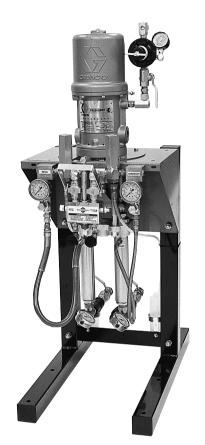


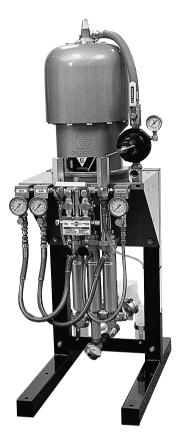
First choice when quality counts.™

Fixed Ratio Hydra-Cat®

- Severe Duty™ lowers for increased wear resistance and durability
- Two- and three-lower designs provide a wide variety of mix ratios
- Teflon packings are standard on Graco's Hydra-Cat lowers.







Fixed Ratio Hydra-Cat Proportioners accurately pump and proportion two-component materials by powering two or three positive displacement pump lowers from a common air motor. This assures that the stroke rate and stroke length of all pump lowers are identical, providing constant proportioning. The mix ratio is fixed by selecting compatible sets of two or three lowers as described below.

Two-Lower Design

These proportioners use two identically-sized lowers driven from a common air motor through a connecting yoke. By incorporating identically-sized lowers for both A and B component materials, a consistent 1:1 mix ratio is achieved under a wide variety of conditions. Identically-sized lowers provide balanced pumping forces, and thus prevent premature packing wear.

Three-Lower Design

A Graco proportioner with three lowers provides mix ratios above 1:1. Like the two-lower design Hydra-Cat, this design incorporates identically-sized lowers for balanced pumping. Two lowers are joined by a manifold to pump one component while a third (center) cylinder is used to pump the second component. In this manner, cylinders of various sizes can be selected to provide a wide variety of mix ratios while maintaining balanced pumping forces and optimum packing life. Hydra-Cats with three lowers are available for mix ratios up to 6.4:1.

How to Select a Hydra-Cat

(This information will be useful for charts on the next page.)

1. Select A Mix Ratio

The mix ratio is usually specified by the material manufacturer. The charts on the next page identify all Graco proportioners for specific mix ratios. Select a proportioner based on a specific mix ratio.

Note: Ratios other than those shown can often be configured on a special basis. Contact Graco Technical Assistance for details.

2. Select a Pressure Ratio

Within the chart for the required mix ratio, select a fluid pressure to inbound air pressure ratio that will allow the proportioner to deliver the required fluid pressure for the available pressure. There are likely to be several choices at or near the required pressure ratio. At this point, consider all of them.

3. Select a Flow Rate

From the possible choices of fluid to air ratio, select one that exceeds the total flow requirements of the application device(s) by approximately 30%. This provides an adequate application factor for such variables as tip or nozzle wear and pump/motor characteristics, etc.

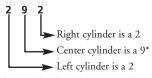
Pump Lower Identification

Graco Hydra-Cat lowers are identified by a single digit derived from the **last** digit of the part number. The chart below lists the various lowers used.

Lower Identification	Effective Area Sq. In. (sq. mm)	Lower Part No.	Instruction Form No.
0	0.887 (572)	948-640	684-004
1	0.740 (477)	948-641	684-004
2	0.554 (357)	222-012	307-944
5	0.443 (286)	222-015	307-944
7	0.370 (239)	222-017	307-944
9	0.277 (179)	222-019	307-944

The lowers can be combined in various combinations to achieve a wide range of mix ratios. Each proportioner has a lower identification code (entitled Lower ID Code on the chart headings) that describes which lowers are used in that proportioner. For example:

Lower ID Code at 4:1 Ratio



^{*}Note: If the center number is replaced with an •, as in the 1:1 Mix Ratios, there is no center lower.

Air Motors

Graco air motors can be used with various lower combinations to achieve a wide range of air-to-fluid pressure ratios. The motors used are as follows:

	Effective Area						
Air Motor	Sq. In.	(sq. cm)	Part No.				
President	14.19	91.55	207-352				
Bulldog	38.48	248.26	208-356				
King	78.54	506.71	207-647				

Proportioner Configuration

Bare proportioners consist of an air motor assembled with two or three lowers. Bare proportioners require a mix manifold, shut-off valves and other installation hardware as described in wall-mount and floor-stand proportioners.

Mix Ratios

The mix ratio of Fixed Ratio Hydra-Cats on the next page is by volume, not weight. Other mix ratios not listed may also be available. Contact Graco Technical Assistance at 800-543-0339 for assistance.

Pressure Ratios

Pressure ratios through 35:1 are listed. Pressure ratios above 35:1 are available for use with lower inlet air pressures to deliver fluid pressures to maximum of 3000 psi (20.4 MPa, 204 bar). Contact Graco Technical Assistance at 800-543-0339 for assistance.

Wall-Mount Type

Wall-mounted proportioners consist of a bare proportioner, mix manifold, shut-off valves, gauges, inlet kit (supply) and wall bracket. These proportioners may require other system accessories such as feed systems, applicators and manifolds as described elsewhere in this catalog. Wall mount proportioners can be mounted directly on a wall or attached to the side of a supply tank or other piece of equipment for convenient installation.

Floor-Stand Type

Floor-stand proportioners consist of a bare proportioner, mix manifold, shut-off valves, gauges, inlet kit and floor-stand. These proportioners may require other system accessories such as supply systems, applicators and manifolds. Floor-stand proportioners are completely free standing. They can be made portable by mounting them on a four-wheel cart designed to accommodate all system components.

Graco Standard Series Hydra-Cat Proportioners

In using the charts below, Fluid to Air Ratio refers to the Fluid Pressure to Inbound Air Pressure. Fluid Flow is always measured at 40 cpm. Under each mix ratio, choose the Fluid to Air Ratio and Fluid Flow for each application. The proportioners shown on this page comprise Graco's Standard Series of Hydra-Cat proportioners. A larger High Capacity Series is available for higher flows. See High Capacity Hydra-Cats.

Commonly Used Mix Ratios

1:1 Mix Ratio

Fluid to Air Ratio				Air Motor	Stand	Wall	Bare
13:1	1.5	5.7	2 • 2	President	231-618	231-593	231-643
19:1	1.0	3.8	7 • 7	President	231-620	231-595	231-645
35:1	1.8	6.7	2 • 2	Bulldog	231-865	231-836	231-897

2:1 Mix Ratio

Fluid to	Fluid Flow		Lower					
Air Ratio	gpm	lpm	ID Code	Air Motor	Stand	Wall	Bare	
13:1	1.5	5.7	777	President	231-632	231-607	231-657	
23:1	2.6	10.0	222	Bulldog	231-876	231-847	231-908	
35:1	1.8	6.7	777	Bulldog	231-878	231-849	231-910	

3:1 Mix Ratio

Fluid to Air Ratio		Ipm	Lower ID Code	Air Motor	Stand	Wall	Bare	
26:1	2.3	8.9	272	Bulldog	231-880	231-851	231-912	

4:1 Mix Ratio

Fluid to		Fluid Flow		Lower					
	Air Ratio	gpm	lpm	ID Code	Air Motor	Stand	Wall	Bare	
	10:1	1.9	7.2	292	President	231-638	231-613	231-663	
	28:1	2.2	8.4	292	Bulldog	231-883	231-854	231-915	
	35:1	3.5	13.4	050	King	231-291	231-286	231-668	

High Capacity Hydra-Cats

The proportioners shown below incorporate pump assemblies used in Graco's line of single component equipment. They provide flow capabilities higher than Graco's standard series proportioners shown on the previous page. Available in air- or hydraulically-powered models.

Lower ID Code	Common Designation	Part No.	Area Sq. In. (sq. cm)
A	10:1 Bulldog	206-792	3.540 (22.84)
В	10:1 President	217-339	1.478 (9.54)
С	30:1 Bulldog	901-878	1.250 (8.07)
D	40:1 Bulldog	946-196	0.886 (5.72)

1:1 Mix Ratio - Air-Powered

Pressure	Fluid Flow @ 40 cpm		Lower ID Code	Air				
Ratio	gpm	lpm	(See note below)	Motor	Stand	Wall	Bare	
5:1	4.0	15.1	B-B	President	_	_	207-914	
5:1	11.0	41.6	A-A	Bulldog	952-802	_	_	
13:1	1.5	5.7	2-2	President	_	_	208-851	
13:1	5.0	18.9	B-B	Bulldog	224-544	_	224-567	

1:1 Mix Ratio - Hydraulically-Powered

Pressure	Fluid Flow	/ @ 40 cpm	Lower ID Code	Air			
Ratio	gpm	lpm	(See note below)	Motor	Stand	Wall	Bare
1.7:1	5.0	18.9	В-В	Viscount II	_	_	217-337

Note:

For **alpha** codes, use the chart at the top of this page.

For **numeric** codes, use the Pump Lower Identification chart on the How to Select a Hydra-Cat page.

Foam-Cat®

Graco manufactures air- and hydraulically-powered foam systems incorporating high capacity proportioners. Foam-Cats are complete systems for dispensing spray, pour or froth foams. In addition to high capacity proportioners, Foam-Cats include heaters, heated hoses, guns and controls to insure a top quality foam product.

Form No. 305-597 Rev. AA

See Form No. 304-878 and 305-535 for details.

Accessories

Stainless Steel Lowers

Allow conversion of any Standard Series Hydra-Cat to 304 SST/Teflon packing lower construction. Lowers are dimensionally interchangeable with CS Severe Duty lowers.

Lower ID	Effective Cylinder Area Sq. In. (sq. mm)	Part No.
5	0.443 (286)	948-195
7	0.370 (239)	948-197

Conversion/Repair Kits

Lower ID	Teflon w/CS Gland	Teflon/ UHMWPE w/CS Gland	Teflon w/SST Gland
0		948-650	
1		948-651	
2	236-597	222-236	
5	236-598	222-237	948-195
7	236-595	222-234	_
9	236-596	222-235	_

501-095 Inlet Valve Spring Load Conversion

Use with higher viscosity materials to provide faster inlet check valve closing. For use with pressure feed proportioners only.

Pressure Monitor

Senses off-ratio condition by monitoring pressure in outlet lines. This monitor will detect ratio error due to lack of available material. Select operating pressure range and material of construction.

Adjustab	le Pressure Ra	ange	CS	SST
 psi	MPa	bar	Part No.	Part No.
90-150	0.6-1.035	6-10.35	954-637	954-688

Technical Specifications

Air operating range 40-100 psi (0.3-0.7 MPa, 3-7 bar)
Maximum fluid outlet pressure 3000 psi
(20.4 MPa, 204 bar)
Maximum fluid inlet pressure* . 750 psi (5.1 MPa, 51 bar)
$\textbf{Maximum recommended cycle rate} \ \dots \dots \dots 40 \ cpm$
Air consumption @ 100 psi (0.7 MPa, 7 bar), 40 cpm
President 20 scfm (.56 m³/min.)
Bulldog
King 110 scfm (3.1 m³/min.)
Wetted Parts stainless steel, carbon steel,
chrome plating, tungsten carbide, Teflon®
* To ensure accurate mix ratios, inlet fluid pressure should not exceed

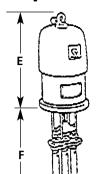
^{*} To ensure accurate mix ratios, inlet fluid pressure should not exceed 25% of the outlet fluid pressure.

Note:

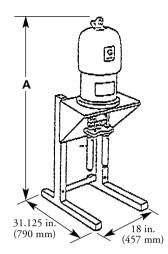
When using proportioners having a pressure ratio above 30:1, inlet air pressure must be regulated below 100 psi (0.7 MPa, 7 bar) to limit fluid outlet pressure to a maximum of 3000 psi (20.4 MPa, 204 bar).

Teflon® is a registered trademark of Du Pont.

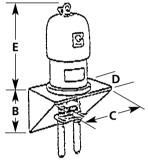
Bare Proportioner



Floor-Stand



Wall-Mount



Dimensions

Air Motor	Standard President	Standard Bulldog	Standard King	207-914	952-802	224-544 224-567	947-314
A	48 in. (1219 mm)	67 in. (1702 mm)	67 in. (1702 mm)	48 in. (1219 mm)	67 in. (1702 mm)	67 in. (1702 mm)	N/A
В	9.38 in. (238 mm)	9.38 in. (238 mm)	9.38 in. (238 mm)	8 in. (203 mm)	9.38 in. (238 mm)	N/A	N/A
С	18 in. (457 mm)	18 in. (457 mm)	18 in. (457 mm)	11 in. (279 mm)	18 in. (457 mm)	N/A	N/A
D	12.5 in. (318 mm)	12.5 in. (318 mm)	12.5 in. (318 mm)	10.5 in. (267 mm)	12.5 in. (318 mm)	N/A	N/A
E	15.5 in. (394 mm)	22 in. (559 mm)	22 in. (559 mm)	15.5 in. (394 mm)	22 in. (559 mm)	22 in. (559 mm)	22 in. (559 mm)
F	23 in. (584 mm)	23 in. (584 mm)	23 in. (584 mm)	21 in. (533 mm)	N/A	25 in. (635 mm)	25 in. (635 mm)
Fluid Inlet	3/4 npt(m)	3/4 npt(m)	3/4 npt(m)	3/4 npt(f) & 1 npt(m)	2 npt(f)	3/4 npt(f) & 1 npt(m)	1 npt(f)
Fluid Outlet	3/8 npt(f)	3/8 npt(f)	3/8 npt(f)	1/2 npt(f)	1 npt(f)	1/2 npt(f)	3/4 npt(f)
Air Inlet	1/2 npt(f)	3/4 npt(f)	3/4 npt(f)	1/2 npt(f)	3/4 npt(f)	3/4 npt(f)	3/4 npt(f)
Weight 2 Cyl.	65 lbs. (30 kg)	88 lbs. (40 kg)	90 lbs. (41 kg)	65 lbs. (29.5 kg)	-	_	-
Weight 3 Cyl.	74 lbs. (34 kg)	97 lbs. (44 kg)	99 lbs. (45 kg)	-	_	_	-
Weight	-	-	-	-	350 lbs. (159 kg)	125 lbs. (57 kg)	300 lbs. (137 kg)