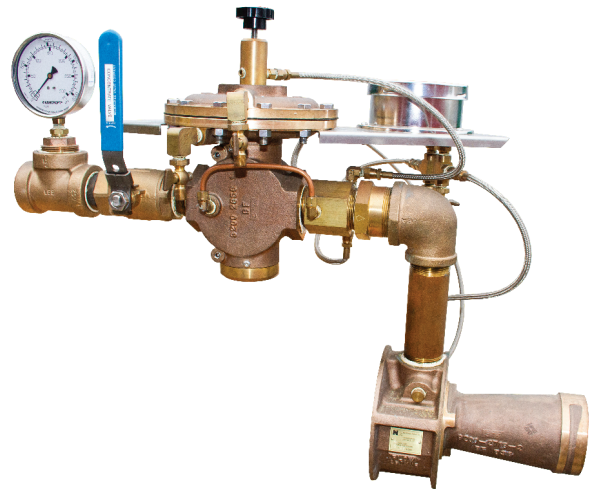


WAFER STYLE ILBP PROPORTIONING MODULES WITH CHECK VALVE

NPR160

Approvals: UL, ULC

- Zone Specific Foam Proportioning Device
- Seawater Compatible
- Field Adjustable Ratio Controller
- Proportioning Range 70 GPM - 5000 GPM
- 1%, 2%, 3%, 6% Proportioning



Description

The In-Line Balanced Pressure Proportioning Module is used in ILBP Proportioning Systems to provide accurate proportioning at multiple locations remote from the foam concentrate pump system and storage tank. The modules are designed to be installed between (2) 150# flanges in schedule 40 pipe, of the same nominal size as the module. A typical ILBP Proportioning Module consists of a wafer style ratio controller, check valve, manual ball valve and foam concentrate inlet pressure gauge. All components are factory assembled using corrosion resistant materials ready for installation into the customers water supply main. National Foam ILBP Proportioning Modules are capable of providing foam protection to all types of hazards on land and are also excellent for various marine applications.

The ILBP Proportioning Module automatically and accurately proportions foam concentrate over the proportioner flow range, regardless of pressure, without manual adjustments. Proper proportioning is achieved simply by maintaining identical water and foam concentrate pressures at the respective inlets of the ratio controller. The diaphragm balancing valve automatically adjusts the foam concentrate pressure to correspond to the water pressure as foam concentrate is supplied to the ILBP Proportioning Module, at a constant pressure, from the foam concentrate pump system.

As an optional feature, the diaphragm

valve can be supplied with manual override capability and a duplex gauge. The duplex gauge monitors balancing of the foam concentrate and water pressures at the ratio controller and also allows the system to be manually balanced in the event of diaphragm valve failure.

Features

- May be used with either fresh or salt water.
- All foam concentrate valves, pipe and fittings are brass for compatibility with all types of foam concentrates, better corrosion resistance and reduction of sedimentation due to internal corrosion. All manual valves are brass or bronze ball valves, which provide low loss characteristics.
- Accurate Proportioning Over a Wide Flow Range
- Fits easily into Risers
- Allows for a Centralized Foam System
- Design working pressure of 250 PSI(17 bar)
- Available in 1%, 2%, 3% or 6% injection for specific foam concentrate proportioning needs or can be supplied with a metering valve for variable proportioning.
- The foam concentrate orifice has an adjustment feature, (factory set) which allows the user to easily fine tune the foam concentrate injection percentage in the field.
- Allows independent selection of water or foam discharge on systems with multiple discharge devices.

- Module utilizes an integral check valve in the foam concentrate line to prevent backflow of water into foam proportioning system.

Applications

- Closed Head Foam-Water Sprinkler Systems
- Aircraft Hangars
- Flammable Liquid Warehouses, Drum Storage Facilities
- Facilities Requiring Multiple Foam Injection Points or Risers
- Tank Farms and Dike Protection
- Warehouses, Offshore Drilling Rigs, Fire Boats
- Docks, Piers
- Any application requiring choice of water or foam application at multiple points

Specifications

The In-Line Balance Pressure (ILBP) Proportioning Module shall be a complete self-contained unit designed to proportion foam concentrate, with fresh or salt water, at the required percentage of concentration over the entire flow range of the ratio controller. See chart for appropriate flow range of each size proportioner. Foam concentrate shall be supplied to the module from a remote source with a constant inlet pressure which exceeds the water pressure at the proportioner inlet by 25 to 30 PSI. The In-Line Balance Pressure (ILBP) Proportioning Module shall include all piping, valves and fittings necessary to comprise a

WAFER STYLE ILBP PROPORTIONING MODULES WITH CHECK VALVE

NPR160

Specifications (cont.)

complete foam proportioning unit and shall be factory assembled using corrosion resistant materials ready for installation into the customers water supply main. The assembled module shall be UL Listed and shall be rated for a working pressure of 250 PSI (17 bar).

ILBP Proportioning Modules are available in sizes from 3" through 8" and shall consist of a cast bronze, wafer style ratio controller (modified venturi proportioner), designed for installation between (2) 150# flanges, in schedule 40 pipe of the same nominal size as the module. The ratio controller shall include a foam concentrate orifice adjustment feature, factory set, which allows the user to easily fine tune the foam concentrate injection percentage in the field. A pressure reducing control type diaphragm valve, constructed of a brass body and diaphragm chamber with reinforced Buna N diaphragm and stainless steel internals, shall be provided to automatically adjust the foam concentrate pressure to correspond to the water pressure. Balancing shall be accomplished by sensing the water and foam concentrate pressures at the inlet to the ratio controller and adjusting the diaphragm valve opening, to maintain the foam concentrate at the same pressure as the water. Teflon tubing, with stainless steel outer braid, shall be used for all pressure sensing lines. The

foam concentrate piping shall include a bushing type check valve, a full port brass ball valve for manual shutoff of the foam concentrate supply to the proportioner, and a pressure gauge to verify proper foam concentrate inlet pressure. The foam concentrate piping shall be schedule 40, brass pipe with threaded brass fittings and shall terminate in 1-1/2" FNPT [3, 4 & 6"(3%) modules] or 2" FNPT [6"(6%) & 8" modules] inlet connections.

As an option, the diaphragm valve can be provided with a hand wheel operated, manual override feature, which locks the diaphragm valve in the open position. A duplex gauge shall be provided, along with the diaphragm valve, to verify proper balance of the foam concentrate and water pressures at the ratio controller and also to allow the system to be manually balanced. The manual foam concentrate shutoff valve is used for manual regulation of the foam concentrate in the event of diaphragm valve failure.

Approvals and Listings

- Underwriters Laboratories, Inc. (UL Listed)
- Underwriters Laboratories, Canada. (ULC Listed)

Technical Data

Ratio Controller:

Cast bronze, wafer style for mounting between 150# FF flanged connections

Piping:

Brass, Schedule 40, Screwed couplings

Manual Valves:

Ball valve, bronze body, & brass or chrome plated brass ball, 400# WOG

Check Valve:

Bushing type, brass body, 300 psi working pressure

Diaphragm Valve:

Brass body with Stainless Steel internals, Reinforced Buna-N diaphragm

Tubing:

Teflon with Stainless Steel overbraid

Hardware:

Stainless Steel

Pressure Gauge:

Stainless Steel case, 3-1/2" dial, 300 PSI (2.7 Bar) range figure intervals 50 PSI (3.4 Bar), small graduations 5 PSI (0.3 Bar)], 1/4" LM connections, English & Metric, phosphor bronze bourdon tube, 1% accuracy

Working Pressure:

250 PSI (17 Bar)

Finish:

Natural

Duplex Gauge: (Manual override option only)

Stainless steel case, 4-1/2" dial, 400 PSI (27.6 Bar) range [figure intervals 50 PSI (3.4 Bar), small graduations 5 PSI (0.3 Bar)], 1/4" CBM connections, English & Metric, phosphor bronze bourdon tube, 1% accuracy.

Options/Accessories

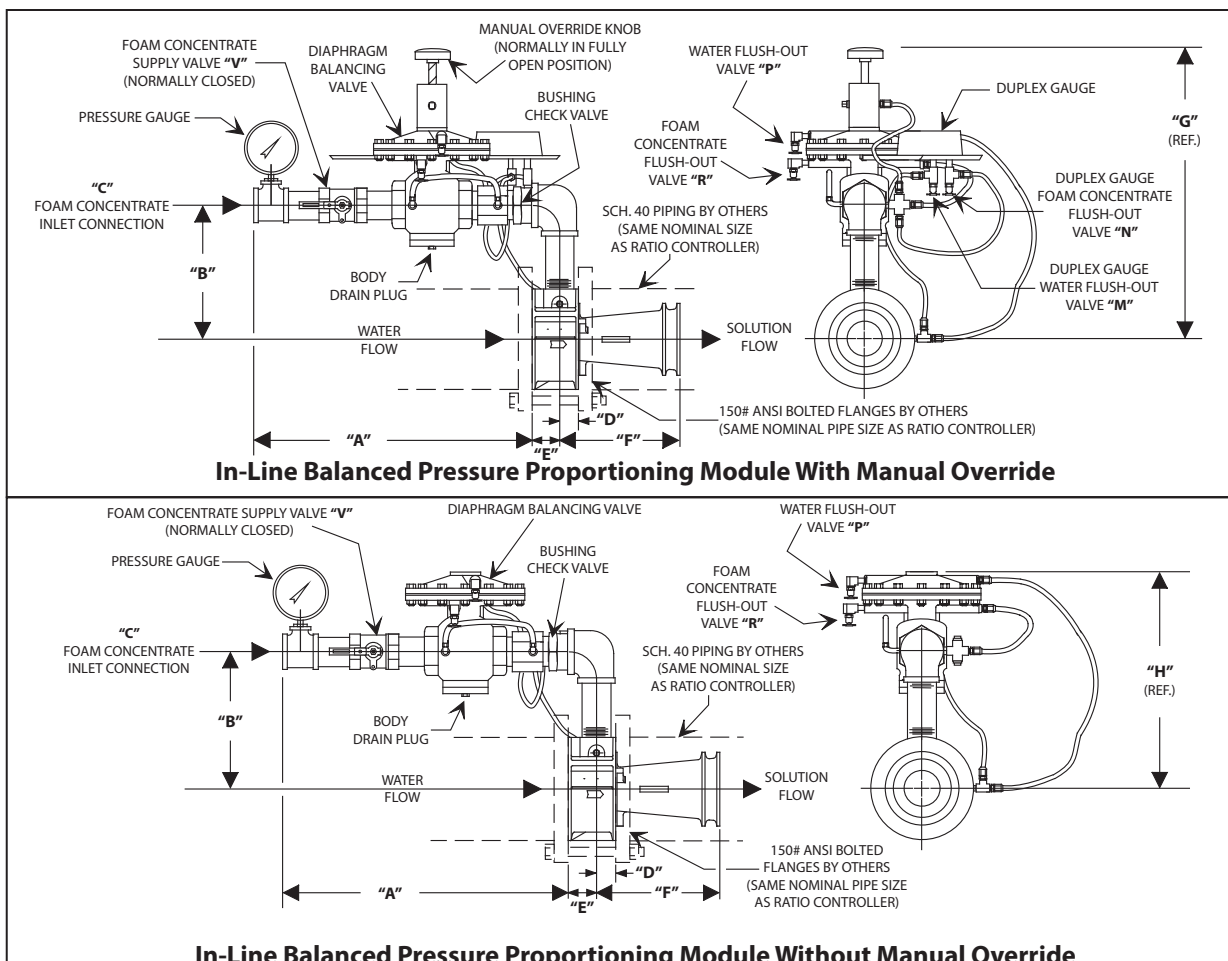
- Manual Override
- Special Finishes
- Metering Valves
- Water Powered Foam Inlet Valve

WAFER STYLE ILBP PROPORTIONING MODULES WITH CHECK VALVE

NPR160

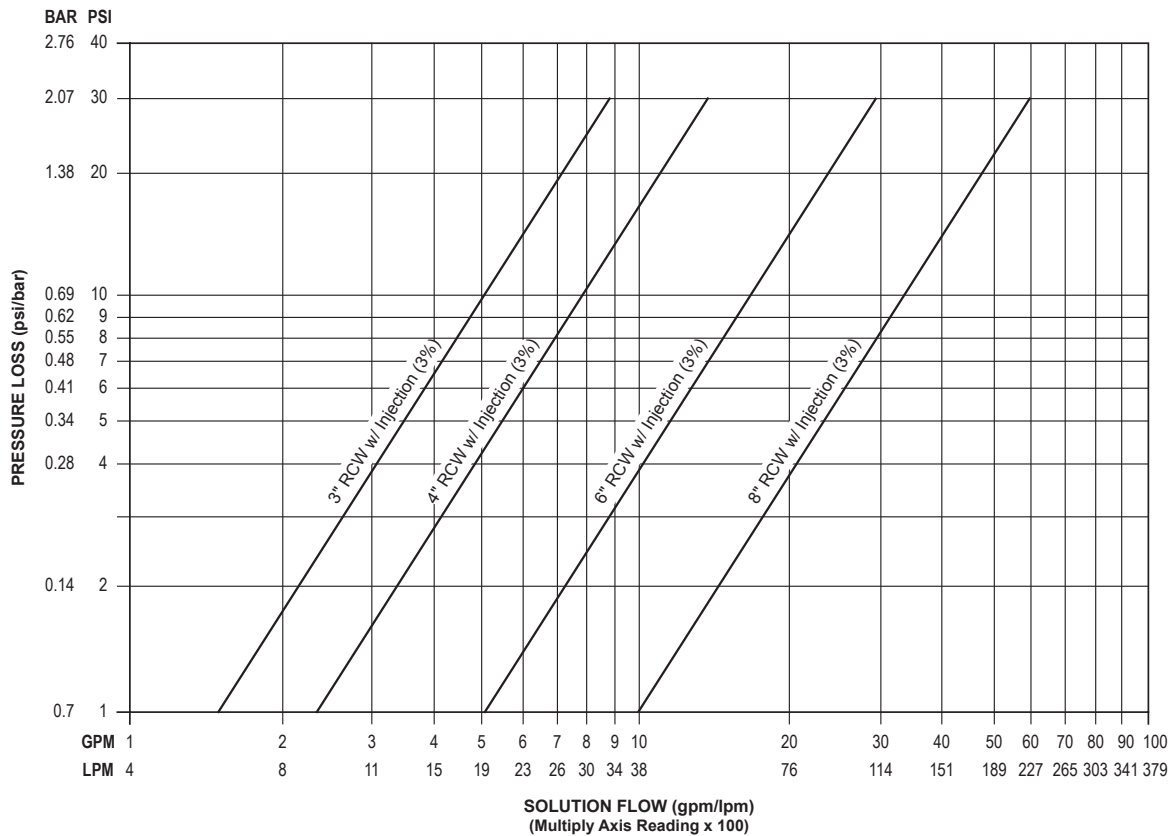
| NOM. PIPE SIZE | PROPORTIONING RANGE - GPM (LPM) | | TABLE OF DIMENSIONS INCHES (MILLIMETERS) | | | | | | | |
|----------------------|------------------------------------|-----------------|---|------------------|---------------|----------------|-----------------|------------------|-------------------|------------------|
| | MIN | MAX | A | B | C | D | E | F | G | H |
| 3 | 70 (265) | 730 (2763) | 19-9/16 (497) | 9-15/16 (252) | 1-1/2 (38) | 1-3/16 (30) | 1-11/16 (43) | 4-13/16 (122) | 19-15/16 (506) | 15-9/16 (395) |
| 4 | 60 (227) | 1606 (6079) | 19-1/4 (489) | 10-1/8 (257) | 1-1/2 (38) | 1-7/32 (31) | 1-31/32 (50) | 8-1/32 (204) | 20-1/8 (511) | 15-3/4 (400) |
| 6 | 106 (401) | 3298 (12484) | 18-7/8 (479) | 11-1/8 (283) | 1-1/2 (38) | 1-5/8 (41) | 2-3/8 (60) | 10-3/8 (264) | 21-1/8 (537) | 16-3/4 (425) |
| 8 | 760 (2877) | 5308 (20093) | 22 (559) | 12-1/4 (311) | 2 (51) | 1-3/4 (44) | 2-1/2 (64) | 11 (279) | 22-11/16 (576) | 18-5/16 (465) |

* Represents the overall flow range for all foam concentrates listed with respective ratio controller.
Refer to UL directory for specific flow range for each foam concentrate.



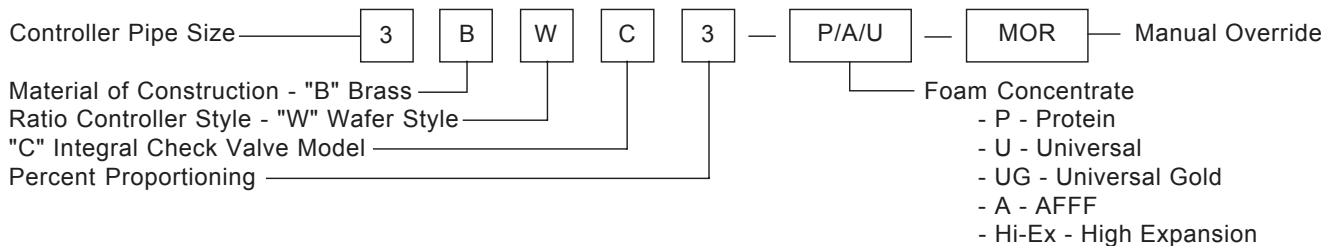
WAFFER STYLE ILBP PROPORTIONING MODULES WITH CHECK VALVE

NPR160



Pressure Loss Performance Data

MODEL NUMBER IDENTIFICATION



WAFFER STYLE ILBP PROPORTIONING MODULES WITH CHECK VALVE

NPR160

ORDERING INFORMATION

| Size | % | Part # | Model # | Weight | | Shipping | |
|------|----|-------------|-----------------|--------|------|-----------------|----------------|
| | | | | LBS | Kgs | Ft ³ | M ³ |
| 3 | 2% | 1233-9023-8 | 3BWC2-Hi-Ex | 69 | 31.4 | 6.2 | 0.18 |
| 3 | 3% | 1233-9024-2 | 3BWC3-P | 69 | 31.4 | 6.2 | 0.18 |
| 3 | 3% | 1233-9024-3 | 3BWC3-A | 69 | 31.4 | 6.2 | 0.18 |
| 3 | 3% | 1233-9024-4 | 3BWC3-UG | 69 | 31.4 | 6.2 | 0.18 |
| 3 | 6% | 1233-9024-6 | 3BWC6-A | 69 | 31.4 | 6.2 | 0.18 |
| 3 | 6% | 1233-9024-7 | 3BWC6-U | 69 | 31.4 | 6.2 | 0.18 |
| 3 | 3% | 1233-9024-8 | 3BWC3-U | 69 | 31.4 | 6.2 | 0.18 |
| 4 | 1% | 1233-9025-0 | 4BWC1-A | 79 | 35.9 | 7.4 | 0.21 |
| 4 | 2% | 1233-9025-9 | 4BWC2-Hi-Ex | 79 | 35.9 | 7.4 | 0.21 |
| 4 | 3% | 1233-9025-1 | 4BWC3-P | 79 | 35.9 | 7.4 | 0.21 |
| 4 | 3% | 1233-9025-2 | 4BWC3-A | 79 | 35.9 | 7.4 | 0.21 |
| 4 | 3% | 1233-9025-3 | 4BWC3-UG | 79 | 35.9 | 7.4 | 0.21 |
| 4 | 6% | 1233-9025-5 | 4BWC6-A | 79 | 35.9 | 7.4 | 0.21 |
| 4 | 6% | 1233-9025-6 | 4BWC6-U | 79 | 35.9 | 7.4 | 0.21 |
| 4 | 3% | 1233-9025-7 | 4BWC3-U | 79 | 35.9 | 7.4 | 0.21 |
| 6 | 1% | 1233-9026-0 | 6BWC1-A | 89 | 40.5 | 8.8 | 0.25 |
| 6 | 2% | 1233-9026-9 | 6BWC2-Hi-Ex | 89 | 40.5 | 8.8 | 0.25 |
| 6 | 3% | 1233-9026-1 | 6BWC3-P | 89 | 40.5 | 8.8 | 0.25 |
| 6 | 3% | 1233-9026-2 | 6BWC3-A | 89 | 40.5 | 8.8 | 0.25 |
| 6 | 3% | 1233-9026-3 | 6BWC3-UG | 89 | 40.5 | 8.8 | 0.25 |
| 6 | 6% | 1233-9026-5 | 6BWC6-A | 89 | 40.5 | 8.8 | 0.25 |
| 6 | 6% | 1233-9026-6 | 6BWC6-U | 89 | 40.5 | 8.8 | 0.25 |
| 6 | 3% | 1233-9026-7 | 6BWC3-U | 89 | 40.5 | 8.8 | 0.25 |
| 6 | 6% | 1233-9026-8 | 6BWC6-UCG6 | 89 | 40.5 | 8.8 | 0.25 |
| 8 | 1% | 1233-9027-0 | 8BWC1-A | 159 | 72.3 | 12.0 | 0.34 |
| 8 | 2% | 1233-9028-7 | 8BWC2-Hi-Ex | 159 | 72.3 | 12.0 | 0.34 |
| 8 | 3% | 1233-9027-1 | 8BWC3-P | 159 | 72.3 | 12.0 | 0.34 |
| 8 | 3% | 1233-9027-2 | 8BWC3-A | 159 | 72.3 | 12.0 | 0.34 |
| 8 | 3% | 1233-9027-3 | 8BWC3-UG | 159 | 72.3 | 12.0 | 0.34 |
| 8 | 6% | 1233-9027-5 | 8BWC6-A | 159 | 72.3 | 12.0 | 0.34 |
| 8 | 6% | 1233-9027-6 | 8BWC6-U | 159 | 72.3 | 12.0 | 0.34 |
| 8 | 3% | 1233-9027-7 | 8BWC3-U | 159 | 72.3 | 12.0 | 0.34 |
| 8 | 6% | 1233-9027-9 | 8BWC6-UCG6 | 159 | 72.3 | 12.0 | 0.34 |
| 3 | 2% | 1233-9034-1 | 3BWC2-Hi-Ex-MOR | 74 | 33.6 | 6.2 | 0.18 |
| 3 | 3% | 1233-9034-2 | 3BWC3-P-MOR | 74 | 33.6 | 6.2 | 0.18 |
| 3 | 3% | 1233-9034-3 | 3BWC3-A-MOR | 74 | 33.6 | 6.2 | 0.18 |

WAFFER STYLE ILBP PROPORTIONING MODULES WITH CHECK VALVE

NPR160

ORDERING INFORMATION

| Size | % | Part # | Model # | Weight | | Shipping | |
|------|----|-------------|-----------------|--------|------|-----------------|----------------|
| | | | | LBS | Kgs | Ft ³ | M ³ |
| 3 | 3% | 1233-9034-4 | 3BWC3-UG-MOR | 74 | 33.6 | 6.2 | 0.18 |
| 3 | 6% | 1233-9034-6 | 3BWC6-A-MOR | 74 | 33.6 | 6.2 | 0.18 |
| 3 | 6% | 1233-9034-7 | 3BWC6-U-MOR | 74 | 33.6 | 6.2 | 0.18 |
| 3 | 3% | 1233-9034-8 | 3BWC3-U-MOR | 74 | 33.6 | 6.2 | 0.18 |
| 3 | 6% | 1233-9034-9 | 3BWC6-UCG6-MOR | 74 | 33.6 | 6.2 | 0.18 |
| 4 | 1% | 1233-9035-0 | 4BWC1-A-MOR | 84 | 38.2 | 7.4 | 0.21 |
| 4 | 2% | 1233-9035-9 | 4BWC2-Hi-Ex-MOR | 84 | 38.2 | 7.4 | 0.21 |
| 4 | 3% | 1233-9035-1 | 4BWC3-P-MOR | 84 | 38.2 | 7.4 | 0.21 |
| 4 | 3% | 1233-9035-2 | 4BWC3-A-MOR | 84 | 38.2 | 7.4 | 0.21 |
| 4 | 3% | 1233-9035-3 | 4BWC3-UG-MOR | 84 | 38.2 | 7.4 | 0.21 |
| 4 | 6% | 1233-9035-5 | 4BWC6-A-MOR | 84 | 38.2 | 7.4 | 0.21 |
| 4 | 6% | 1233-9035-6 | 4BWC6-U-MOR | 84 | 38.2 | 7.4 | 0.21 |
| 4 | 3% | 1233-9035-7 | 4BWC3-U-MOR | 84 | 38.2 | 7.4 | 0.21 |
| 4 | 6% | 1233-9035-8 | 4BWC6-UCG6-MOR | 84 | 38.2 | 7.4 | 0.21 |
| 6 | 1% | 1233-9036-0 | 6BWC1-A-MOR | 94 | 42.7 | 8.8 | 0.25 |
| 6 | 2% | 1233-9036-9 | 6BWC2-Hi-Ex-MOR | 94 | 42.7 | 8.8 | 0.25 |
| 6 | 3% | 1233-9036-1 | 6BWC3-P-MOR | 94 | 42.7 | 8.8 | 0.25 |
| 6 | 3% | 1233-9036-2 | 6BWC3-A-MOR | 94 | 42.7 | 8.8 | 0.25 |
| 6 | 3% | 1233-9036-3 | 6BWC3-UG-MOR | 94 | 42.7 | 8.8 | 0.25 |
| 6 | 6% | 1233-9036-5 | 6BWC6-A-MOR | 94 | 42.7 | 8.8 | 0.25 |
| 6 | 6% | 1233-9036-6 | 6BWC6-U-MOR | 94 | 42.7 | 8.8 | 0.25 |
| 6 | 3% | 1233-9036-7 | 6BWC3-U-MOR | 94 | 42.7 | 8.8 | 0.25 |
| 6 | 6% | 1233-9036-8 | 6BWC6-UCG6-MOR | 94 | 42.7 | 8.8 | 0.25 |
| 8 | 1% | 1233-9037-0 | 8BWC1-A-MOR | 164 | 74.5 | 12.0 | 0.34 |
| 8 | 2% | 1233-9037-9 | 8BWC2-Hi-Ex-MOR | 164 | 74.5 | 12.0 | 0.34 |
| 8 | 3% | 1233-9037-1 | 8BWC3-P-MOR | 164 | 74.5 | 12.0 | 0.34 |
| 8 | 3% | 1233-9037-2 | 8BWC3-A-MOR | 164 | 74.5 | 12.0 | 0.34 |
| 8 | 3% | 1233-9037-3 | 8BWC3-UG-MOR | 164 | 74.5 | 12.0 | 0.34 |
| 8 | 6% | 1233-9037-5 | 8BWC6-A-MOR | 164 | 74.5 | 12.0 | 0.34 |
| 8 | 6% | 1233-9037-6 | 8BWC6-U-MOR | 164 | 74.5 | 12.0 | 0.34 |
| 8 | 3% | 1233-9037-7 | 8BWC3-U-MOR | 164 | 74.5 | 12.0 | 0.34 |
| 8 | 6% | 1233-9037-8 | 8BWC6-UCG6-MOR | 164 | 74.5 | 12.0 | 0.34 |

Note: See page 4 for Model Number Identification