



First choice when quality counts.

Variable Ratio Hydra-Cat[®] Pump and Proportioner

PACKAGES

**Proportioning
Pump for
Plural
Component
Materials**



- Provides accurately mixed and proportioned materials on demand; reduces waste and pot life issues
- Variable ratio settings allow adjustment to meet multiple suppliers' requirements or to fine-tune dry times
- High reliability design for minimum maintenance and maximum up-time
- Easy to use mix manifold allows single hand control of main fluid and catalyst material

Graco's Variable Ratio Hydra-Cat provides many important benefits to plural component material users. The Hydra-Cat accurately pumps and proportions a wide variety of plural component materials on demand which practically eliminates the hazardous waste and cleanup associated with batch mixing. Supplying mixed material on demand also reduces concerns over pot life and related changes in material viscosity thus providing a more consistent finish. The Hydra-Cat's variable ratio flexibility allows use with multiple coatings, from multiple suppliers without having to purchase new equipment. In addition, Graco's high reliability, long life designs provide years of trouble-free service.

Typical Fluids Handled

- Epoxies
- Urethanes
- Resins

Typical Applications

- Protective coatings
- Finish coatings
- Sealants and adhesives

How to Select a Hydra-Cat

Step 1. Select a Mix Ratio

The mix ratio is usually specified by the material manufacturer. Column I of the chart below lists the ratio adjustment range of all Graco adjustable ratio Hydra-Cats. Identify all Hydra-Cats having a ratio range greater than that required for the application.

Note: ratios other than those shown can often be configured on a special basis. Contact Graco Technical Assistance at (800) 543-0339 for details.

Step 2. Select a Pressure Ratio

Within the list of Hydra-Cats selected in Step 1, use Column II to select a pressure ratio that will allow the proportioner to deliver the required fluid pressure. There are likely to be several choices at or near the required pressure ratio. At this point, consider all of them.

Step 3. Select a Flow Rate

From the remaining choices of mix and pressure ratio, select a Hydra-Cat that exceeds the total flow requirement of the application device(s) by approximately 50%. This provides an adequate application factor for such variables as tip or nozzle wear and pump/motor characteristics, etc.

In the chart below, mix ratio, pressure ratio and flow rate are expressed as ranges. The specific figures of each will depend on where the mix ratio is set. From minimum ratio setting (Min-Set) to maximum ratio setting (Max-Set) and vary as follows:

If setting is at Min-Set . . .

- Mix ratio will be at a minimum
- Pressure ratio will be at a minimum
- Flow rate will be at a maximum.

If setting is a Max-Set . . .

- Mix ratio will be at a maximum
- Pressure ratio will be at a maximum
- Flow rate will be at a minimum.

Note 1: The mix ratios below are by volume, not weight.
 Note 2: Hydra-Cat proportioners other than those shown are available on special order. Contact Graco Technical Assistance at (800) 543-0339 for details.

Pump Lower Identification

Lower Identification	Effective Area Sq. In. (sq. mm)	Lower Part No.	Instruction Manual
B2	1.478 (954)	215-932	307-430
C	1.329 (857)	901-878	-
D	.884 (570)	215-930	307-431
2	.554 (357)	222-012	307-944
5	.443 (286)	222-015	307-944
7	.370 (239)	222-017	307-944
9	.277 (179)	222-019	307-944

Air Motor Identification

Air Motor	Effective Area Sq. In. (sq. cm)	Part No.	Instruction Manual
Monark	7.0 (45.6)	205-997	307-043
President	14.19 (91.6)	207-352	306-982
Bulldog	38.48 (248.3)	208-356	307-049

1. Mix Ratio		II. Pressure Ratio		III. Flow Rate*		Pump	Air Motor	Part No.
Min-Set	Max-Set	Min-Set	Max-Set	Min-Set	Max-Set	Code		
0.9:	3.4:1	1:7	2:8	2.8 (10.6)	1.8 (6.8)	B2-B2	Monark	226-930
2.9:1	10:1	2:5	3:2	1.8 (6.8)	1.5 (5.7)	B2-5	Monark	226-931
4.9:1	18:1	3:1	3:6	1.6 (6.0)	1.4 (5.3)	B2-9	Monark	226-932
1.0:1	4.5:1	3:6	6:3	4.0 (15.2)	2.4 (9.1)	B2-B2	President	226-933
1.0:1	4.5:1	6:2	10:7	2.5 (9.5)	1.4 (5.3)	D-D	President	226-934
0.9:1	4.5:1	11:5	17:3	1.5 (5.7)	0.9 (3.4)	2-2	President	226-935
0.9:1	4.5:1	12:2	22:3	1.2 (4.5)	0.7 (2.6)	5-5	President	226-936
0.9:1	4.5:1	13:5	24:0	1.1 (4.1)	0.7 (2.6)	7-7	President	226-937
1.3:	6.0:1	14:5	26:0	1.0 (3.8)	0.7 (2.6)	7-9	President	226-938
1.7:1	7.5:1	16:5	23:3	0.9 (3.4)	0.7 (2.6)	5-9	President	226-939
0.9:1	4.0:1	19:1	23:1	4.2 (16.0)	2.3 (8.7)	C-B2	Bulldog	954-234
2.3:1	10.3:1	21:1	25:1	3.0 (11.4)	2.8 (8.7)	C-2	Bulldog	954-240
4.5:1	20.5:1	25:1	29:1	2.6 (9.8)	2.2 (8.3)	C-9	Bulldog	954-269

* Flow rate is measured as gpm (lpm).

Accessories

Stainless Steel Fluid Pumps

Allows conversion of standard series Hydra-Cat to 304 SST/Teflon® fluid pump construction. Fluid pumps are dimensionally interchangeable with standard carbon steel, Severe Duty™ pumps.

Pump ID	Part No.
B2	See Note 1
C	NA
D	217-529
5	948-195
7	948-197

Note 1: 215-932 is SST.

Teflon Conversion Kits

Kits contain all packings necessary to convert Hydra-Cat fluid pumps from UHMWPE/Teflon to all Teflon.

Pump ID	Teflon Packing Kit
B2	See Note 1
C	207-851
D	See Note 1
2	236-597
5	236-598
7	236-595
9	236-596

Note 1: 215-932 and 215-930 are all Teflon packed.

Repair Kits (Teflon/UHMWPE Packed)

Pump ID	Repair Kit
B2	215-336
C	948-242
D	218-559
2	222-236
5	222-237
7	222-234
9	222-235

Soft Seat Piston Check Conversion

Allows conversion of standard Hydra-Cat fluid pumps to soft seat piston check valves. For use with very low viscosity, difficult to seal materials.

Pump ID	Part No.
B2	NA
C	NA
D	NA
2	948-018
5	948-016
7	948-141
9	948-021

501-095 Foot Valve Load Spring Conversion

Used to provide spring bias for closing foot valve on 2 thru 9 Hydra-Cat pumps. Use with higher viscosity materials to provide faster check valve closing. For use with pressure feed proportioners only.

Ratio Monitor: Pressure Type

Senses off-ratio condition by monitoring pressure in A and B lines. Indirectly detects ratio error from pressure loss due to lack of available material. Select operating pressure range and material of construction.

Pressure Range	Carbon Steel Part No.	Stainless Steel Part No.
90-150 psi	954-637	954-688

Teflon® is a registered trademark of Du Pont.
Severe Duty™ is a trademark of Graco Inc.

Operation

Figure A

Figure A shows a typical Variable Ratio Hydra-Cat in its Min-Set or Minimum Ratio position. As you can see, the air motor is connected directly to the primary fluid pump so that each full stroke of the air motor creates a full stroke in the primary fluid pump as well. The air motor is also connected to the secondary fluid pump by a lever arm, which is supported at the fulcrum like a teeter-totter. In the Min-Set position, the stroke of the primary fluid pump (1) is equal to the stroke of the secondary fluid pump (2).

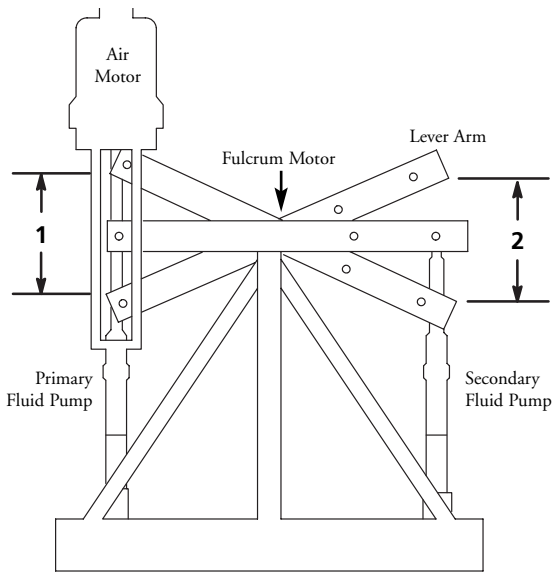


Figure A

- 1 = Primary Stroke 4 in. (102 mm)
- 2 = Secondary Stroke in Minimum Ratio Position

Figure B

Figure B shows the same Variable Ratio Hydra-Cat in the Max-Set or Maximum Ratio position. As you can see, the secondary fluid pump has been moved closer to the fulcrum. In the Max-Set position, the air motor and primary fluid pump still make a full stroke (1), but the secondary fluid pump now makes a shorter stroke (3) which is less than 25% of its original stroke length. By moving the secondary fluid pump closer to or farther from the fulcrum, any ratio in the basic range can be obtained.

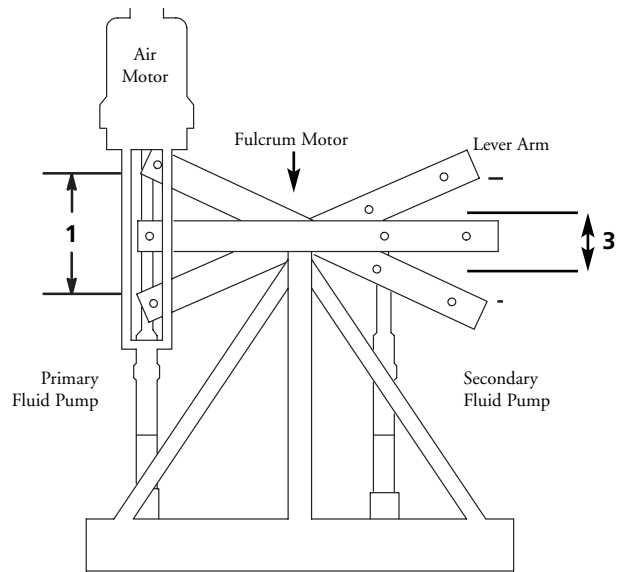


Figure B

- 1 = Primary Stroke 4 in. (102 mm)
- 3 = Secondary Stroke in Maximum Ratio Position

Note: Graco also manufactures a complete line of Fixed Ratio Proportioners for ratios from 1:1 to 20:1. See Data Sheet 305-597.
Graco's Commitment to Value: Our Hydra-Cats are designed and manufactured to the same exacting standards used on Graco's full line of single component pumps. The type of construction and materials used are the result of a major commitment Graco has made to new technology research and on-going product development. An example of this is Graco's unique Severe Duty construction, along with many other features, making Graco the solid choice for proportioner value.