# Balancing Procedure
# CBAL2 / CBE2-24

Titus
Redefine your comfort zone.™

## 1. Waterside Commissioning

1. Fully purge the complete hydronic system of air prior to commissioning.
2. Carefully inspect the system for leaks, paying particular attention to the connections.
3. Carefully inspect flexible hose, if applicable, for leaks.
4. Use system balancing valves to adjust water flow rate to specified values.

### Note

*The chilled beam is not provided with any water flow control or measuring devices, therefore the pipe work system should be fitted with sufficient balancing aids to enable adjustment of the flow rate.*

## 2a. Airside Commissioning – Preparation

Check that the ductwork between main supply air ducts and chilled beams is airtight. Connections and fittings should be sealed to SMACNA class B standard up to 2 in. w.g. Ductwork pressure testing is recommended to identify leaks before the chilled beams are balanced.

Final duct connections should be straight immediately upstream of the chilled beam units. Ductwork should have at least THREE duct diameters length of straight duct before the first system bends. Twisted or kinked flexible duct final connections or bends immediately upstream of the beam will result in incorrect pressure port readings on the beam.

## 2b. Airside Commissioning – Airflow Measuring & Balancing Procedure

The primary air flow rate is determined by measuring the static pressure in the primary air chamber and referring to the calibration chart label provided on each beam or the charts shown at the end of this document. Alternatively use the static pressures listed on the Titus chilled beam schedule provided in the submittal drawing set.

### Note

*Do not attempt to read the total discharge airflow rate using a hood or any other device that adds downstream pressure to the beam as it will reduce the amount of induction and give false readings. The total air flow (primary + induced) cannot be measured!*

*The pitot-traverse method must not be used to measure the airflow in the small primary air ducts serving the chilled beam, this will result in inaccurate readings, the only accurate method is to measure the static pressure in the primary air plenum as described in the next section.*

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## 2b. Airside Commissioning – Airflow Measuring & Balancing Procedure

### To measure static pressure:

Locate the pressure port located in the supply air slot near the end of the beam (see image). It is not necessary to lower induction grille to access the port but it can be lowered for easier access. Remove cap and attached a static pressure measuring gauge.

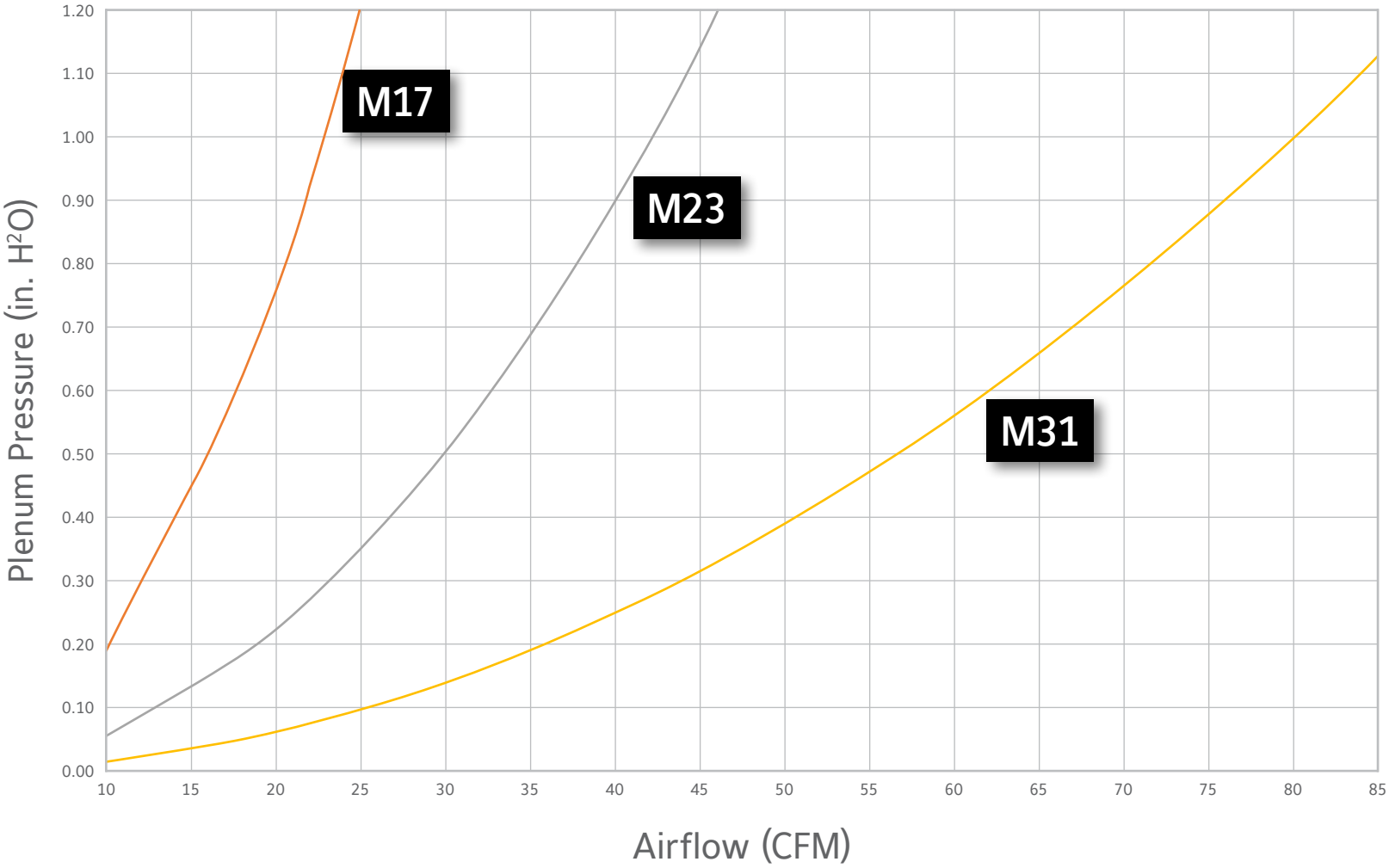

### Air Balancing

Adjust the branch balancing dampers to change the pressure in the chilled beam primary air plenum so the pressure measured matches the pressure shown on the Titus chilled beam submittal schedule or the airflow read from the commissioning charts shown on the next section. Branch balancing dampers should be used for trimming only, excessive throttling of pressure may result in excessive noise.

## 3. Airside Commissioning Charts

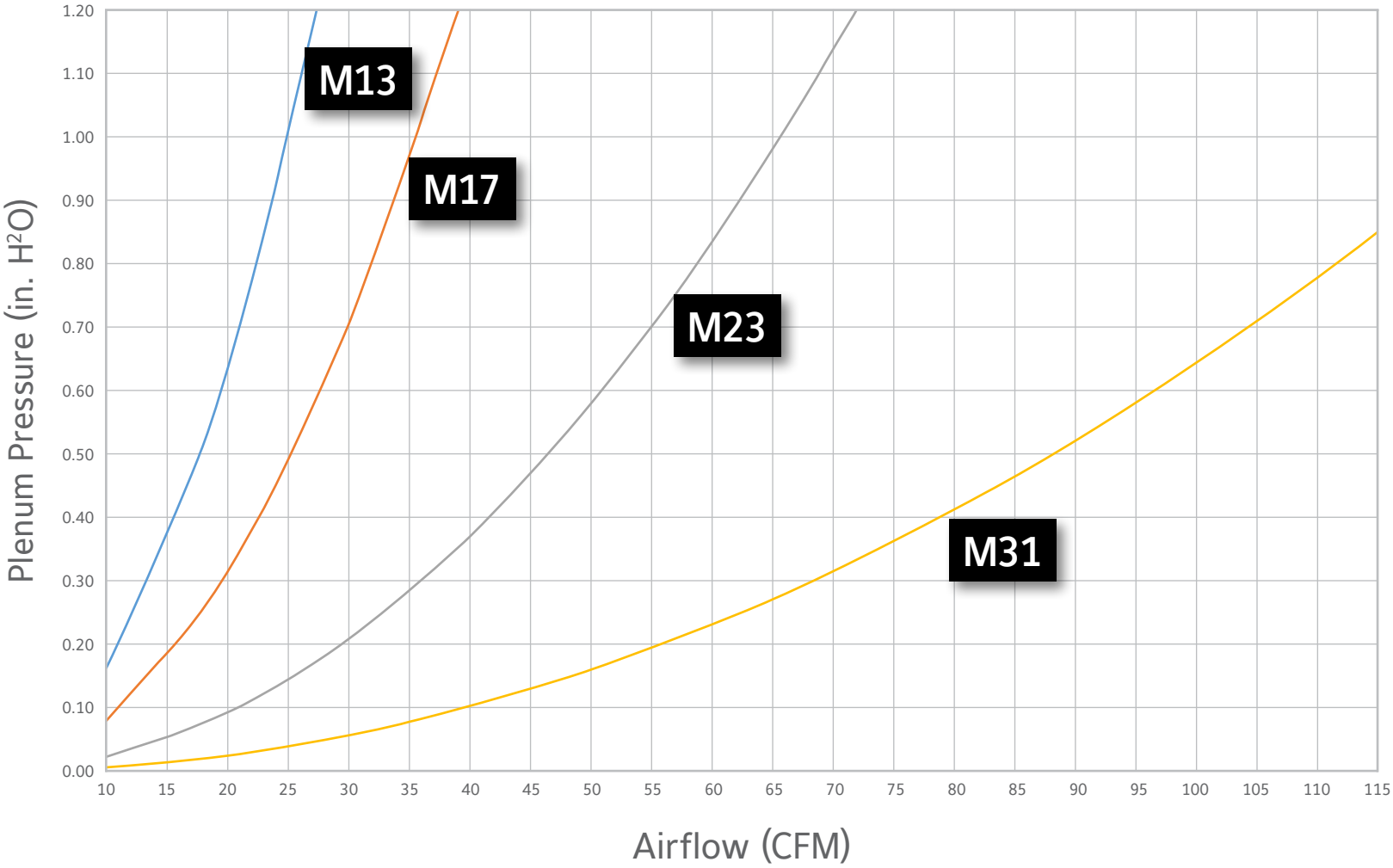
# CBAL2/CBE2-24 Commissioning Chart

2′ Long, 2-Way Throw



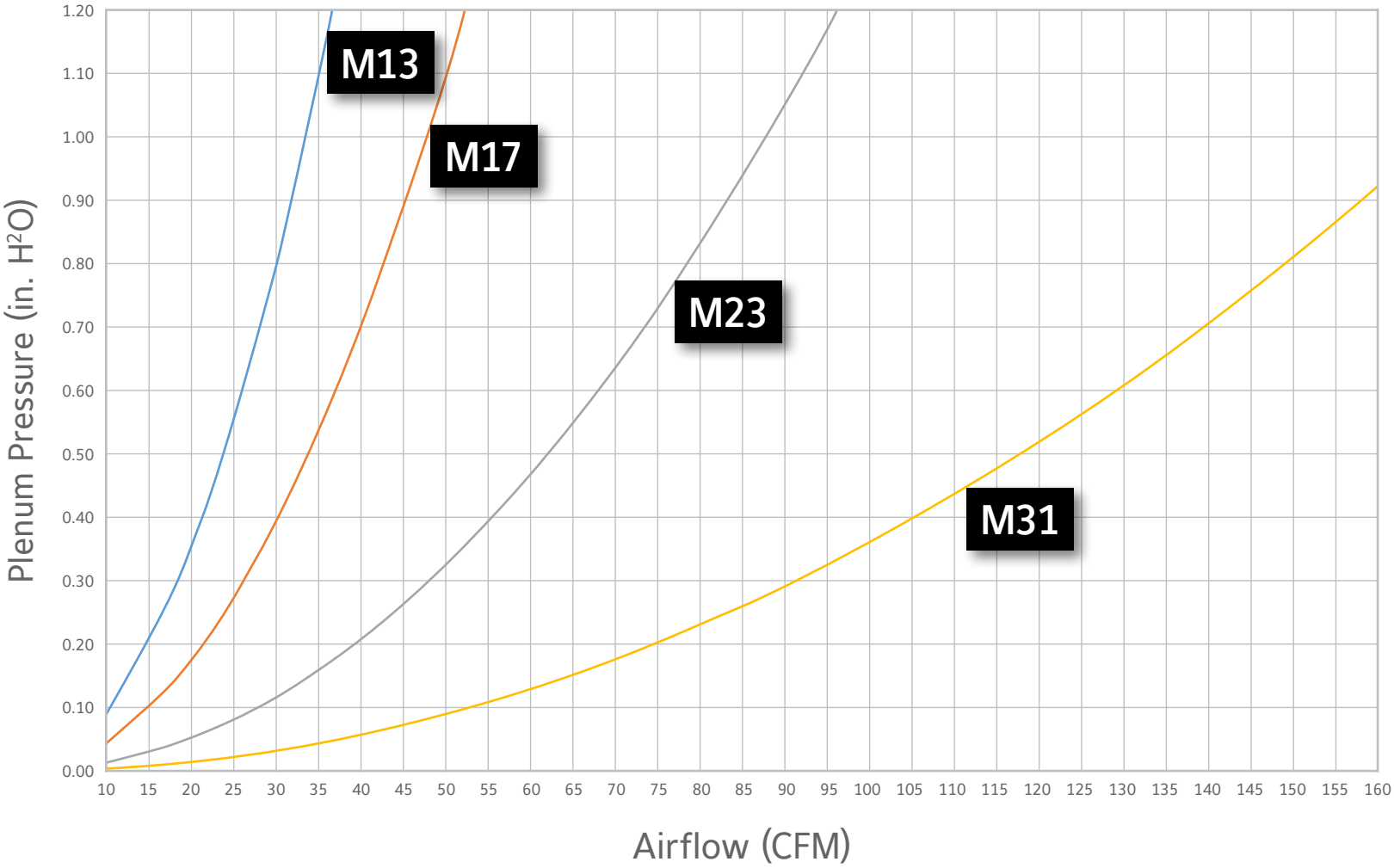
# CBAL2/CBE2-24 Commissioning Chart

3′ Long, 2-Way Throw



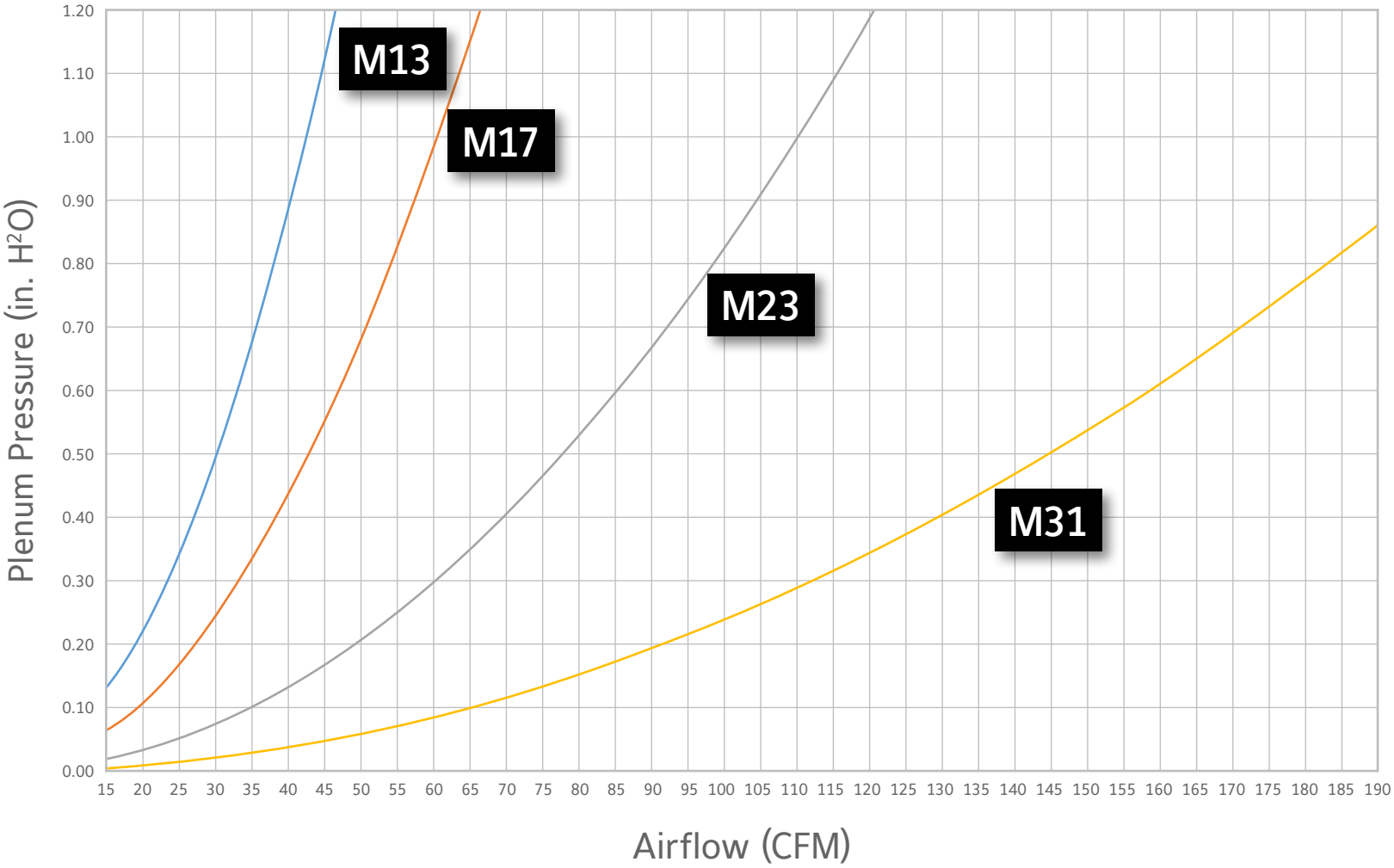
# CBAL2/CBE2-24 Commissioning Chart

4′ Long, 2-Way Throw



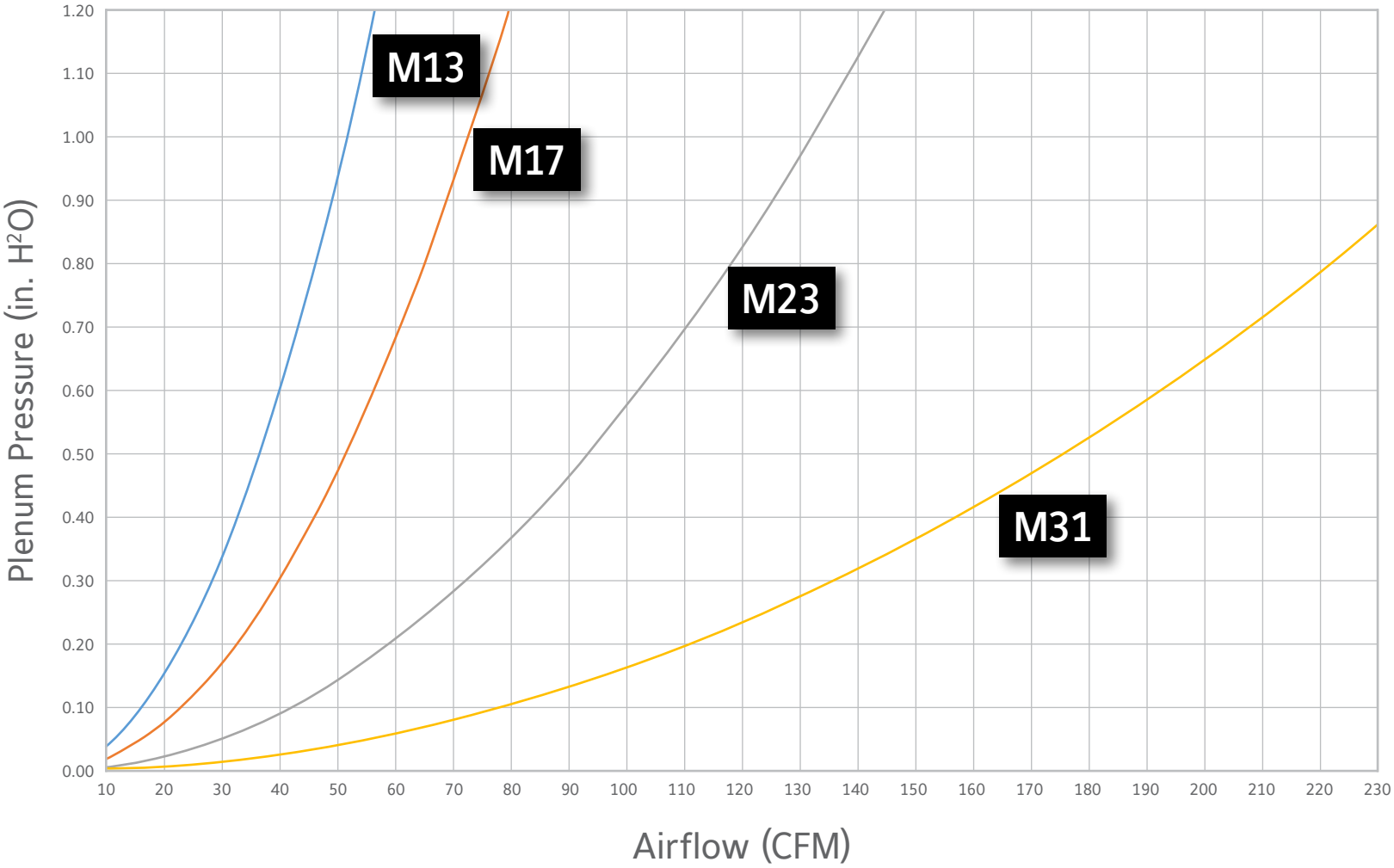
# CBAL2/CBE2-24 Commissioning Chart

5′ Long, 2-Way Throw



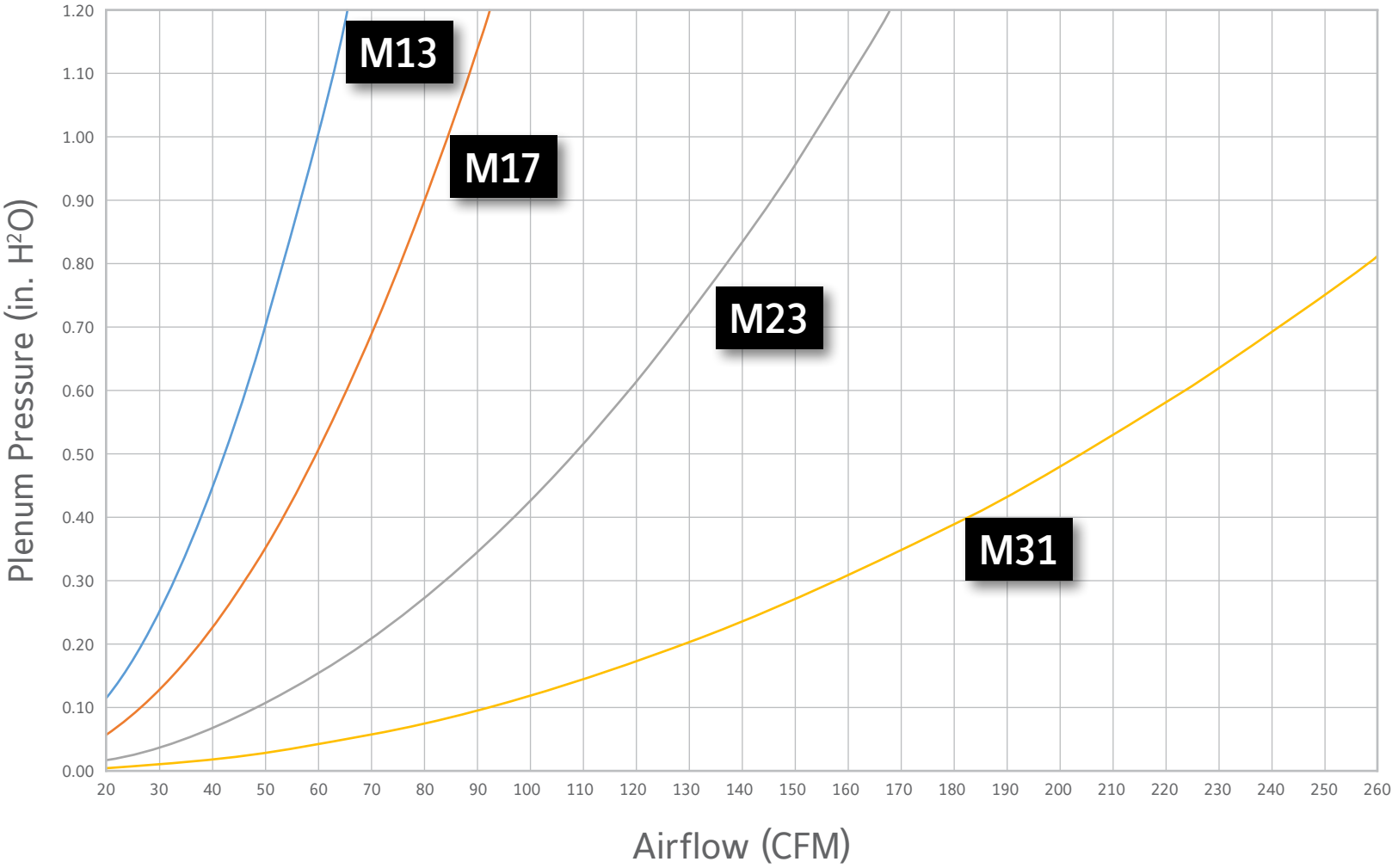
# CBAL2/CBE2-24 Commissioning Chart

6′ Long, 2-Way Throw



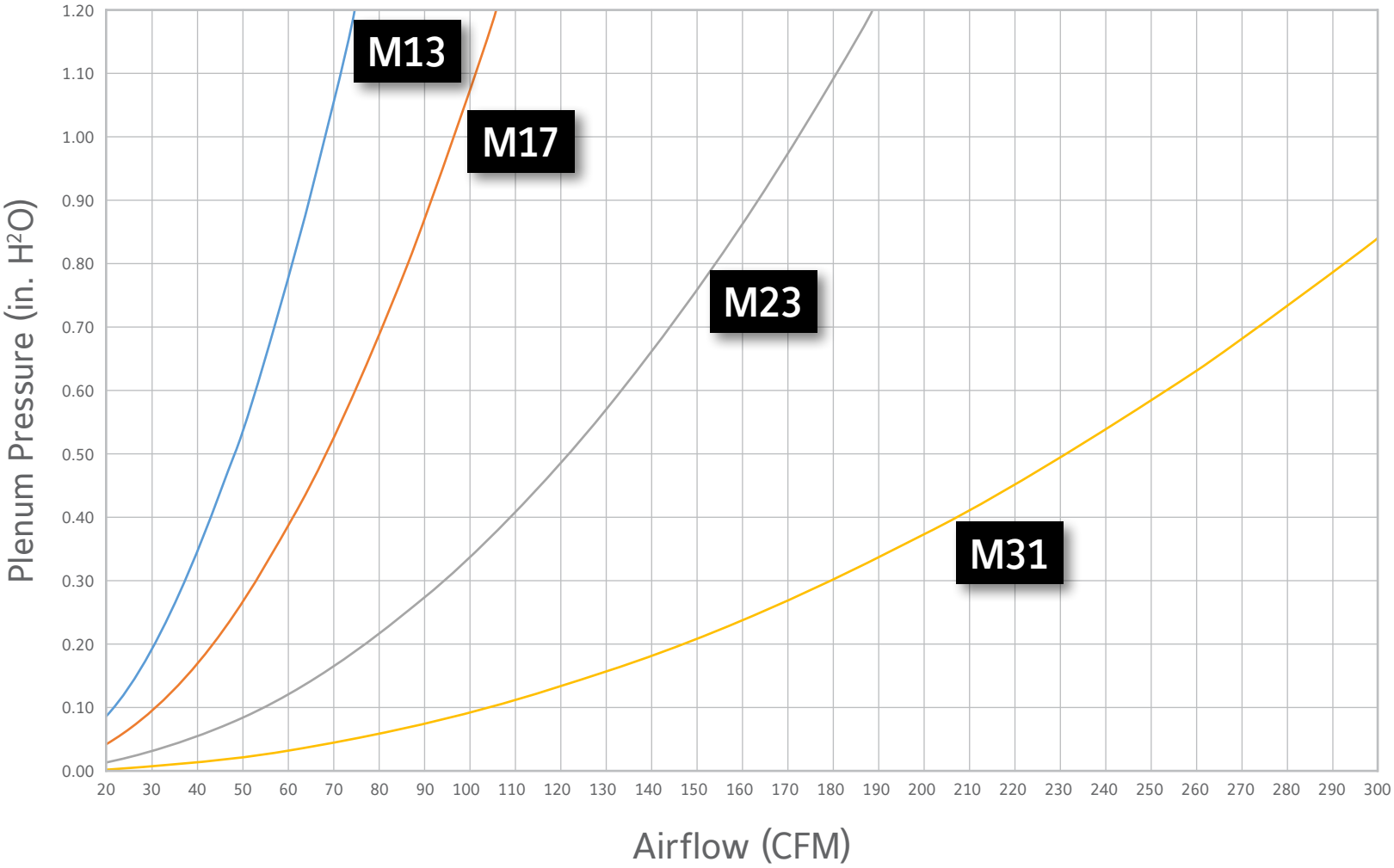
# CBAL2/CBE2-24 Commissioning Chart

7′ Long, 2-Way Throw



# CBAL2/CBE2-24 Commissioning Chart

8′ Long, 2-Way Throw



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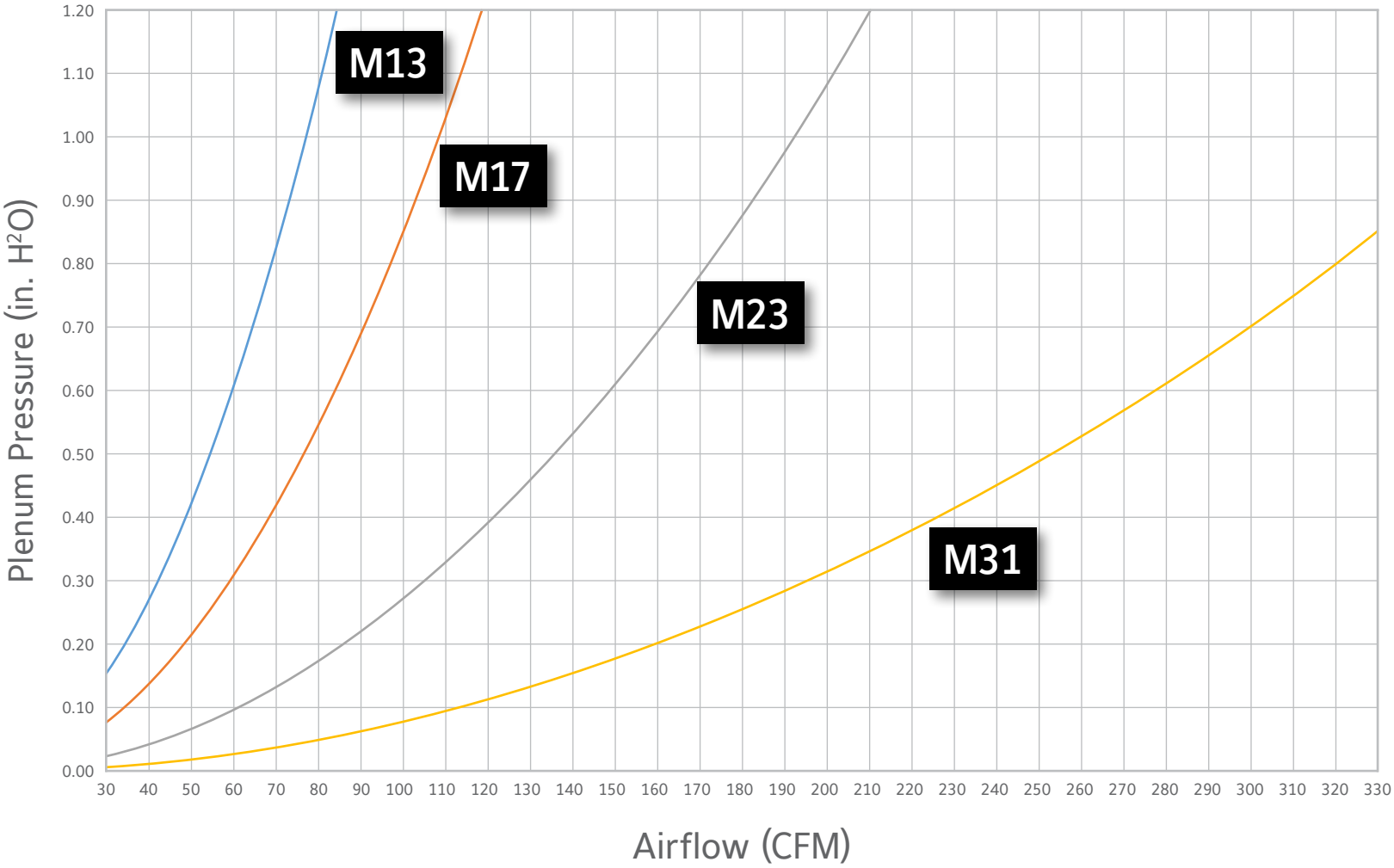
9′ Long, 2-Way Throw



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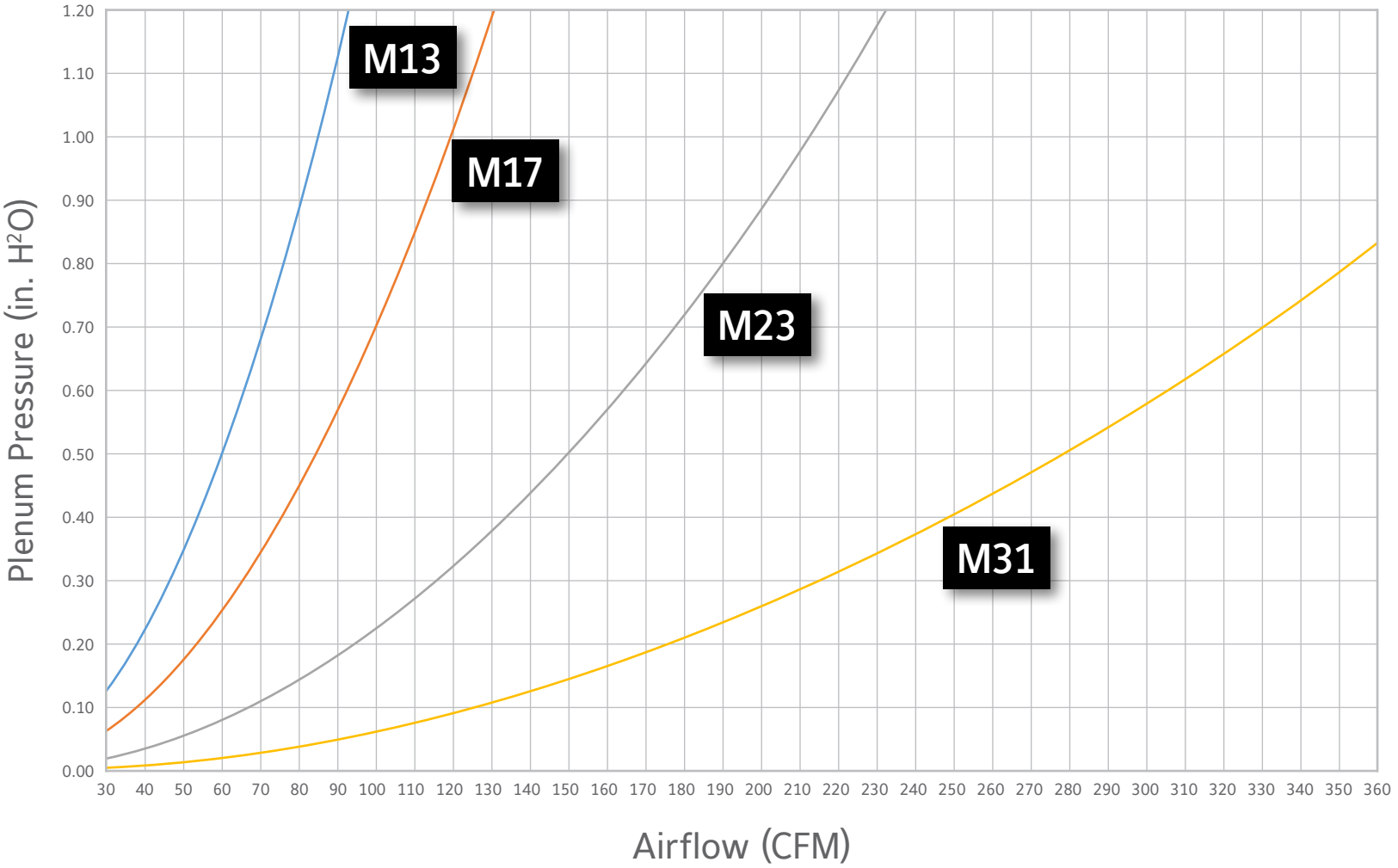
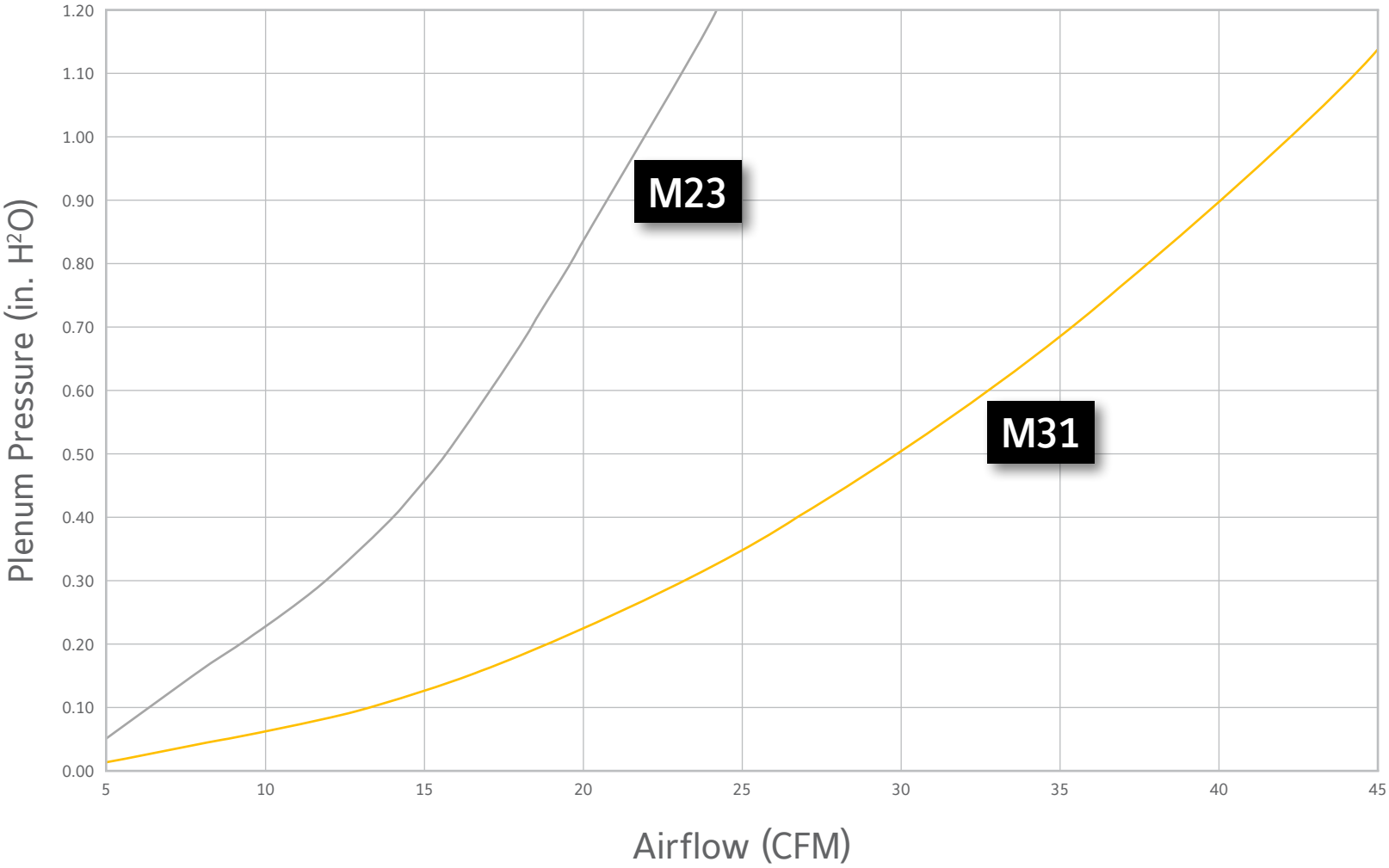
10′ Long, 2-Way Throw



# CBAL2/CBE2-24 Commissioning Chart

2′ Long, 1-Way Throw



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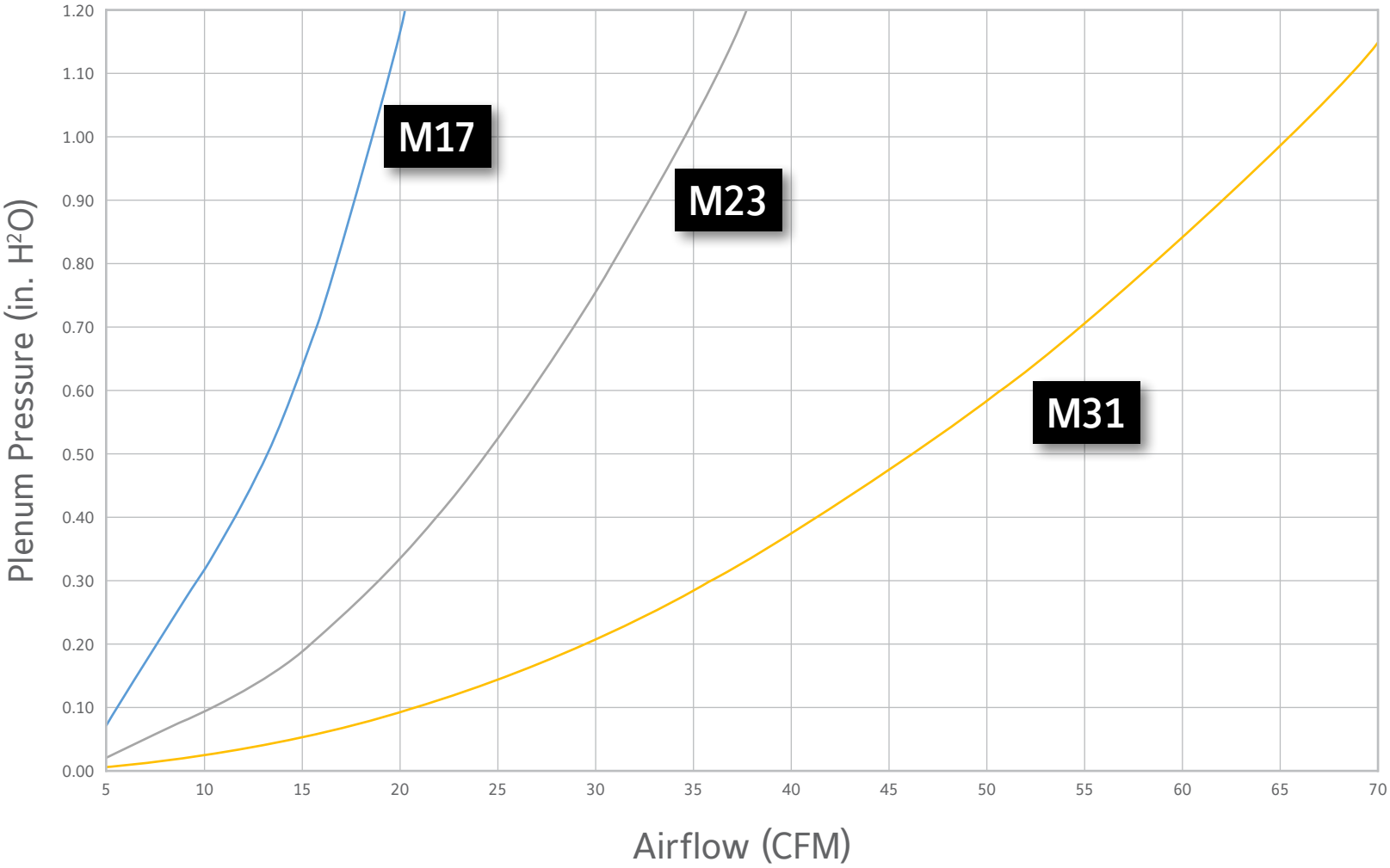
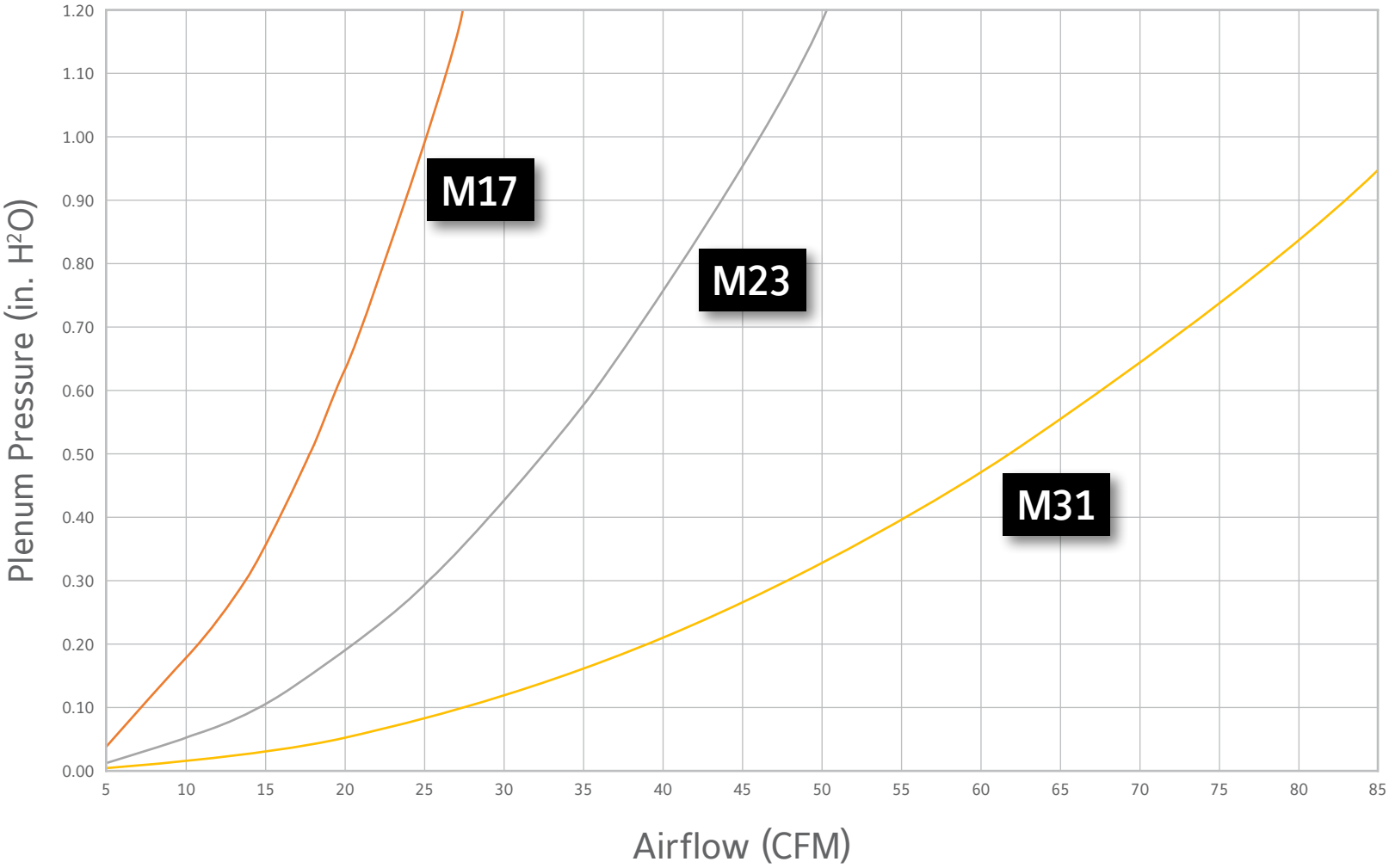
3′ Long, 1-Way Throw



# CBAL2/CBE2-24 Commissioning Chart

4′ Long, 1-Way Throw



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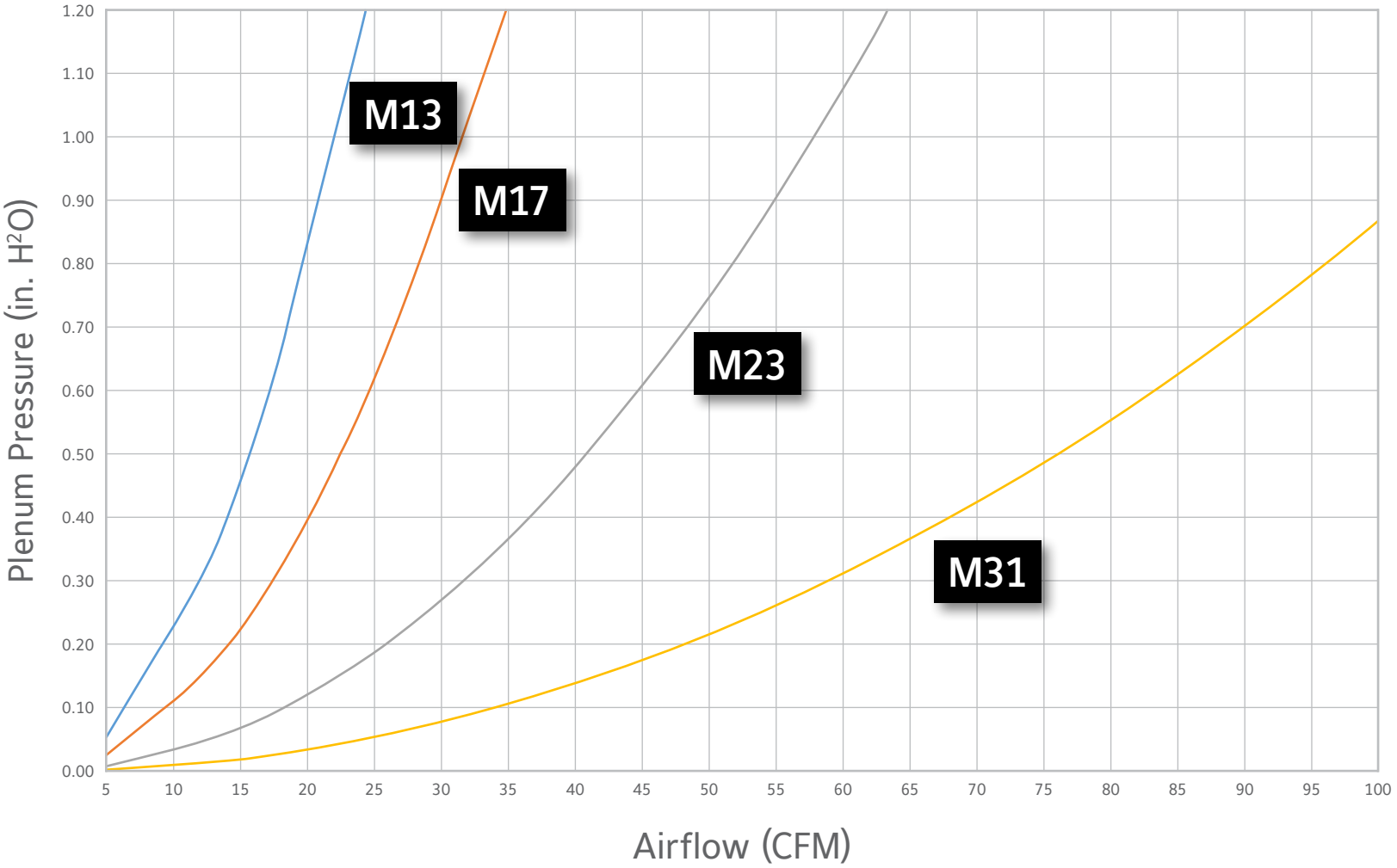
5′ Long, 1-Way Throw



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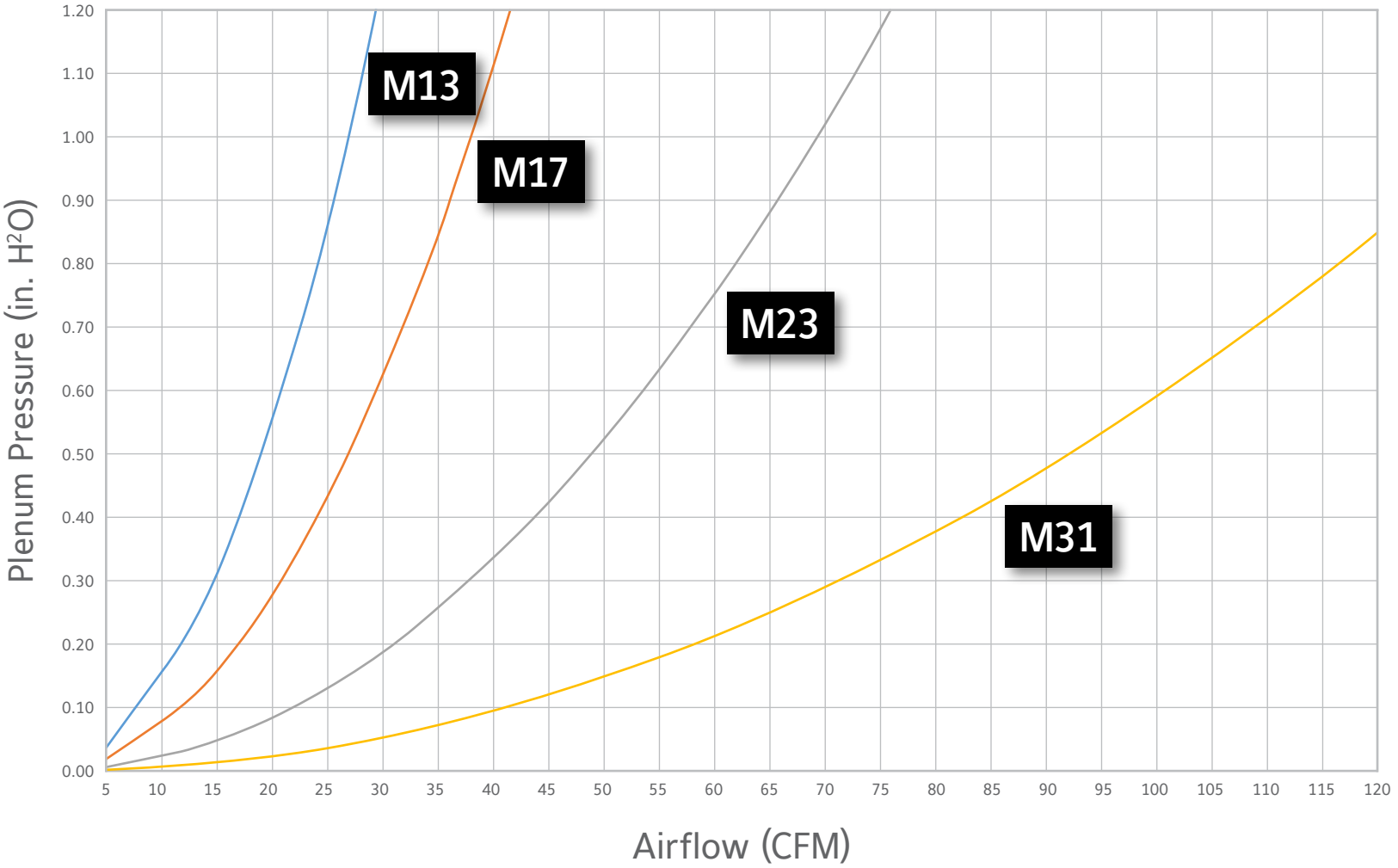
6' Long, 1-Way Throw



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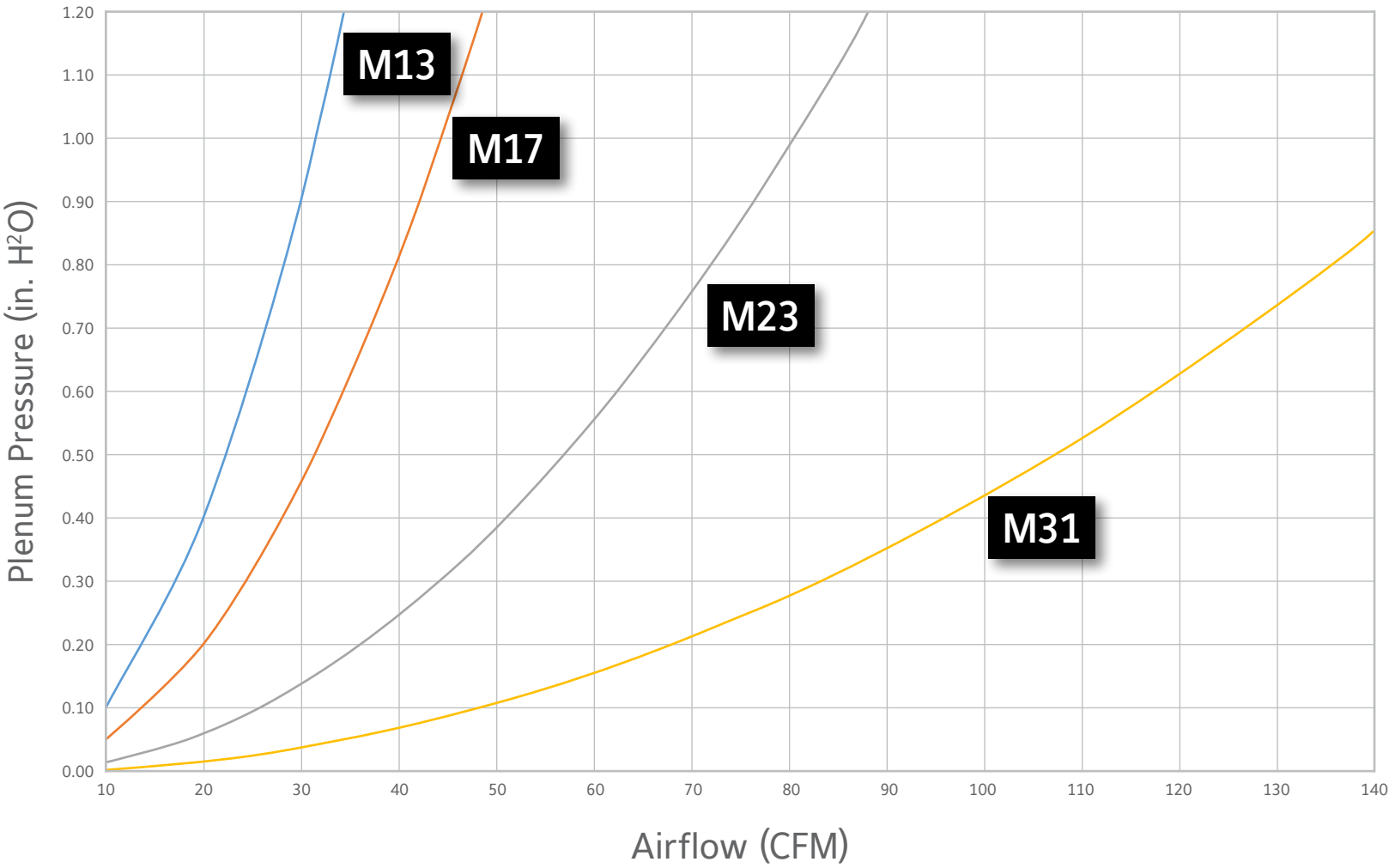
7′ Long, 1-Way Throw



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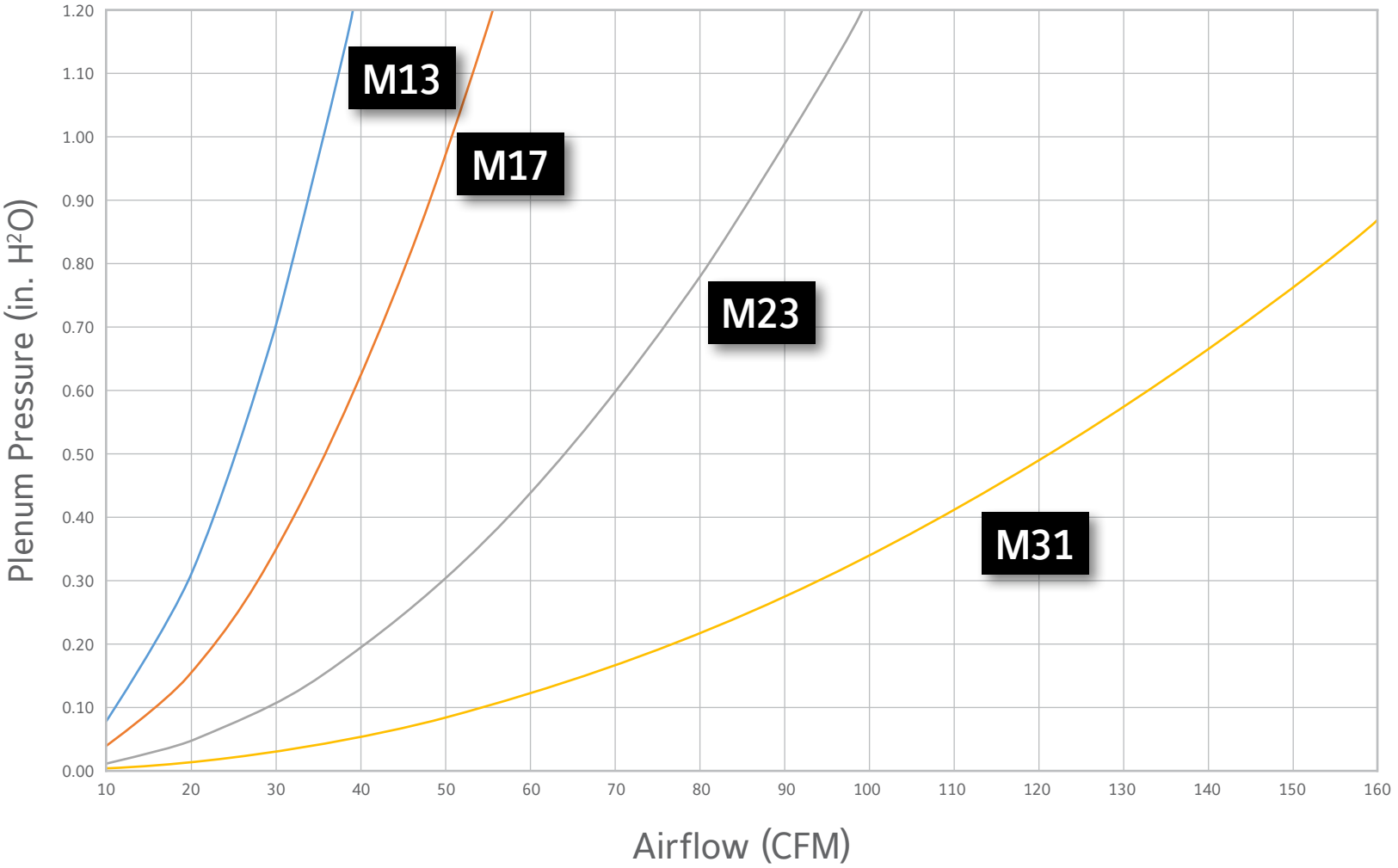
8’ Long, 1-Way Throw



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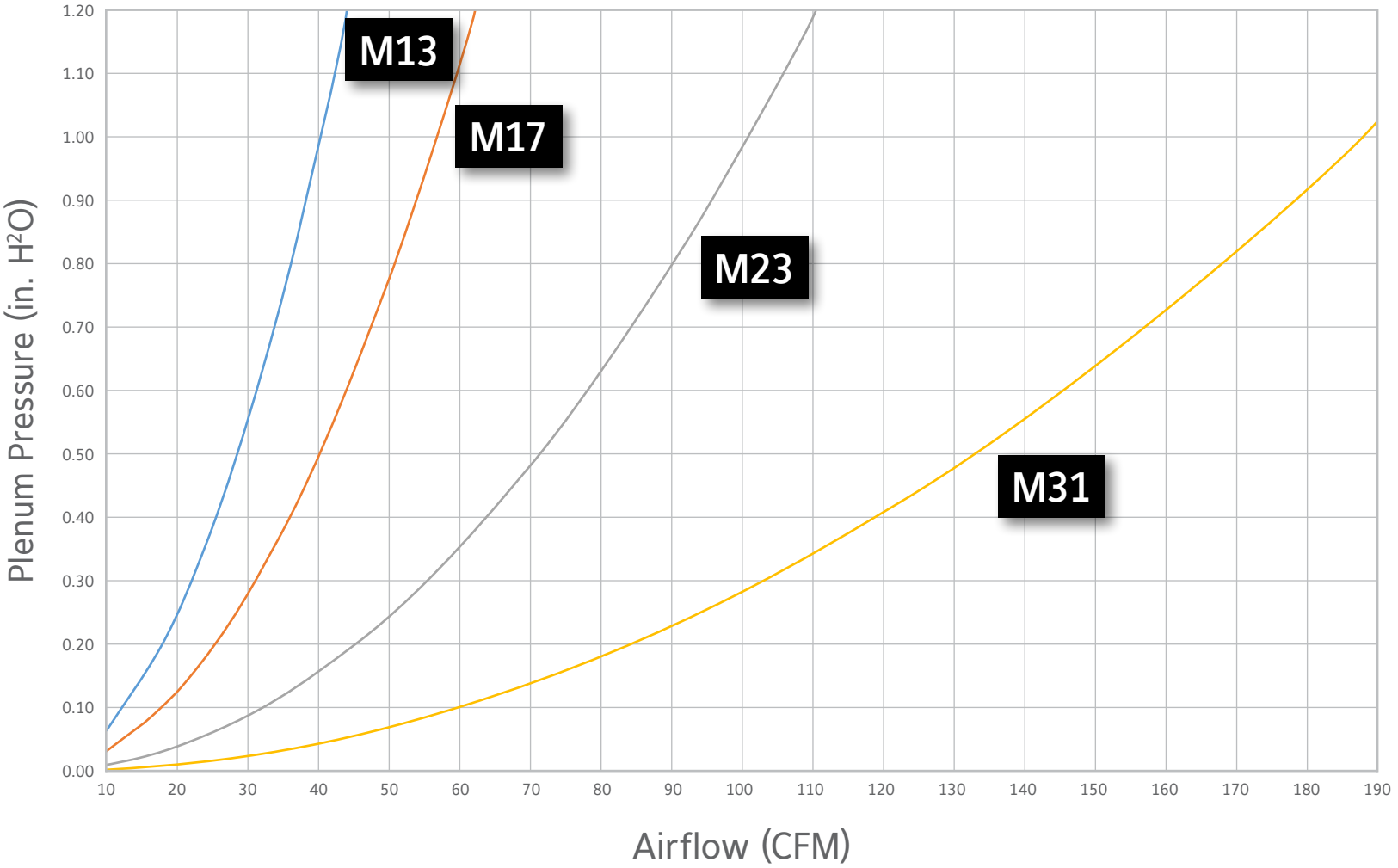

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10′ Long, 1-Way Throw