To connect tubing to discharge ports in grease systems, install connectors in the port: Install U-81AA1 when connecting 3/16" tubing.
 - Install U-83B1 when connecting 1/4" tubing.
- 3. To connect tubing to supply port in grease or oil systems, install connector in the port:
 - Install U-81B1 when connecting 1/4" tubing.
 Install U-83D1 when connecting 3/8" tubing.

Each cross porting kit provides enough parts for two valves. All standard U-81 connectors can be ordered by code letter "T" as shown on Page 3.

3. Ordering Information-(cont.)



TYPICAL ORDERING CODE

Following are examples of typical orders for valve blocks shipped from the factory ready for dual discharge.

EXAMPLE 1: A DD22-250 valve block is to be installed in a grease system with pipe distribution lines. Installation is similar to Fig. 3a (page 2).

Order: One each DD22-250 Valve Block

- EXAMPLE 2: A DD28-250 valve block is to be installed in a grease system with 1/4" tube supply lines and 3/16" tube discharge lines. Only six discharge ports are needed. See Fig. 2 (page 1).
 - Order: One each DD28-250T Measuring Valve Block One each DDK20-200 Single Outlet Porting Kit

NOTE: Table I shows that in addition to the four valve block, four U-81B1 connectors to the supply ports and eight U-81AA1 connectors from the discharge ports will be furnished (enough connectors for all valve ports are provided for standard tube sizes.) The two extra U-81AA1 connectors can be discarded or used as spares (no credit allowed for return of unused fittings). A single cross porting kit will cross port two valves.

- EXAMPLE 3: A DD26-250 valve block is to be installed in an oil system with 3/8" tubing supply lines and 1/4" tubing discharge lines. The installation will be subject to unusually severe contamination hence indicator covers should be ordered.
 - Order: One each DD26-250 Measuring valve block Six each U-1975B1 Check valves for 1/4" tubing Six each U-81B1 Connectors for 1/4" tubing Four each U-83D1 Connectors for 3/8" tubing Three each U-1732A Indicator covers

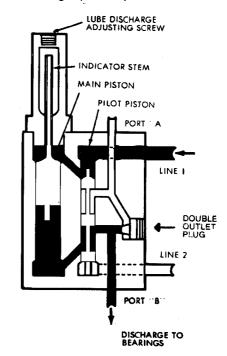
NOTE: The discharge ports must have check valves (page 6, note 1) since this is an oil system. Note that U-81 connectors can only be used in specially machined ports. In this case, the supply ports are machined for 1/4" tubing with U-81B1 connectors. For tubing other than 1/4", U-83 connectors must be used for this size measuring valve.

4. How the Measuring Valves Operate

DD VALVES - DOUBLE OUTLET OPERATING SEQUENCE

Operating sequence of the DD valves is described below. DM valves operate in the same manner except that the upward and downward discharge of the main piston is directed out a single port at position "B".

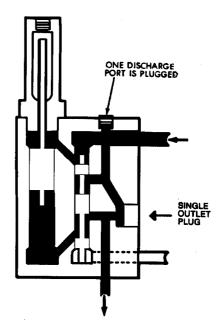
- A. Pressurized lubricant entering valve thru line 1 forces pilot piston down, allowing pressure to be applied to top of main piston. Main piston begins to move down.
- B. Main piston moving down under pressure forces lubricant from its chamber, past the lower land of the pilot piston and out port "B" to the bearings.
- C. During the next operating period, pressure is applied to line 2 and the above operating sequence repeated with the pistons moving in the opposite direction. This time lube moves out port "A".
- D. Indicator stem shows when valve is operating. Valve discharge can be varied by adjusting screw in packing gland to alter main piston travel.



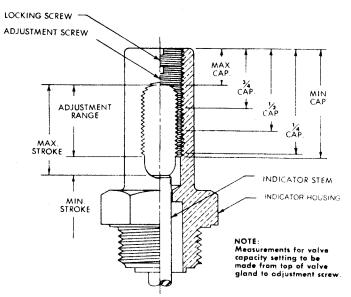
DD VALVES - SINGLE OUTLET OPERATING SEQUENCE

A. When a Farval dual line DD lubricating valve is cross-ported (converted to single discharge) the operational sequence of the valve itself does not change. As shown above, supply lines are pressurized alternately and piston movement remains the same. The only difference is that the total discharge (2x disc./piston stroke) of each valve operation is directed out one outlet to a single bearing.

NOTE: ONE DISCHARGE OUTLET MUST BE PLUGGED WHEN SINGLE OUTLET IS DESIRED.



4. How the Measuring Valves Operate—(cont.)

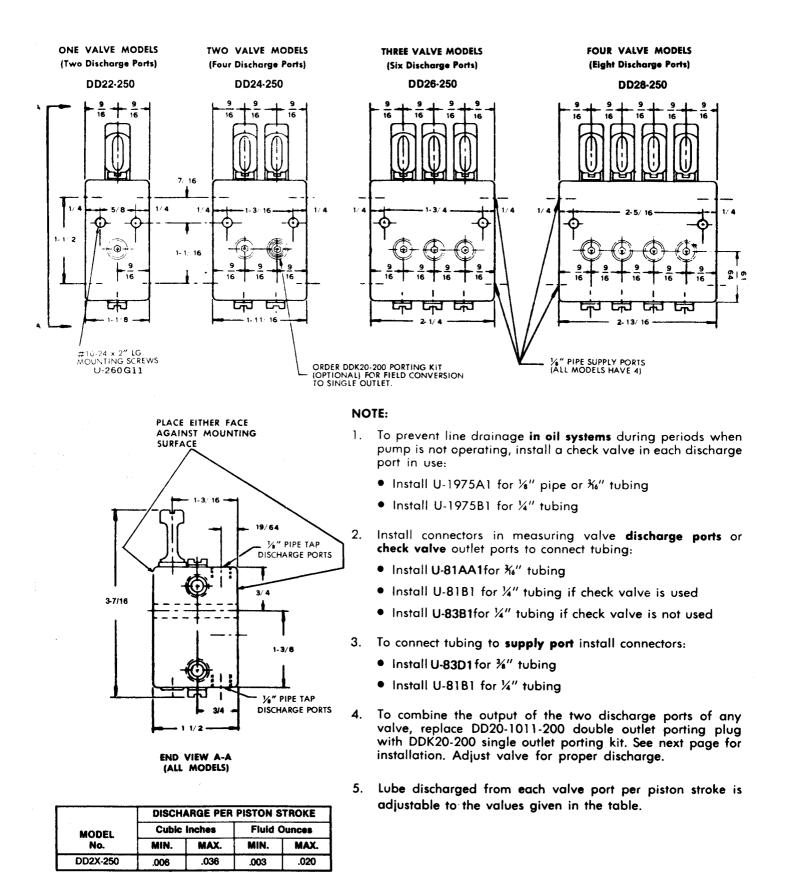


VALVE ADJUSTMENT

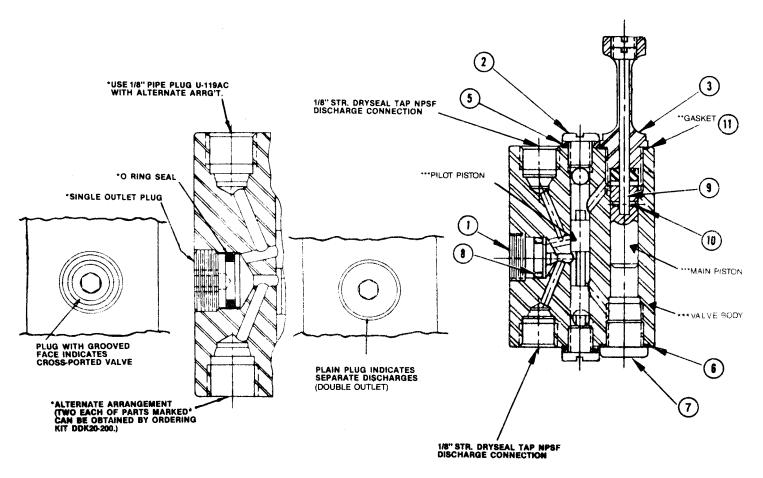
TABLE I VALVE	DISCHARGE AND	VALVE ADJUSTMENT
---------------	---------------	------------------

[DISCH	ARGE PER	PISTON S	TROKE	Disch	Discharge No. of		No. of						
VALVE MODEL	Cubic	Inches	Fluid Ounces		Change Per Adj. Screw		Revolutions of Adj.	Total Adj.	VALVE CAPACITY SETTING-INCHES					
	Min.	Max.	Min.	Max.	Revol	ution	Screw in	Range- Inches						
						Cu. In.	Oz.	Range	niches	Max.	3/4	1/2	1/4	Min.
DD2X	.006	.036	.003	.020	.0024	.0013	17.5	0.45	1/4	27/64	19/32	49/64	7/8	
DD5X	.011	.289	.006	.160	.0114	.0063	25.2	1.21	3/6	49/64	1 1/8	1-31/64	1 1/2	
DM3X	.012	.072	.007	.040	.0052	.0029	11.25	9/18	3/8	35/84	23/32	57/64	15/16	
DM4X	.036	.135	.020	.075	.0072	.0040	13.75	11/18	3/8	39/64	27/32	1 1/16	1 1/18	
DM5X	.075	.306	.042	.170	.0103	.0057	22.5	1 1/8	3/8	47/64	1 3/32	1 28/84	1 1/2	
DM6X	.180	.800	.100	.443	.033	.0194	17.4	31/32	1/2	13/16	1 1/8	1 7/16	1 15/32	

DD20 VALVES WITH INDICATOR STEM AND WITH ADJUSTMENT



DD20 VALVES WITH INDICATOR STEM AND WITH ADJUSTMENT



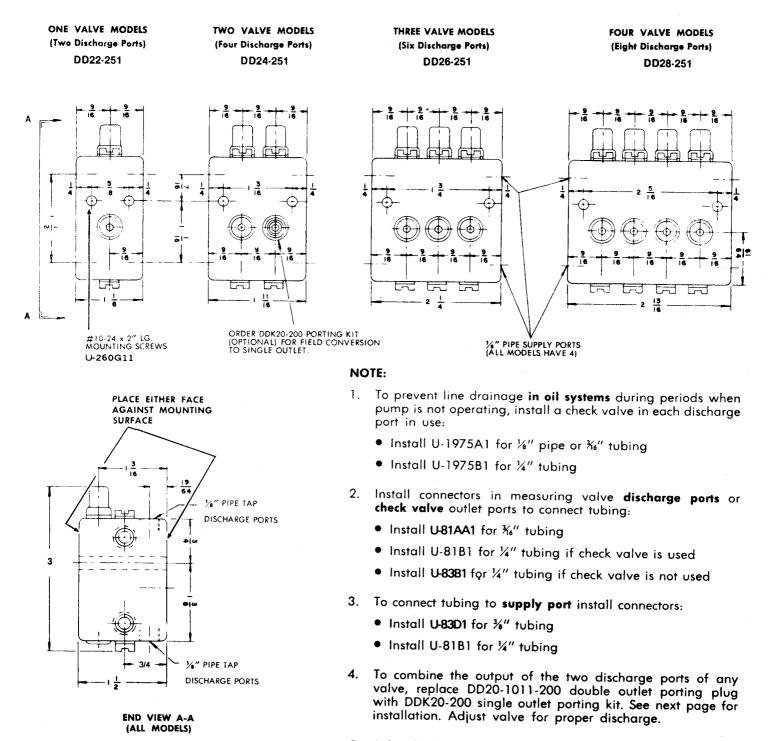
IF VALVE IS DISASSEMBLED, REINSTALL PISTONS IN SAME BORE FROM WHICH THEY WERE REMOVED WITH SAME END FACING ADJUSTMENT SCREW. "INCLUDED WITH ITEM (3)

***THESE ITEMS CANNOT BE ORDERED INDIVIDUALLY.

ITEM	DESCRIPTION	PART NO.	NUMBER REQUIRED SERIES 250 - VALVE					
NO.	DESCRIPTION	FART NO.	DD 22	DD 24	DD 26	DD 28		
1	PORTING PLUG - DOUBLE OUTLET	DD20-1011-200	1	2	3	4		
2	FILLISTER HD. MACH. SCREW	DM14-1403	2	4	6	8		
3	VISUAL INDICATOR KIT	LA-10618	1	2	3	4		
4	HEX HD. MTG. SCREW (not shown)	U-260G11	2	2	2	2		
5	COPPER WASHER - PILOT PISTON	U-1305N	2	4	6	8		
6	COPPER WASHER - MAIN BORE	U-1305U	1	2	3	4		
7	CLOSURE PLUG	U-1523A	1	2	3	4		
8	"O" RING SEAL	32779-1	1	2	3	4		
9	INDICATOR STEM 316 S.S.	FT-1518-7	1	2	3	4		
10	SPIROL PIN	U-1220-A2	1	2	3	4		
	GASKET	U-217-B	1	2	3	4		

NOTE: Replacement of Packing Glands for DD20---Order KIT LA-10618 for 200 Series. Order KIT LA-10619 for 201 Series.

DD20 VALVES WITHOUT INDICATOR STEM BUT WITH ADJUSTMENT



5. Lube discharged from each valve port per piston stroke is adjustable to the values given in the table.

8

DISCHARGE PER PISTON STROKE

Fluid Ounces

MAX.

.020

MIN.

.003

Cubic Inches

MAX.

.036

MIN

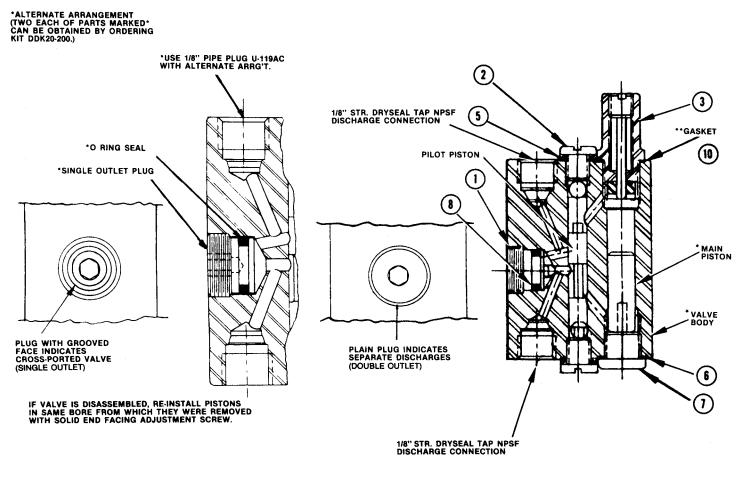
.006

MODEL

No.

DD2X-251

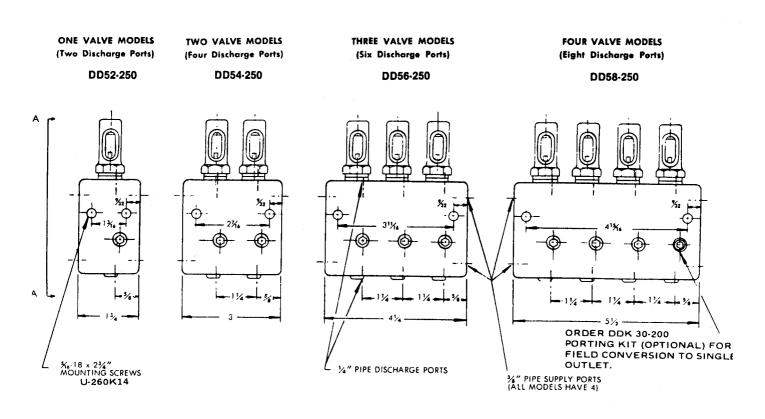
DD20 VALVES WITHOUT INDICATOR STEM BUT WITH ADJUSTMENT



THESE ITEMS CANNOT BE ORDERED INDIVIDUALLY.

ITEM	DESCRIPTION	PART NO.	NUMBER REQUIRED SERIES 251 - VALVE					
NO.	DESCRIPTION	PART NO.	DD 22	DD 24	DD 26	DD 28		
1	PORTING PLUG - DOUBLE OUTLET	DD20-1011-200	1	2	3	4		
2	FILLISTER HD. MACH. SCREW	DM14-1403	2	4	6	8		
3	ADJUSTABLE INDICATOR KIT	LA-10619	1	2	3	4		
4	HEX HD. MTG. SCREW (not shown)	U-260G11	2	2	2	2		
5	COPPER WASHER - PILOT PISTON	U-1305N	2	4	6	8		
6	COPPER WASHER - MAIN BORE	U-1305U	1	2	3	4		
7	CLOSURE PLUG	U-1523A	1	2	3	4		
8	"O" RING SEAL	32779-1	1	2	3	4		
10	GASKET	U-217-B	1	2	3	4		

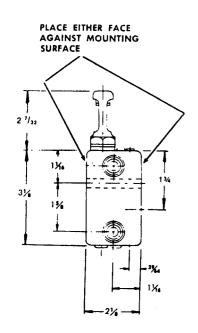
DD50 VALVES WITH INDICATOR STEM AND WITH ADJUSTMENT



NOTES:

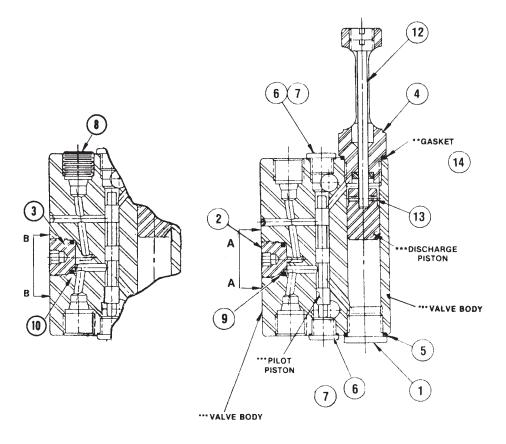
- To prevent line drainage in oil systems during periods when pump is not operating, install check valve U-1972B with a U-151-22 nipple in each discharge port in use which is located more than five feet above or below the distribution lines.
- To connect tubing, (all ports are machined for pipe), install U-81 connectors in the port or check valve - U-81D3 in each supply port for 3/8" tubing and U-81B2 in each discharge port or discharge port check valve for 1/4" tubing. The standard U-81 connectors can be ordered by code number as shown on Page 3.
- 3. To combine the output of the two discharge ports of any valve, replace DD30-1011-200 double outlet porting plug with DDK30-200 single outlet porting kit. See next page for installation. Adjust valve for proper discharge.
- 4. Lube discharge from each valve port is adjustable to the values given in the table.

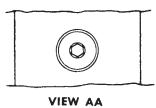
	DISCHARGE PER PISTON STROKE										
MODEL	Cubic	Inches	Fluid Ounces								
No.	MIN.	MAX.	MIN.	MAX.							
DD5X-250	.011	.289	.006	.160							



END VIEW A-A (ALL MODELS)

DD50 VALVES WITH INDICATOR STEM AND WITH ADJUSTMENT





PLAIN PLUG INDICATES SEPARATE DISCHARGES (DOUBLE OUTLET)



VIEW BB

PLUG WITH GROOVE IN FACE INDICATES CROSS-PORTED VALVES. (SINGLE OUTLET)

**INCLUDED WITH ITEM 4.

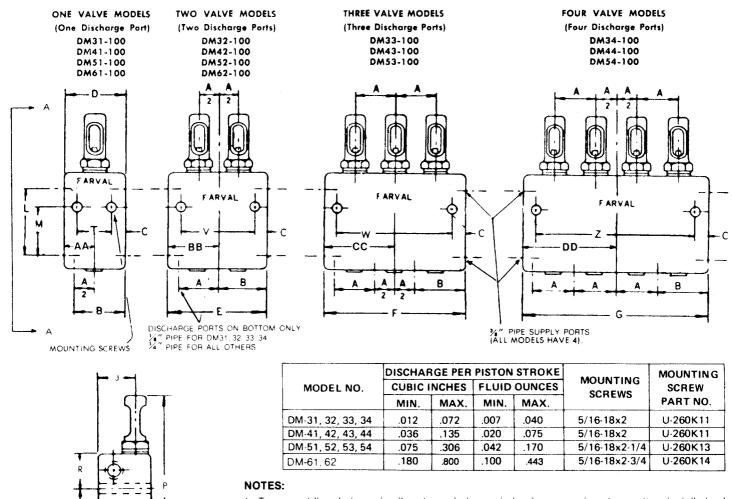
***THESE ITEMS CANNOT BE ORDERED INDIVIDUALLY.

ітем	DESCRIPTION	PART NO.	NUMBER REQUIRED SERIES 250 VALVES					
NO.			DD 52	DD 54	DD 56	DD 58		
1	DISCHARGE BORE PLUG	U-1522G	1	2	3	4		
2	DOUBLE OUTLET PORTING PLUG	DD30-1011-200	1	2	3	4		
* 3	SINGLE OUTLET PORTING KIT	DDK30-200	1	2	3	4		
4	VISUAL INDICATOR KIT	LA-106481	1	2	3	4		
5	COPPER WASHER - MAIN BORE	U-1305W	1	2	3	4		
6	COPPER WASHER - PILOT PISTON	U-1305U	2	4	6	8		
7	INLET BORE PLUG	U-1523A	2	4	6	8		
† 8	HEX. SOC. PIPE PLUG	U-119BC	1	2	3	4		
9	"O" RING SEAL VITON	U-1720-013S	1	2	3	4		
† 10	"O" RING SEAL VITON	U-1720-013S	1	2	3	4		
11	THREAD FORMING MOUNTING SCREWS (NOT SHOWN)	U-260K-14	2	2	2	2		
12	INDICATOR STEM 416 S.S.	U-1209J	1	2	3	4		
13	SOLID CROSS PIN	U-1220-C6	1	2	3	4		
14	GASKET	U-1305W	1	2	3	4		

* (Optional) see alternate arrangement.

+ Included in porting kit - see Paragraph 3, page 10.

DM30, DM40, DM50, AND DM60 VALVES WITH INDICATOR STEM AND WITH ADJUSTMENT



- To prevent line drainage in oil systems during periods when pump is not operating, install check valves in each discharge port which is located more than five feet above or below the distribution lines. Install U-1975B1 in 1/8" ports of DM3X-100 valves and U-1972B with a U-151-22 pipe nipple in 1/4" port of all other valves.
- To connect tubing (all ports are machined for pipe), install U-81 connectors in the port or check valve. For 3/8'' tubing to the supply port, install U-81D3. For 1/4'' tubing from the discharge port or discharge port check valve, install U-81B1 if valve is Dm3X-100 and U-81B2 for all other valves.
- 3. The DM62 valve is also furnished as series No. 101 (DM62-101) which is internally drilled to connect both discharge chambers to one outlet only in order to obtain a single outlet valve of .200 fluid ounces min. to .886 fluid ounces max. discharge capacity.
- 4. Model DM32 has only one mounting hole.
- 5. The last number in the valve size number indicates the number of outlets per block.

		DIMENSIONS IN INCHES																
SIZE	A	B	С	D	E	F	G	J	к	L	M	P	R	S	T	V	w	z
DM-31	11/8	11/16	15/32	13/4				13/32	11/2	15/8	13/32	3' %	31/32	1 132	13%6	_		- 1
DM-32, 33, 34	11/8	17/6	13/6	_	21/8	4	51/8	13/2	11/2	15/8	13/6	315/6	7∕∎	15/8	_	Note 4	11/8	21/4
DM-41, 42, 43, 44	11/4	1%	1¥32	^{۲۱} ۶۴	33%	4 7/6	5 1/ ₁₆	1 3/12	1%	23/6	11/2	43/4	13/32	1 29/32	11/16	25%	3%	4 ¹ %
DM-51, 52, 53, 54	13/6	1 23/32	1¥32	21/8	3%	5	67/6	1 1/32	13/4	23/6	1%	5%	1 352	23/32	1%		43%	5%
DM-61, 62	11%	21/32	13/2	2次	41/4	_		1 15/32	21/4	23%	1%	515%	1 1/32	21/32	15%	33/6		

SIZE	DIMENSIONS IN INCHES							
5122	AA	BB	CC	DD				
DM-41, 42, 43, 44	1	15/8	21/4	21/8				

DISCHARGE

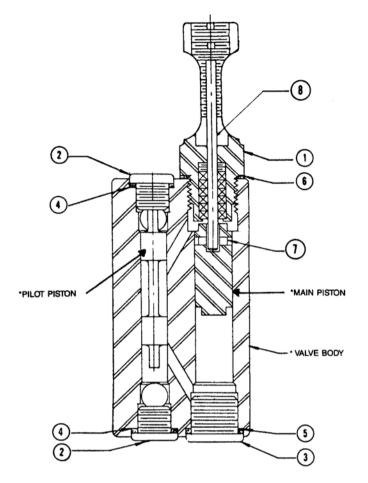
PORT

S

¹¾2

END VIEW A-A (ALL MODELS)

DM30, DM40, DM50, AND DM60 VALVES WITH INDICATOR STEM AND WITH ADJUSTMENT



*THESE ITEMS CANNOT BE ORDERED INDIVIDUALLY.

		SIZE OF MANIFOLD			
ITEM	DESCRIPTION OF PART	DM3X-100	DM4X-100	DM5X-100	DM6X-100
1	PACKING GLAND ASSEMBLY	PG30-1	PG40-1	PG50-1	PG60-1
2	INLET BORE PLUG	U-1523A	U-1523A	U-1523A	U-1523A
3	DISCHARGE BORE PLUG	U-1522D	U-1522E	U-1522G	U-1522K
4	INLET PLUG WASHER	U-1305U	U-1305U	U-1305U	U-1305U
5	DISCHARGE PLUG WASHER	U-1305AB	U-1305V	U-1305W	U-1305AA
6	PACKING GLAND GASKET	U-217E	U-217E	U-217F	U-217N
7	SPIROL PIN	U-1220-A3	U-1220-A3	U-1220-C6	U-1219-C10
8	INDICATOR STEM	U-1209-K	U-1209-D	U-1209-J	U-1209A-L

NOTES: Packing Gland has permanent packing assembled in it. For Mounting Screws - See Table on page 12.



Let 80+ Years Of Experience Design Your Next Lube System

BDI has been a manufacturer of automatic lubricating systems for over 80 years. We offer a complete line of pumps, valves, controllers, and accessories. Our pump line includes manual, air, electric, and hydraulic actuated models. Our valve offering is the most comprehensive in the industry. We manufacture oil and grease Dualine valves, series progressive modular valves, and injectors. We also offer air/oil mixing modules, oil flow meters, and single point lubricators.

Your local distributor:

BIJUR DELIMON INTERNATIONAL

2685 Airport Road • Kinston, NC 28504 Tel. 800-227-1063 • Fax: 252-527-9232 Website: www.bijurdelimon.com



\odot
QUALITY ISO 9001:2008 NSAI Certified