



Exhaust Product Guide

for Medium- & Heavy-duty Vehicles and Equipment

Mufflers • Clamps • Tubing / Connectors • Stacks / Tailpipes • Elbows • Hangers / Brackets • Shields



This publication contains a wide selection of standard mufflers and exhaust components for diesel-powered vehicles and equipment that operate in a variety of conditions. For assistance, contact Donaldson or your local Donaldson distributor.

Distributed by:

Our innovative products solve complex filtration and exhaust system challenges that improve people’s lives, enhance engine and equipment performance and protect our environment.

Donaldson has the technical expertise, superior customer support and vast network of locations around the world to meet your toughest needs – from initial system design through replacement products.



Improve



Enhance



Protect

This publication contains a wide selection of standard exhaust components for both original equipment manufacturers and replacement parts for existing diesel-powered vehicles and equipment that operate in a variety of conditions. For assistance with muffler or accessory selection, contact your local Donaldson distributor or dealer.

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Features and Benefits of Donaldson Mufflers

Low Backpressure

Better fuel economy and efficient engine performance

Aluminized Steel

Delivers long service life and is corrosion resistant

Lightweight Construction

Minimizes stress and vibration on mounting system

High Temperature Paint

Available on select product. Paint adds corrosion resistance and enhanced finish



OVERVIEW

Donaldson Mufflers

Donaldson exhaust systems are original equipment on most pre-2007 medium- and heavy-duty trucks manufactured in North America. Donaldson engineers work with many OE truck and off-road equipment manufacturers to design and build quality exhaust systems based on the specific performance.

Truck Mufflers for Every Budget

BEST (Part No. M101158 & M101181)



- 1 million mile warranty on M101158 – stainless steel Silent Partner™
- 500,000 mile warranty on M101181 – aluminized steel Silent Partner
- Superior acoustic performance – specifically addresses engine brake noise by silencing engine brake “bark”

BETTER (Part No. M100580)



- M100580 Donaldson muffler
- Meets all OEM back pressure, strength and life requirements
- Exhaust noise level is 4.5 - 7.5 dB(A) quieter than M100465 muffler

GOOD (Part No. M100465)



- The M100465 is the most common, most popular service muffler in the industry
- Low back pressure provides good fuel economy and efficient engine performance

What external characteristics differentiate mufflers?

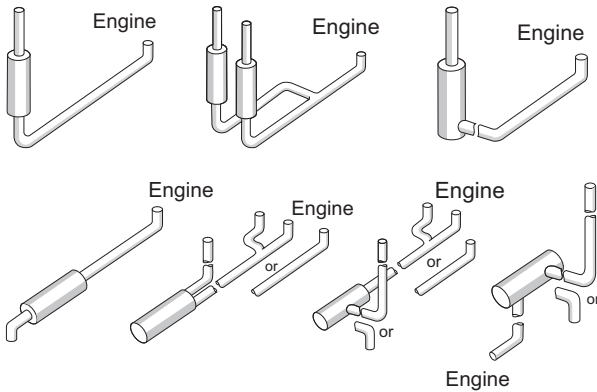
- Shape of muffler (generally round or oval)
- Style (inlet/outlet configurations on the muffler)
- Materials

What internal characteristics differentiate mufflers?

- Wrapped (with insulation) or unwrapped
- Insulation sandwiched between an inner and an outer body
 - Reduces noise/high frequency
 - Lowers outer shell temperature
 - Reduces radiated heat
- Quantity, size, and position of internal baffles and tubes



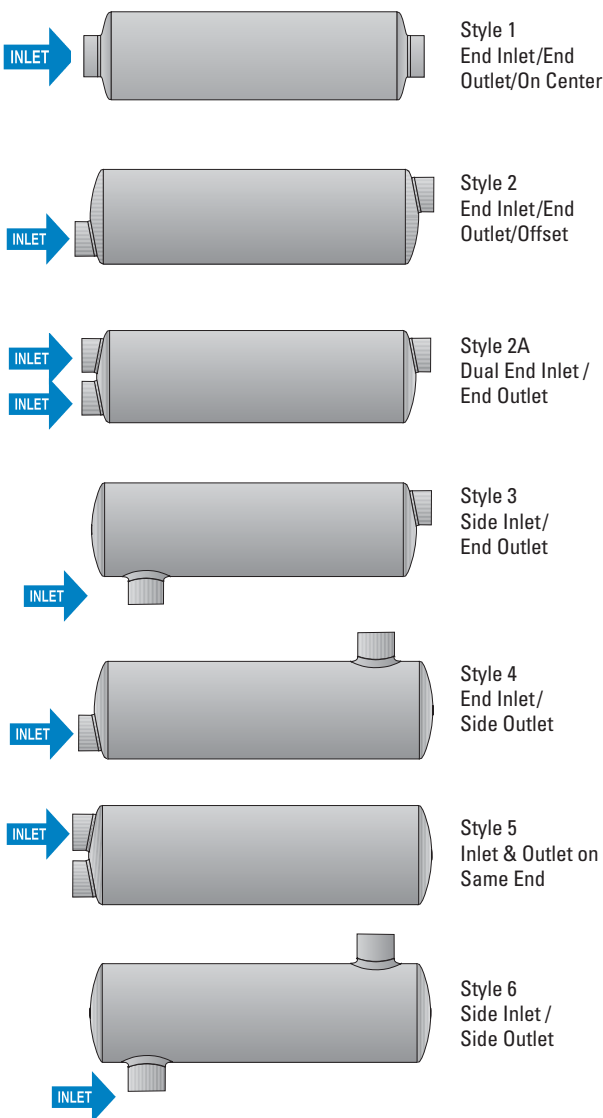
Exhaust System Configurations



Exhaust Product Materials

A number of different materials are found in exhaust systems. Often different options are available for use in a single application. Since materials vary in strength, corrosion resistance, and price, a particular material may be preferred in individual applications and components. Some of the most common materials, their qualities, and their typical uses are listed in the following table.

Muffler Styles



Materials*	Used in	Qualities
Aluminized Mild Steel	Mufflers	Good Corrosion Resistance
	Exhaust Components	
Stainless Steel (with and without aluminized coating)	Flexible Tubing	Stronger Excellent Corrosion Resistance
	Mufflers	
	Exhaust components	
	Emissions Products	
Chrome	Accessories	Bright Mirror Finish
Galvanized	Flexible Tubing	Low Material Cost Temperature Limit 600°F (316°C)
Cold Rolled	Accessories	Poor Corrosion Resistance Low Cost

* See pg 69 for more further descriptions of materials used by Donaldson in exhaust system products.

New & Expanded Catalog Content

This edition of the Donaldson exhaust catalog includes the following additional information:

OVERVIEW



New Heavy-Duty Accessories

Newer and/or retrofit emissions systems weigh considerably more than the traditional OE exhaust system and require new mounting hardware to accommodate the extra weight. Our more popular heavy-duty brackets and clamps have been added.

Muffler Dimensions & Specs

The estimated sound reduction (attenuation range in dbA) for all Donaldson mufflers has been added to the muffler selection tables starting page 47. We have also expanded the dimensional section by muffler style to include all muffler dimensions and muffler illustrations.

Muffler Selection by Style, Attenuation & Exhaust Flow

Choose the desired inlet diameter for the engine's air flow requirement that is at or below the acceptable backpressure level.

Style 1 - End Inlet/End Outlet/On Center

Inlet I.D.	Outlet I.D.	Body Diameter	Attenuation		Exhaust Flow (inlet @)				
			Range #B/A	Number	3" Hg	2" Hg	1" Hg		
inch	inch	inch	inch	mm	inches	mm	mm		
2.00	51	2.00	51	0.00	112	SA00079	498	365	283
2.10	60	2.10	60	4.58	111	SA00077	521	420	306
2.30	64	2.30	64	0.02	108	SA00078	521	420	306
2.63	67	2.63	67	0.02	168	SA00071	790	645	456
2.89	73	3.16	80	4.50	216	SA00070	1091	890	630

Muffler Sound Reduction

Cross Reference

Compared to our previous publication, this section include hundreds of new cross references. We do encourage you to use the Donaldson on-line cross reference for the latest information.

Shoptalk Section

Shoptalk is all about sharing helpful information to become more informed about Donaldson exhaust products and systems. This section includes installation tips for and fact sheets for many exhaust/emissions products and technologies.

Confused About Which Exhaust Clamp To Select or What Clamp Should be Used?

Depending on your exhaust joint and what you're connecting to, it's not always so easy to determine which one of our exhaust clamps is best for your needs.

Take a look at this new information on page 10 of our accessories section the next time you need a replacement clamp.



Where To Buy Donaldson Products?

Donaldson products are available through a variety of distribution outlets: OE dealers, independent warehouse distributors and exhaust-only distributors. Each of these distribution channels have their unique methods of servicing your needs to meet your business requirements.

To find the closest outlet in your region, visit www.donaldson-filters.com. Look in the Where to Buy section of our web site.

From Silencing to Emissions Reduction

1950s

When exhaust was about silencing -- we led the way! Frank Donaldson sold enough mufflers in 1951 to open our first exhaust manufacturing facility in Grinnell, Iowa in 1952.

1960s

In the 1960s, sound meters were used to measure noise levels (see image on right). Donaldson is one of the first manufacturers to introduce the use of aluminized steel in exhaust systems.



1970s

Donaldson introduces mufflers with integrated ejectors and wrapped mufflers. Wrapped mufflers reduced the overall exhaust system noise and the exterior body temperature. Donaldson SealClamp™ band-style exhaust clamp launched into the marketplace. Donaldson expands to Japan. In 1973, U.S. noise regulations went into effect for on-road vehicles – Donaldson offers a muffler line that was effective at noise reduction without loss of horsepower.



1980s

In 1981, Donaldson opens a new technical center. The center included two anechoic chambers which expanded our technical capabilities. Mufflers meet 1988 U.S. EPA truck noise regulations (sonic chokes and floating baffles).

1990s

When engine manufacturers needed help to meet the first U.S. Emissions regulations, innovations continued. In the early 1990s, we pioneered the design of integrated catalytic converter mufflers and diesel particulate solutions for three major U.S. engine and truck manufacturers. In the late 1990s, Silent Partner™ was the first muffler that effectively reduced engine brake noise without loss of power or fuel economy. During this decade, Donaldson expands exhaust manufacturing in Europe (France); Mexico (Guadalajara); and the United States (Alabama).



2000s

2001 Donaldson forms a group dedicated to emissions reduction efforts for diesel engines; begins retrofit projects; Spiracle™ crankcase filtration introduced to eliminate emissions from open crankcase vents. Mass production of CCMs for on-road OEs begins.



2002 First of many CARB and EPA verifications for Donaldson retrofit emissions solutions; first company to verify tailpipe and crankcase solution (patented).

Since the early 1990s, Donaldson has sold more than a million DOC Mufflers.

2003 Donaldson expands exhaust manufacturing in Aguascalientes, Mexico.

2004 Donaldson upgrades and expands heavy-duty engine test cell capabilities; U.S. MSHA accepts Donaldson high temp exhaust filter. New web-based Emissions Resource Center (www.donaldson.com/en/erc) established.

2005 DPF Cleaning System and DMF Muffler launched for emissions retrofit market. Donaldson introduces an active, smart DPF emissions solution for the most difficult duty cycles; low temperature, transient and extended idling.

2006 Donaldson expands European emissions staff and Mexico exhaust manufacturing to Monterrey; Donaldson improves Stepped SealClamp™.

2007 Donaldson expands OE emissions support with production of active and passive exhaust aftertreatment systems to meet U.S. EPA 2007 on-road emissions regulations.

2009 Donaldson produces urea and non-urea based NOx reduction systems for OE 2010 and retrofit for in-use vehicles.

Acronym Reference: See Shoptalk Section

Governmental regulations across the globe are being implemented that reduce diesel emissions. These regulations affect both OE manufacturers and end users. Donaldson works with both OE manufacturers and fleets to design innovative, customized solutions. (See Shoptalk section for Diesel PM limits and global emissions regulations.)

In order to meet retrofit emissions regulations, diesel-powered vehicle owners around the world will be faced with major business decisions to become compliant with current regulations; choices include retrofit, refuel, rebuild, repower or replace.

For older vehicles that have five or more years of useful life available, fleet owners are electing to retrofit their vehicles to extend the life of their current equipment.

Donaldson takes a "total system approach" to retrofit – delivering patented solutions that reduce not just what comes out of your tailpipe, we also offer a solution that eliminates emissions generated from the engine crankcase (Spiracle™ crankcase filtration technology).

Donaldson has California ARB and U.S. EPA-verified solutions, an installation service network, and local Donaldson representatives that are ready to help you select the best solution for your fleet.

Do you have questions about meeting retrofit emissions regulations?

We have a specialized team of emissions experts that can help determine your emission reduction targets and then specify the right Donaldson solution, keeping in mind regulations, budgets and fleet size.

Choices for Diesel Retrofit

Retrofit – new emission control devices on existing engines (filters, catalysts)

Refuel – cleaner diesel fuel (ULSD), emulsions or additives

Rebuild – repair/upgrade key components or engine reprogramming

Repower – put new or newer engine in existing equipment or chassis

Replace – vehicle/equipment condition less than the value of new engine

Internet Resource:

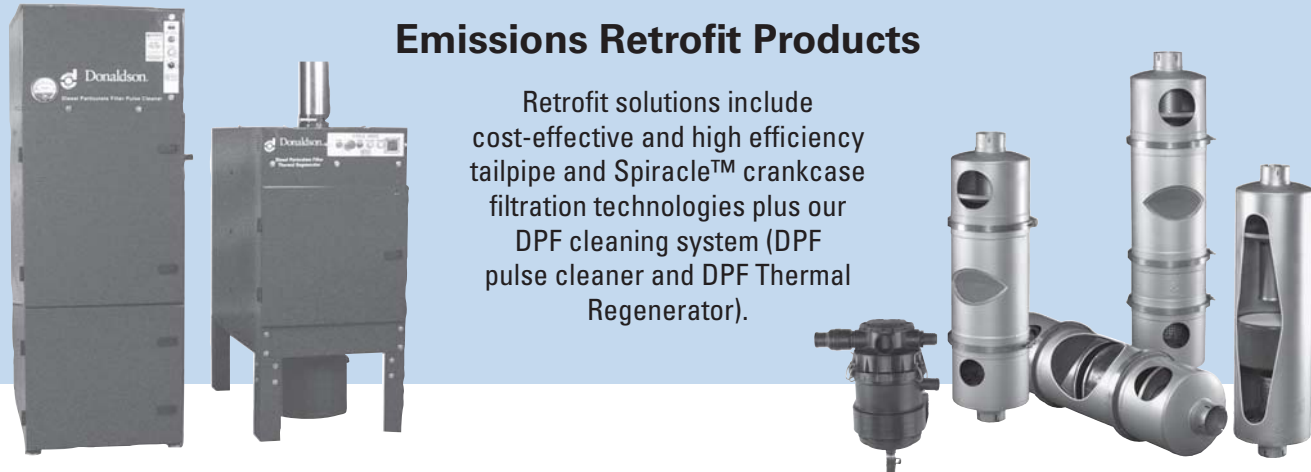
Emissions

Resource Center

www.donaldsonoemfiltration.com/technologies/emission

Emissions Retrofit Products

Retrofit solutions include cost-effective and high efficiency tailpipe and Spiracle™ crankcase filtration technologies plus our DPF cleaning system (DPF pulse cleaner and DPF Thermal Regenerator).



The calculations on the right are provided as a reference and may be helpful as you validate and select Donaldson mufflers and components.

For the most accurate engine airflow and exhaust flow rates, Donaldson recommends using the information supplied by your engine manufacturer.

European Engine Flow Rate Calculation Formula :

Exhaust flow rate may be calculated using the following formula. Exhaust temperature and intake airflow rate must be determined to calculate the exhaust flow rate. Exhaust temperature and manufacturers maximum backpressure may be approximated using the chart on the right.

$$\left(\frac{\text{Exhaust Temp. (°F)} + 460}{540} \right) \times \text{Intake Airflow (CFM)} = \text{Exhaust Flow}$$

$$\frac{(\text{Exhaust Temp. (°C)} \times 1,8 - 32) + 460}{540} \times \text{Intake flow (m³/mn)} = \text{Exhaust flow (m³/mn)}$$

Engine Type	Engine Temperature	Maximum Backpressure	Engine Temperature	Maximum Backpressure
Diesel 2-Cycle Naturally Aspirated	= 900° F	4" Hg	480°C :	13,5 kPa
Diesel 2-Cycle Turbo	= 750° F	3" Hg	400°C :	10,2 kPa
Diesel 4-Cycle Naturally Aspirated	= 1000° F	3" Hg	540°C :	10,2 kPa
Diesel 4-Cycle Turbo	= 900° F	3" Hg	480°C :	10,2 kPa
Gasoline (all types)	= 1200° F	>4" Hg	650°C :	>13,5 kPa

Note: If you are spec'ing a dual muffler system, remember to divide engine's exhaust flow (CFM) by two

The information below is the exhaust portion of our Engine Aftermarket Filtration & Exhaust Warranty Document: F110064 (February 2006)

Donaldson warrants its Aftermarket products against failure due to defects in materials and workmanship for the period specified under Terms and Conditions for the particular product. Donaldson’s obligation under this warranty covers replacing the failed product, including transportation charges, only. If the Donaldson product failure is the sole and direct cause of damage to the equipment on which the product was properly installed, Donaldson will reimburse reasonable costs to restore the equipment to the condition it was in immediately before the failure. This warranty does not cover failure due to misapplication, misuse, abuse, neglect, rust through and corrosion (mufflers), improper service practices or non-Donaldson approved modifications. Engine and equipment manufacturers warranties remain in effect when Donaldson products are used.

Donaldson must be notified in writing of any claims covered by this warranty within one year of the date of failure. Donaldson, at its discretion, will either physically visit the site where the alleged failure has been found; or, request that all parts, Donaldson and other relevant parts, be shipped prepaid to its General Office, in care of the Product Lab or as otherwise specified.

Terms & Conditions

Warranty coverage begins on the date and mileage the product is purchased by the user and expires when the specified number of years or miles has passed, whichever occurs first.

The length of warranty for replacement products provided under warranty coverage is the balance of the warranty period remaining on the product being replaced.

Warranty Length by Product

Exhaust Products	Warranty from Date of Delivery to User
Diesel Mufflers	
Vertical Installation	4 Years or 500,000 miles (800,000 km)
Horizontal Installation	3 Years or 500,000 miles (800,000 km)
Gas Mufflers	1 Year
Silent Partner™, Exhaust Silencer	
Stainless Steel	8 Years or 1,000,000 miles (1,600,000 km)
Aluminized Steel	4 Years or 500,000 miles (800,000 km)
Exhaust Accessories	1 Year
Chrome Parts	1 Year or 100,000 miles (160,000 km) (peeling & blistering only)
Flex Pipe	90 Days
Long-Life Flex Pipe	1 Year or 120,000 mile (200,000 km) (on-highway vehicles only)

Donaldson offers an extensive line of accessories available in a variety of materials for both vertical and horizontal exhaust systems.

NEW



Heavy-Duty V-bands, Muffler Bands, Straps and Hangers

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Common Components Of Heavy Duty Exhaust Systems



Bent Tubes & Elbows

For directional changes of exhaust flow in exhaust systems. Available in common angles (90°, 67° and 45°) for both O.D. and I.D. tube connections.



Wye Connector

For joining legs of dual manifold outlet to form a single exhaust system. Wye connectors can provide an additional 3 to 7 dbA exhaust noise reduction over that of the primary muffler and may also be used to replace conventional wye pipe.



Resonator

Secondary noise reduction component that generally provides 2 to 3 dbA additional noise reduction.



Tubing (Straight or Flexible)

Straight or flexible tubing for connection to muffler or resonator. Purchased in standard lengths and cut to size if needed.

Muffler

The primary component in an exhaust system for engine noise reduction.

Exhaust Filter or Emissions Device

Traditional exhaust systems with mufflers are transitioning from noise reduction devices to emissions reduction devices to meet federal and state regulations. The primary component in the emissions device converts or captures exhaust emissions to reduce overall engine emissions. An emissions reduction device can be an add-on installed into the existing system or a retrofit muffler replacing the original muffler.



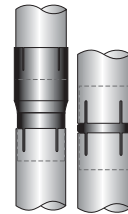
Hanger

Secures the muffler or pipe horizontally or vertically to chassis or side of cab.



Reducers, Connectors & Expanders

Shorter length tubes used for connecting two other exhaust pipes of different diameters or the same diameter.



Spark Arrestor

An exhaust system add-on used to capture sparks emitted from internal combustion engines through the exhaust system. All Donaldson models are U.S. Forest Service approved.



Splitter Tee Adapter

An adapter pipe with one inlet and two outlet tubes used to convert a single exhaust system to a dual exhaust system.



Stack or Tail Pipes

Vertically mounted outlet pipe; available in curved outlet or straight squared configuration.



Note: Super stacks also available that can offer an additional 2 to 3 dbA noise reduction with no back-pressure penalty.

Stack Cap

Moisture protector used on vertically mounted mufflers or stack pipes.



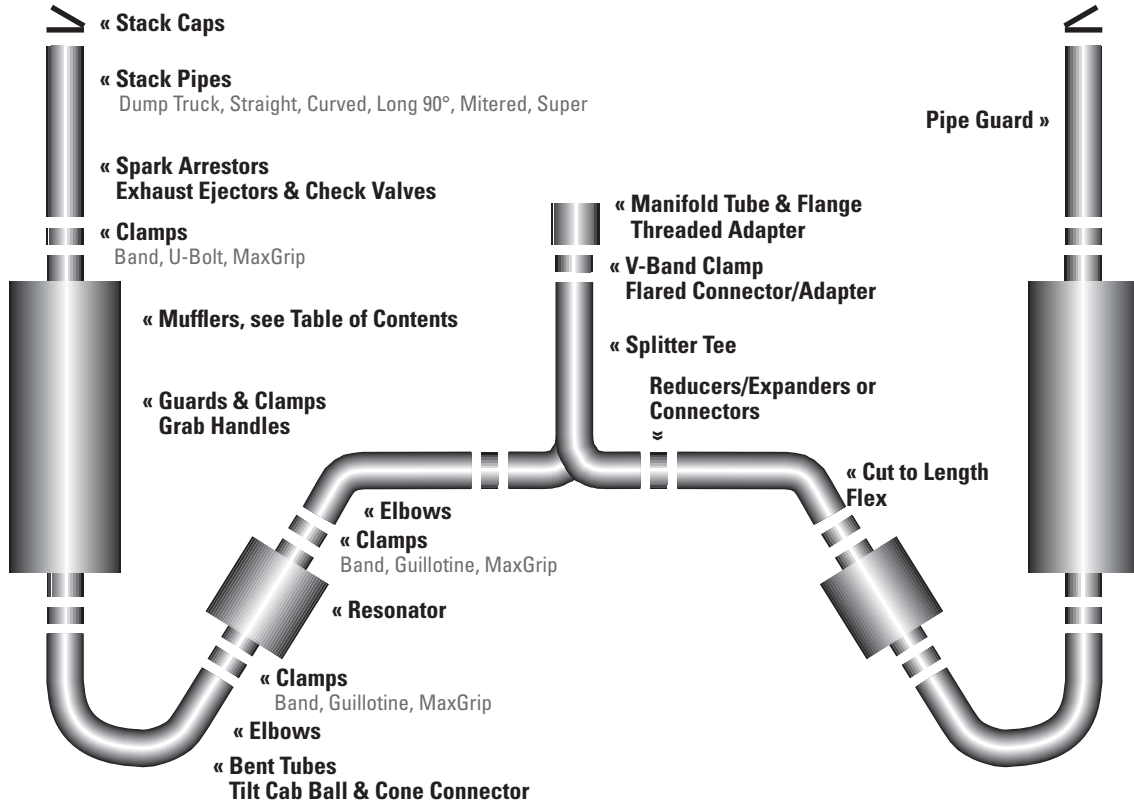
Clamps

Exhaust systems use a variety of exhaust clamps. Selecting the proper clamp for the job is critical to a strong, reliable joint connection. Common types include u-bolt, band Clamps, bent bolt clamps and v-band clamps.

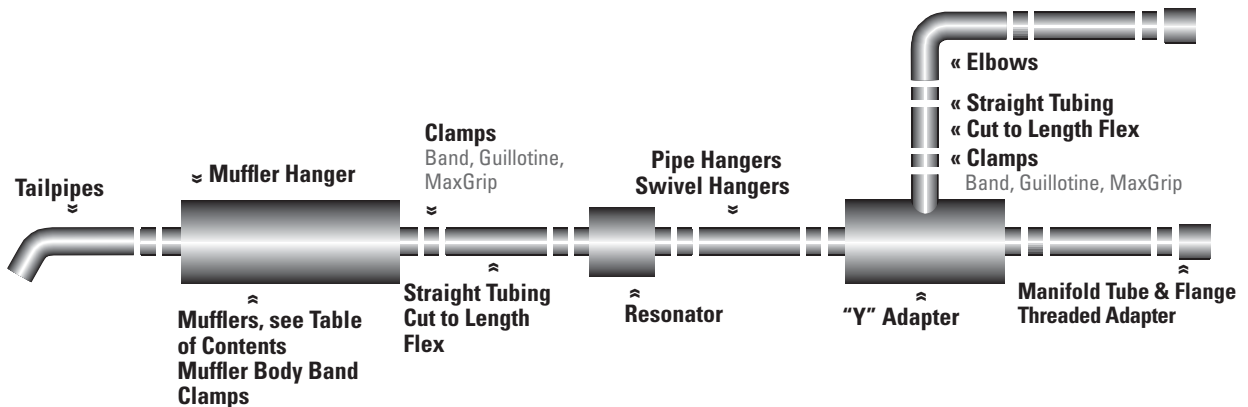


From the manifold to the exhaust stack, you'll find Donaldson can be the best source for your exhaust system accessories. The system diagrams below represent typical components found on exhaust systems.

Vertical System Components (cab or stanchion mounted)



Horizontal System Components (Chassis mounted)



Exhaust Joint/Connections

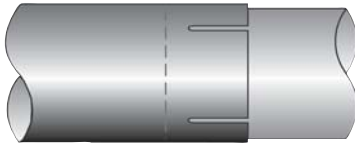
Guide to Selecting the Best Clamp for the Exhaust Joint Connection

ACCESSORIES

Type of Joint/Connection

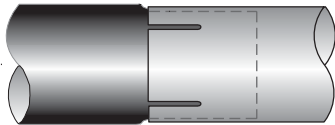
Type of Clamp to Apply

(blue text = primary clamp recommendation)



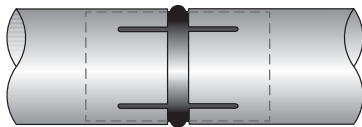
Exhaust - tube to tube Standard OD

MaxGrip™ Bent Bolt
Stepped SealClamp (Aluminized or Stainless)
 Offset MaxGrip™ Bent Bolt
 SealClamp™ Flat Band (Aluminized or Stainless)
 Narrow Band (Aluminized)
 U-Bolt (any type, any material)



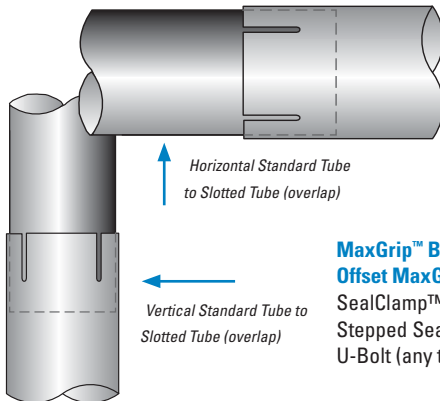
Slotted Tube to Shrunk OD

MaxGrip™ Bent Bolt
 SealClamp™ Flat Band (Aluminized or Stainless)
 Narrow Band (Aluminized)
 U-Bolt (any type, any material)



Slotted Tube to Slotted Tube
(butt with internal connector)

MaxGrip™ Bent Bolt (2 required per connection)
 SealClamp™ Flat Band (Aluminized or Stainless)
 U-Bolt (any type, any material, 2 required per connection)

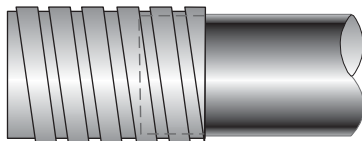


Horizontal Standard Tube
to Slotted Tube (overlap)

Vertical Standard Tube to
Slotted Tube (overlap)

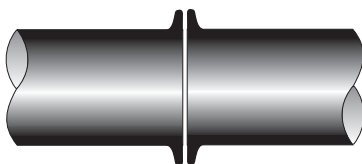
MaxGrip™ Bent Bolt
Stepped SealClamp (Aluminized or Stainless)
 Offset MaxGrip™ Bent Bolt
 SealClamp™ Flat Band (Aluminized or Stainless)
 Narrow Band (Aluminized)
 U-Bolt (any type, any material)

MaxGrip™ Bent Bolt
Offset MaxGrip™ Bent Bolt
 SealClamp™ Flat Band (Aluminized or Stainless)
 Stepped SealClamp™ (Aluminized or Stainless)
 U-Bolt (any type, any material)



Standard Tube to Flex Tube

Stepped SealClamp™ (Aluminized or Stainless)
Offset MaxGrip™ Bent Bolt (with chevron)



Flared, Lipped or Flange Connection

V-Band Clamps



MaxGrip™
Bent Bolt



Offset
MaxGrip™ Bent
Bolt



Offset MaxGrip™
Bent Bolt
(chevron design)



Flat Band
SealClamp™



Stepped
SealClamp™



U-Bolt
Single,
Round Band



U-Bolt
Double,
Flat Band



Narrow Band
Accuseal®



Based on the type of exhaust joint, your choice of clamp to apply may be limited. But, when you're looking to purchase a clamp based on specific performance features, the information below may be helpful as you try to select the proper clamp for the application.

Clamp Performance Rankings (10 high - 1 low)

Holding Force

- 10 Offset MaxGrip™ Bent Bolt
- 10 V-band Clamp
- 8 MaxGrip™ Bent Bolt
- 7 U-bolt (any style or material)
- 5 SealClamp™ (any style or material)
- 3 Narrow Band (aluminized)

Ease of Assembly

- 9 MaxGrip Bent Bolt
- 9 Narrow Band (aluminized)
- 8 Offset MaxGrip Bent Bolt
- 8 Stepped SealClamp (aluminized or stainless)
- 6 U-bolt (any style or material)
- 5 V-band Clamp
- 3 SealClamp Flat Band (aluminized or stainless)

Sealing Properties

- 10 Stepped SealClamp (aluminized or stainless)
- 9 V-band Clamp
- 8 SealClamp Flat Band (aluminized or stainless)
- 6 MaxGrip Bent Bolt
- 6 Offset MaxGrip Bent Bolt
- 5 Narrow Band (aluminized)
- 3 U-bolt (any style or material)

Appearance

- 10 Stepped SealClamp (stainless)
- 10 V-band Clamp
- 9 Stepped SealClamp (aluminized)
- 7 Offset MaxGrip Bent Bolt
- 7 Narrow Band (aluminized)
- 7 SealClamp Flat Band (stainless)
- 6 SealClamp Flat Band (aluminized)
- 5 MaxGrip Bent Bolt
- 5 U-bolt (double, flat band, chrome)
- 4 U-bolt (double, flat band, zinc)
- 4 U-Bolt (single, round band, chrome)
- 2 U-Bolt (double, round band, steel)
- 1 U-Bolt (single, round band, steel)

Tube Deformation

- 10 V-band Clamp
- 9 Stepped SealClamp (aluminized or stainless)
- 8 Offset MaxGrip Bent Bolt
- 8 SealClamp Flat Band (aluminized or stainless)
- 7 MaxGrip Bent Bolt
- 7 Narrow Band (aluminized)
- 2 U-bolt (double, flat band, chrome or zinc)
- 2 U-Bolt (double, round band, steel)
- 1 U-Bolt (single, round band, chrome or steel)

Price

- 10 U-Bolt (single, round band, steel)
- 9 U-Bolt (double, round band, steel)
- 8 Narrow Band (aluminized)
- 8 SealClamp Flat Band (aluminized)
- 8 U-bolt (double, flat band, zinc)
- 7 MaxGrip Bent Bolt
- 7 Offset MaxGrip Bent Bolt
- 7 SealClamp (other than aluminized)
- 6 U-Bolt (single, round band, chrome)
- 3 U-bolt (double, flat band, chrome)
- 1 V-band Clamp

What Features Are Most Important to You?

- _____ Holding Force
- _____ Ease of Assembly
- _____ Sealing Properties
- _____ Tube Deformation
- _____ Appearance
- _____ Price

Offset MaxGrip™ Bent Bolt Clamp

Donaldson introduces a new series of bent bolt clamps for use on exhaust systems. The clamps are manufactured in heavy duty aluminized steel to minimize corrosion.

- Clamps are reusable
- Aluminized band, stainless steel welds, deburred strap edges and finished with a heat resistance silver paint
- Self positioning for easy installation
- Protected by patents, both issued and pending



Offset MaxGrip Bent Bolt

For Muffler to Stack Connections

Nominal I.D.	Functional I.D. Range	Part
in mm	inches mm	Number
4.00 102	4.04-4.21 103-107	M002164
5.00 127	5.04-5.21 128-132	M001865



Offset MaxGrip Bent Bolt

For Tube to Flex Connections

Nominal I.D.	Functional I.D. Range	Part
in mm	inches mm	Number
4.00 102	4.04-4.21 103-107	M002134
5.00 127	5.04-5.21 128-132	M002135

MaxGrip™ Bent Bolt Clamp

- More holding power than any other clamp tested
- Donaldson patented technology
- Clamps are reusable
- Aluminized band, stainless steel welds, and deburred strap edges finished with heat resistant black paint
- Use these clamps on slotted, lapped tube connections and manifold connections
- Ideal for use on Donaldson "captured" slots for maximum sealing
- Coated bolts and threads
- Hardened flange nuts



MaxGrip Bent Bolt Clamp

Nominal I.D.	Functional I.D. Range	Part
in mm	inches mm	Number
1.75 44	1.79-1.96 45-50	M001866
2.00 51	2.04-2.21 52-56	M001867
2.32 59	2.36-2.56 60-65	M002016
2.50 65	2.54-2.71 65-69	M001756
2.68 68	2.71-3.00 69-76	M002050
3.00 76	3.04-3.21 77-82	M001702
3.50 89	3.54-3.71 90-94	M001502
3.75 95	3.73-3.90 95-99	M001593
3.88 99	3.89-4.06 99-103	M001432
4.00 102	4.04-4.21 103-107	M001503
4.25 108	4.21-4.38 107-111	M001566
4.33 110	4.37-4.53 111-115	M002068
4.50 114	4.54-4.71 115-120	M001703
5.00 127	5.04-5.21 128-132	M001668
5.25 133	5.21-5.38 132-137	M001504
5.25 133	5.28-5.47 134-139	M002057
5.47 139	5.51-5.71 140-145	M002070
6.00 152	6.04-6.21 153-158	M001505
6.25 159	6.21-6.38 158-162	M001799
6.75 171	6.83-7.00 173-178	M001506
7.50 198	7.83-8.07 199-205	M002063

ACCESSORIES

SealClamp™ – The Original Band Clamp

Preformed & Flat Styles

Used to seal muffler inlets, outlets, elbow joints, flex pipes, and other system connections. Also minimizes noise and exhaust gas leaks.

SealClamps are easy to install! There's no need to weld or disconnect your exhaust system.

When installed, the wide band conforms to the shape of straight or flex pipe, and seals without distorting the pipe.

- For overlapping I.D. to O.D. slotted joints and flex tube
- Flat band style may be used for butt-style joints in light duty applications
- Nuts and bolts fit both 9/16" and 14mm wrenches
- Reduces noise and exhaust leaks
- Installs easily – no disconnecting or welding necessary
- Available in aluminized and stainless steel
- Stainless models have improved corrosion resistance and high temperature strength compared to aluminized



Stepped Preformed SealClamp

Stepped Preformed SealClamp

- Full 360° clamping area
- No flex pipe pinching
- Available in stainless and aluminized

O.D. Pipe in	mm	Stainless	Aluminized
2.50	64	X007829	
3.00	76	X007830	X007833
3.50	89	X007831	X007834
4.00	102	X007784	X007824
5.00	127	X007785	X007805
6.00	152	X009076	

U.S. Patent Nos. 6,116,659; 6,634,607 B2; 6,796,004 B2



Stepped Preformed SealClamp is Individually packaged with installation instructions



Flat Band SealClamp

May be used for butt-style joints in light duty applications

Flat Band SealClamp

O.D. Pipe in	mm	Stainless	Aluminized
2.00	51	X004536	
2.25	57	X004537	
2.50	64	X004476	
2.75	70	X004538	
3.00	76	X004478	
3.50	89	X004480	X006204
4.00	102	X004482	X006203
4.50	114	X004962	
5.00	127	X004484	X006202
6.00	152	X004539	



Donaldson Flat Band SealClamps are Individually packaged. Loose parts inside the shrink wrapped package.

Torctite®



Torctite® Lap Joint

O.D. Pipe		Aluminized	Stainless	Polished Stainless
in	mm			
2.00	51		J190056	
2.25	57		J190057	
2.50	64		J190058	
2.75	70		J190059	
3.00	76	J009604	J190060	
3.50	89	J009605	J190061	
4.00	102	J009606 ¹	J009623 ³	P222740
4.50	114	J190054	J190062	
5.00	127	J190054 ²	J009624 ⁴	P222741
6.00	152	J190055	J190063	P222742

- 1 - Consider X007824 as an alternative
- 2 - Consider X007805 as an alternative
- 3 - Consider X007784 as an alternative
- 4 - Consider X007785 as an alternative

Easyseal®



May be used for lap and butt-style joints

O.D. Pipe		304 Bright Stainless
in	mm	
2.00	51	J000210
2.25	57	J000212
2.50	64	J000211
2.75	70	J000213
3.00	76	J000214
3.50	89	J000215
4.00	102	J000216
4.50	114	J000219
5.00	127	J000217
6.00	152	J000218

Easyseal® is a registered trademark of Torca Co.

Accuseal®



Accuseal® is a registered trademark of Torca Co.

O.D. Pipe		Aluminized
in	mm	
2.00	51	J000204
2.25	57	J000205
2.50	64	J000206
2.75	70	J000207
3.00	76	J000200
3.50	89	J000201
4.00	102	J000202
4.50	114	J000208
5.00	127	J000203
6.00	152	J000209

Standard U-Bolt Clamps (All models 3/8-16" UNC-2A)



- Single, round band
- Cold rolled steel or Chrome



- Double, round band



- Double, flat band

O.D. Pipe		Steel	Chrome
in	mm		
2.00	51	P206403	
2.25	57	P206404	
2.50	64	P206405	
2.75	70	P206406	
3.00	76	P206407	
3.25	83	P206408	
3.50	89	P206409	
4.00	102	P206410	J009486
5.00	127	P206411	J009487
6.00	152	P207667	

O.D. Pipe		Steel
in	mm	
2.00	51	J000220
2.25	57	J000222
2.50	64	J000221
2.75	70	J000224
3.00	76	J000227
3.50	89	J000228
4.00	102	J000230
4.50	114	J000231
5.00	127	J000232
6.00	152	J000233

O.D. Pipe		Zinc	Chrome
in	mm		
3.00	76	P206600	P206608
3.50	89	P206601	P206609
4.00	102	P206602	P206610
5.00	127	P206603	P206611
6.00	152	P207596	P207598

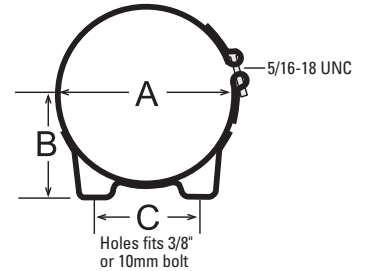
Muffler Body Band Clamps for Traditional Mufflers



- High temperature black finish (matches finish on new off-road mufflers)
- Band width 1.25" (32mm)

Muffler Body Band Clamps

--- A --- in mm	--- B --- in mm	--- C --- in mm	Part Number
6.00 152	3.75 95	3.75 95	M002117
6.62 168	4.00 102	4.00 102	M002118
8.50 216	5.00 127	5.00 127	M002119
9.00 229	5.50 140	5.50 140	M002120
10.08 256	6.00 152	6.00 152	M002121
11.06 281	6.50 165	6.50 165	M002122
11.84 301	7.00 178	7.00 178	M002123



Heavy-Duty Muffler Body Band Clamps

Clamp Notes:

- Pinch bolts are not included
- Most use 3/8-1-1/2" (51mm) long grade 5 or 8 grade bolts
- Band width 1.25"(32mm) (unless noted)
- Reuse existing frame mounting bolts
- Materials are either zinc-plated or aluminized mild steel.

W-Foot Body Bands

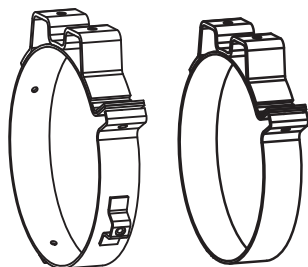
- Use for vertical or horizontal mounting
- Bolts not included

for Heat Shield Applications

--- A --- in mm	--- B --- in mm	--- C --- in mm	Part Number
10.00 254	6.28 160	3.5 89	P227803
11.00 269	6.50 165	6.5 165	P229513
13.00 330	7.75 197	6.5 165	P230283

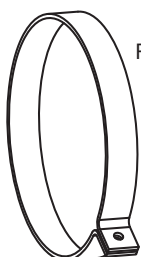
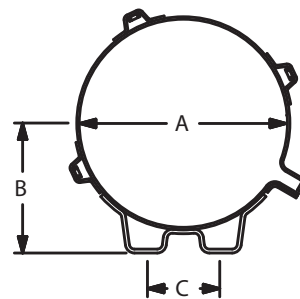
No Heat Shield Applications

--- A --- in mm	--- B --- in mm	--- C --- in mm	Part Number
10.00 254	6.28 160	3.5 89	P230282
11.00 269	6.50 165	6.5 165	P230281
13.00 330	7.75 197	6.5 165	P230045

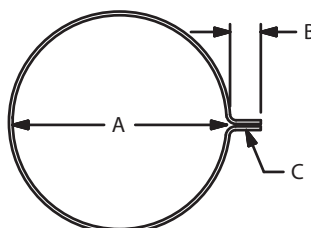


P227803

P230281
No heat shield
stand off



P227804



Band width 1.5" (38mm)

Muffler Body Bands for Schools Buses

--- A --- in mm	--- B --- in mm	--- C --- in mm	Part Number
10.00 256	1.75 44	.40 10	P228241 ⁽¹⁾
11.00 279	1.75 44	.40 10	P227804 ⁽²⁾

1. Bluebird conventional bus with Cat Engine Works
2. Bluebird rear engine bus

Heat Sleeves & Heat Wrap

Heat sleeves or heat wrap could reduce the outside temperature of a bare pipe by up to 300°F (149) to 400°F.(204)

ACCESSORIES

Heat Sleeves

Slips onto 3" (76mm) to 5" (127mm) dia. pipe



Length	Part Number
12" (305mm)	P235764
18" (457mm)	P235765
24" (610mm)	P235766

Heat Wrap

2" (50,8mm) wide roll, easy to install on any pipe



Length	Part Number
2"(51mm) X50'(15,24m) Roll	P235767

Sleeve & Wrap Clamps

Wrap clamps make installation easy!
No tools needed.



Length	Part Number
2 PC of 18" (457mm) Long Clamp	P235768
12 PC of 18" (457mm) Long Clamp	P235769

Flex Tubing & Cut to Length Flex

Flex Tubing

- Flex tubing (and cut lengths) should be installed in a half extended state. Donaldson flex tubing ships in the half extended state.
- Material thickness for stainless and galvanized is 0.015" (0,38mm)
- Sized by flex I.D.
- Material thickness

Flex Tubing

--- I.D. --- in	mm	10 ft. (3 m) Lengths		25 ft (7.6 m) Lengths ¹	
		Stainless	Galvanized	Stainless	Galvanized
2.00	51	P226151	P226148		
2.50	64	P226152	P226149		
3.00	76	P226144	P226140	P226132	P226129
3.50	89	P226145	P226141	P226133	P226154
4.00	102	P226146	P226142	P226156 ²	P226155 ²
5.00	127	P226147	P226143	P226158 ²	P226157 ²
6.00	152	P226153 ¹	P226150 ¹		



¹ - Size exceeds shipping limits by North American small package carriers. This item must ship by truck.
² - Shipped on pallet, product is not boxed.

Cutting & Installation Instructions for Flex Tubing - Please see page 74

Standard Cut to Length Flex



- Deburred ends
- Sized by flex I.D.
- Stainless and galvanized material thickness - 0.015" (0,38mm)
- Measured fully extended



Close-up of deburred edge

Standard Cut to Length Flex

--- I.D. --- in mm	Overall Length		Stainless	Galvanized
	in	mm		
3.00 76	12.00	305	J240003	
	18.00	457	P206552	
	24.00	610	J240004	
3.50 89	12.00	305	J240005	
	18.00	457	P206553	
	24.00	610	J024850	
4.00 102	12.00	305	J240006	P224479
	18.00	457	P206554	J024754
	24.00	610	J024836	J024835
	36.00	914	J034673	J034743
5.00 127	12.00	305	J240007	P224481
	18.00	457	P206555	J024755
	24.00	610	J024838	J024837
	36.00	914	J034674	J034744
6.00 152	18.00	457	P206556	
	30.00	762	P206559	

Flex Cut Lengths with Finished Ends



- Flex tubing (and cut lengths) should be installed in a half extended state. Donaldson flex tubing ships in the half extended state.
- One end O.D., one end I.D. slotted
- Sized by flex I.D.
- Overall length includes finished ends
- Welded tube ends

Cut-to-Length Flex - Finished Ends

--- I.D. --- in mm	Overall Length		Galvanized
	in	mm	
3.00 76	18.00	457	P206544
4.00 102	18.00	457	P206546
5.00 127	18.00	457	P206547

Long-Life Cut to Length Flex



- Improved flexibility
- Consistent product quality—optimized material choice/consistency
- Heavier gauge stainless material over standard flex (0.018" (0,46mm) gauge)
- Up to 8 times longer life than conventional flex
- Less leakage and lower emissions during truck start up
- Simplified installation—installation strip and flow direction
- Ends square cut and deburred
- Installation length indicator
- 12 month/120,000 mile/200,000 km warranty (on-highway vehicles only)

Donaldson patented technology

Long-Life Flex

--- I.D. --- in mm	Mid Length ¹		Stainless
	in	mm	
4.00 102	12.00	305	P224412
	15.00	381	P224415
	18.00	457	P224418
	21.00	533	P224421
5.00 127	15.00	381	P224515
	18.00	457	P224518
	21.00	533	P224521

¹ - Length measured in half compressed state

Recommended clamps:
Preformed SealClamp or Offset MaxGrip Bent Bolt

Sliding Clamps

Sliding clamps joints are typically used for male to female connection with flared tube where leak rate is critical (ex: EAT systems). This connection allows longitudinal and radial compensation.

A sliding clamp is composed by 3 parts:

A V-Clamp composed by a band, a segment, a trunnion, a screw and a nut

A gasket

A flare



Material

Sliding clamp is in stainless steel 441. Gasket is a wire mesh with graphite.

Range of sliding clamps

Sliding clamp Dia in	mm	Kit Part number
2.50	63.5	X770810
3.00	76.2	X770783
3.50	88.9	X770780
4.00	101.6	X770746
4.50	114.3	X770801
5.00	127	X770748

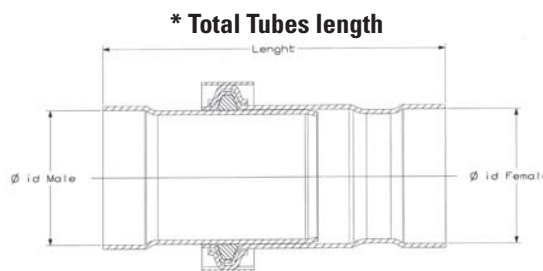
Recommended Torque Specifications

Diameter	Recommended torque	Maximum torque
Diameter < 101.6 mm	14 +/-1 Nm	16
Diameter ≥ 101.6 mm	20 +/-1 Nm	25



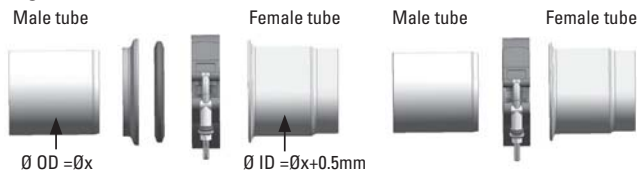
Range of Connection Sliding V-Clamp

Male Tubes Ø ID in	mm	Female Tubes Ø ID in	mm	Tubes Length* in	mm	Tubes Kit Part number
2.52	64	2.52	64	5.91	150	X770862
3.02	76.7	3.02	76.7	5.91	150	X770863
3.52	89.4	3.52	89.4	6.50	165	X770864
4.04	102.6	4.04	102.6	6.50	165	X770865
4.54	115.3	4.54	115.3	6.50	165	X770866
5.04	128	5.04	128	6.50	165	X770867



Mounting specifications

The fitting value of the smallest tube in the other tube is 35 +/- 15mm. The minimum insertion length has to be 20mm. Tubes are in stainless steel 441 and have to be welded.



Sliding clamp can compensate few degrees of misalignment (depending on insertion length).

Leak tests

One of the advantages of the sliding clamp is that it provides a low leak rate.

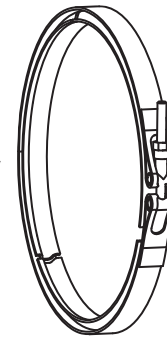
Every clamp assembly meets a maximum leak rate value of 0.5 L/min @ 0.3 bar once they are assembled with the recommended torque.

V-Band Clamps

V-Band Clamps for Large Diameter Mufflers



- The V-band clamp is a common clamp for Donaldson retrofit mufflers
- The unique design reduces service time creates a reliable, leak-free seal between components
- Piloted v-insert section, facilitates reassembly and alignment for clamping



- Body Dia. - in	- mm	Part Number
10.0	254	P227750
11.0	279	P212925
13.0	330	P229851

V-Band Clamps for Pipes and Turbo Housing Flanges



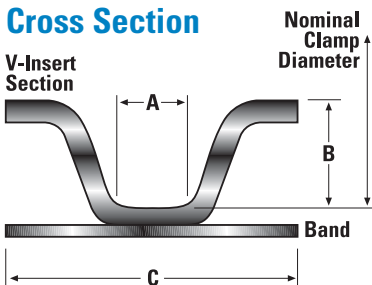
- Used to connect vehicle exhaust pipe flange to turbo or engine manifold
- May also hold the turbo housing flanges
- Built to withstand high temperatures produced by heavy-duty engines/turbos
- Manufactured to the highest tolerances and meet or exceed OEM specifications for material and quality standards

Cat	Part Number	Nominal Diameter		V-Insert Sections					
		in	mm	--- A ---		--- B ---		--- C ---	
		in	mm	in	mm	in	mm	in	mm
3406, 3406B, 3176	P206607	5.88	149	0.40	10	0.28	7	0.88	22
3176T	P222018	4.75	121	0.40	10	0.28	7	0.88	22

Cummins	Part Number	Nominal Diameter		V-Insert Sections					
		in	mm	-- A --		-- B --		-- C --	
		in	mm	in	mm	in	mm	in	mm
B Series, #3903652	J009618	3.21	82	0.26	7	0.14	4	0.75	19
C Series	P222017	4.13	105	0.26	7	0.14	4	0.75	19
L10, M11	P222018	4.75	121	0.40	10	0.28	7	0.88	22
V555, V902, V903	J009612	3.88	99	0.40	10	0.28	7	0.88	22

Detroit Diesel	Part Number	Nominal Diameter		V-Insert Sections					
		in	mm	-- A --		-- B --		-- C --	
		in	mm	in	mm	in	mm	in	mm
6-71T, 12V71, 8.2N, 8.2T	P206606	4.81	122	0.21	5	0.28	7	0.88	22
6V53, 6V71, 6V92, 8V92	P206604	3.82	97	0.21	5	0.28	7	0.88	22
8.2 N, #2069773	J009611	4.06	103	0.24	6	0.28	7	0.88	22
8V71T	P213191	5.81	148	0.21	5	0.28	7	0.88	22
8V71T, 16V-71, 16V92T, 6V92, 8V92	P210110	5.25	133	0.21	7	0.14	4	0.75	19
8V92, 8V71, 4-53, 6-71	P206605	4.5	114	0.21	5	0.28	7	0.88	22
Series 60	P206607	5.88	149	0.40	10	0.28	7	0.88	22

Cross Section



IH	Part Number	Nominal Diameter		V-Insert Sections					
		in	mm	-- A --		-- B --		-- C --	
		in	mm	in	mm	in	mm	in	mm
DT466	J009613	4.33	110	0.21	5	0.28	7	0.88	22

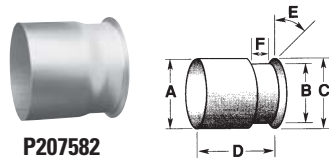
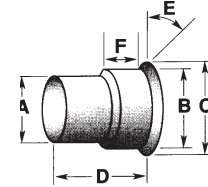
Mack	Part Number	Nominal Diameter		V-Insert Sections					
		in	mm	-- A --		-- B --		-- C --	
		in	mm	in	mm	in	mm	in	mm
48RU2341, 4ME21409	J009614	4.61	117	0.16	4	0.28	7	0.75	19

Flared Connectors - All 16 ga. Aluminized Steel

O.D. -- A -- in (mm)	I.D. -- B -- in (mm)	O.D. -- C -- in (mm)	-- D -- in (mm)	E	-- F -- in (mm)	Flared Connector	V-Band Clamp	Application
3.00 (76)	3.02 (77)	3.62 (92)	4.00 (102)	22°	0.75 (19)	P207619	P206604	DD 6V 71
3.50 (89)	3.63 (92)	4.25 (108)	4.00 (102)	22°	0.75 (19)	P207581	P206605	8V-71-VT-555
4.00 (102)	4.02 (102)	4.75 (121)	4.00 (102)	22°	0.75 (19)	P207620	P206606	6 71-12V 71

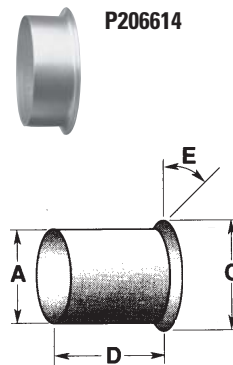

P207619

O.D. -- A -- in (mm)	I.D. -- B -- in (mm)	O.D. -- C -- in (mm)	-- D -- in (mm)	E	-- F -- in (mm)	Flared Connector	V-Band Clamp
3.50 (89)	3.52 (89)	4.19 (106)	4.75 (121)	45°	2.12 (54)	P207568	P206605
4.00 (102)	4.02 (102)	4.70 (119)	4.75 (121)	45°	2.50 (64)	P207567	P206606
5.00 (127)	5.02 (128)	5.70 (145)	4.75 (121)	45°	3.00 (76)	P207566	P206607


P207568, P207567, or P207566

P207582

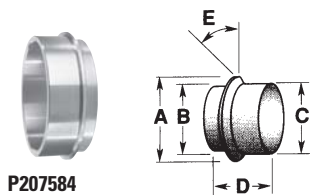
O.D. -- A -- in (mm)	I.D. -- B -- in (mm)	O.D. -- C -- in (mm)	-- D -- in (mm)	E	-- F -- in (mm)	Flared Connector	V-Band Clamp	Application
4.00 (102)	3.63 (92)	4.25 (108)	3.81 (97)	22°	0.75 (19)	P207582	P206605	8V 71

I.D. / O.D. -- A -- in (mm)	O.D. -- C -- in (mm)	-- D -- in (mm)	E	Flared Connector	V-Band Clamp
3.00 (76) ¹	3.75 (95)	1.50 (38)	20°	P206612	P206604
	3.92 (100)	2.25 (57)	20°	J009479	J009611
3.50 (89) ¹	4.19 (106)	1.50 (38)	22°	P206613	
3.50 (89) ²	4.29 (109)	1.50 (38)	22°	J009391	P206605
4.00 (102) ¹	4.75 (121)	1.50 (38)	22°	P206614	P206606
5.00 (127) ²	5.50 (140)	5.25 (133)	45°	J009393	
	5.69 (145)	3.00 (76)	22°	P206615	P206607
	5.86 (149)	5.00 (127)	20°	J009629 ³	


P206614

J009629
Adapter with
Pyrometer Fitting
(1/4" NPT)

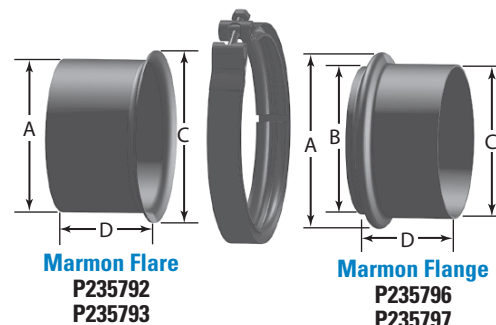
- 1 - I.D. Dimension
- 2 - O.D. Dimension
- 3 - Adapter has pyrometer fitting


P207584

Lipped Flange

O.D. -- A -- in (mm)	I.D. -- B -- in (mm)	O.D. -- C -- in (mm)	-- D -- in (mm)	E	Flange	V-Band Clamp	Application
5.01 (127)	4.25 (108)	4.80 (122)	1.94 (49)	20°	P207584	P210110	Air Research Turbo

Marmon Flanges & Flares


Marmon Flare
P235792
P235793

Marmon Flange
P235796
P235797

Join parts together for leakproof and serviceable connections with a V-Band Clamp. All components made from 304 SS.

	O.D. -- A -- in (mm)	I.D. -- B -- in (mm)	O.D. -- C -- in (mm)	-- D -- in (mm)	Part No.	V-Band Clamp
Marmon Flare	4.00 (102)	—	4.63 (118)	3.00 (76)	P235792	P206606
	5.00 (127)	—	5.63 (143)	3.00 (76)	P235793	P206607
Marmon Flange	4.72 (120)	3.80 (97)	4.00 (102)	3.00 (76)	P235796	P206606
	5.79 (147)	4.96 (126)	5.00 (127)	3.00 (76)	P235797	P206607

I.D. - I.D.

Reduces O.D. pipe of different sizes. 16 gauge aluminized steel.



-- I.D. -- in mm	-- I.D. -- in mm	Length in mm	Part Number
2.50 64	2.00 51	6.00 152	P207382
2.75 70	2.50 64	6.00 152	P207385
3.00 76	2.50 64	6.00 152	P206313
	2.75 70	6.00 152	P207386
3.50 89	3.00 76	6.00 152	P206314
4.00 102	3.00 76	6.00 152	P206315
	3.50 89	8.00 203	P206316
5.00 127	4.00 102	6.00 152	P206317
6.00 152	5.00 127	8.00 203	P206318



I.D. - O.D.

Reduces larger O.D. pipe to smaller I.D. pipe. Also used as muffler bushing or manifold outlet. 16 gauge aluminized steel.

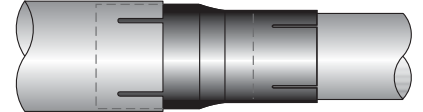


-- I.D. -- in mm	-- O.D. -- in mm	Length in mm	Part Number
2.50 64	2.00 51	6.00 152	P207397
3.00 76	2.50 64	6.00 152	P206319
	2.75 70	6.00 152	P207401
3.50 89	3.00 76	6.00 152	P206320
4.00 102	3.00 76	6.00 152	P206321
	3.50 89	6.00 152	P206322
4.50 114	4.00 102	6.00 152	J190046
5.00 127	4.00 102	6.00 152	P206323
6.00 152	5.00 127	6.00 152	P207402



O.D. - I.D.

Reduces larger I.D. pipe to smaller O.D. pipe. 16 gauge aluminized steel.



-- O.D. -- in mm	-- I.D. -- in mm	Length in mm	Part Number
2.50 64	2.00 51	6.00 152	P207389
2.50 64	2.25 57	4.00 102	J008942
3.00 76	2.50 64	6.00 152	P206324
3.50 89	3.00 76	6.00 152	P206325
4.00 102	3.00 76	6.00 152	P206326
	3.50 89	6.00 152	P206327
4.50 114	4.00 102	6.00 152	J190041
5.00 127	4.00 102	6.00 152	P206328
6.00 152	5.00 127	6.00 152	P207394



Connectors

I.D. - I.D.

Connects O.D. pipes of the same size. 16 gauge aluminized steel.



--- I.D. --- in mm	-- Length -- in mm	Part Number
2.00 51	6.00 152	P207405
2.50 64	6.00 152	P206371
3.00 76	6.00 152	P206372
3.50 89	6.00 152	P206373
4.00 102	6.00 152	P206374
5.00 127	6.00 152	P206375
6.00 152	6.00 152	P207408



I.D. - O.D.

Connects O.D. and I.D. pipes of the same size. 16 gauge aluminized steel.

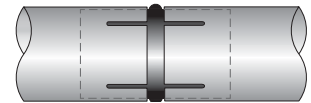


I.D.-O.D. in mm	-- Length -- in mm	Part Number
2.00 51	6.00 152	P207411
2.50 64	6.00 152	P206366
2.75 70	6.00 152	P207413
3.00 76	6.00 152	P206367
3.50 89	6.00 152	P206368
4.00 102	8.00 203	P206369
5.00 127	8.00 203	P206370
6.00 152	6.00 152	P207414



O.D. - O.D.

Connects I.D. pipes of the same size. Also used on manifold outlet. Connector has tube stop. 16 gauge aluminized steel.

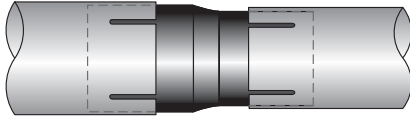


O.D.-O.D. in mm	-- Length -- in mm	Part Number
2.50 64	6.00 152	P206361
3.00 76	6.00 152	P206362
3.50 89	6.00 152	P206363
4.00 102	8.00 203	P206364
5.00 127	8.00 203	P206365



O.D. - O.D.

Reduces I.D. pipe of different sizes. 16 gauge aluminized steel.



-- O.D. -- in	mm	-- O.D. -- in	mm	Length in	mm	Part Number
3.00	76	2.50	64	6.00	152	J190042
3.50	89	3.00	76	6.00	152	J190044
4.00	102	3.00	76	6.00	152	J009648
		3.50	89	6.00	152	J190045
5.00	127	4.00	102	8.00	203	J009649
6.00	152	5.00	127	8.00	203	J009650



Tilt Cab Ball & Cone Connectors

- 16 gauge aluminized steel construction



Ball Connector
P205976 - 4" (102mm) Pipe I.D.
P206300 - 5" (127mm) Pipe I.D.

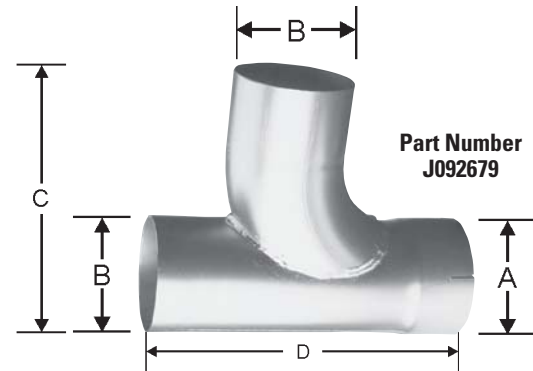


Cone Connector
P205979 - 4" (102mm) Pipe O.D.
P206299 - 5" (127mm) Pipe O.D.

ACCESSORIES

Standard "Y" Adapter Pipe

- 16 gauge aluminized steel construction



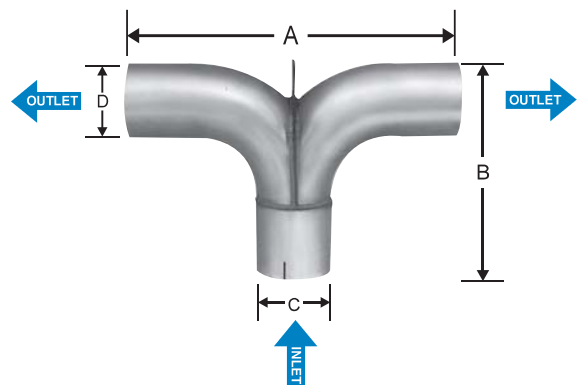
- A (I.D.) - in	mm	- B (O.D.) - in	mm	----- C ----- in	mm	----- D ----- in	mm	Part Number
4.00	102	4.00	102	9.00	229	14.00	356	J092679
5.00	127	5.00	127	10.50	267	15.00	381	J092689

Splitter Tee Adapter

- Converts single exhaust pipe to dual exhaust system
- 16 gauge aluminized steel

(A) in	mm	(B) in	mm	Truck ID (C) in	mm	Leg OD (D) in	mm	Part Number
17.50	445	12.00	305	4.00	102	4.00	102	P206297
26.00	660	14.00	356	5.00	127	5.00	127	P206298

Band width 1.5" (38mm)



Stack Caps

The exhaust stack cap is designed to be mounted on top of a vertical straight exhaust stack pipe and prevents water and debris from entering the stack. The stack cap is not water-tight during pressure washes or under strong wind conditions. Use where exhaust gas temperatures are less than 1000° F / 537° C.

For proper installation, the exhaust cap needs clearance for counterweight rotation and should be installed at a point that allows for this without interference.

The exhaust cap should be placed on the outer diameter of the stack pipe. Allow approximately ¼" of clearance between cap and top of stack.

O.D. Pipe Size in	mm	Zinc Plated	Chrome
1.50	38	P270530	
1.75	44	P270531	
2.00	51	P270532	
2.25	57	P270533	
2.50	64	P270534	
2.75	70	P270535	
3.00	76	P270536	P271507
3.50	89	P270538	P271508
4.00	102	P270539	P270837
4.50	114	P270540	
5.00	127	P270541	P270838
5.50	140	P270542	
6.00	152	P270543	P271511

P270539 - Zinc Plated



P270837 - Chrome



- High temperature corrosion-resistant finish
- Single bolt mount
- Nylon stop for quiet operation
- Metal bushing for high temperature use

ACCESSORIES

Universal Swivel Hanger

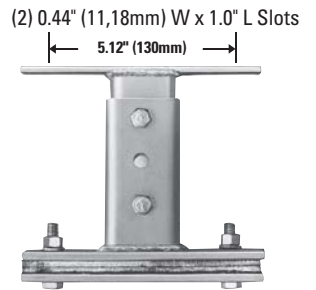
- Heavy reinforced rubber pad
- Double pivot design improves flexibility and installation
- One piece construction installs in seconds
- 11 gauge cold rolled steel construction



P206507 - 9" (229mm) length
J008167 - 13" (330mm) length

Universal Mounting Bracket

- For 4" (102 mm) and 5" (127 mm) pipes
- 3/8"-16 UNC-2A(4)
- Heavy gauge hot rolled steel construction
- Expands to 10" (254mm)



P207784

Pipe Hangers

- Pre-punched holes (0.41" (10,4mm) dia.) for easy installation
- 12 gauge hot rolled steel construction
- 12" (305mm) overall bar length, width 0.88"(22,35mm)
- 3/8"-16 UNC bolts/nuts included

Pipe Hangers

Pipe Dia. in	mm	Part Number
3.00	76	P206523
3.50	89	P206524
4.00	102	P206525
5.00	127	P206526



Universal Pipe Guards & Clamps

- 180° F (82°C) wrap coverage
- 48" (1219mm) length
- Polished stainless steel
- Shipped with protective film on one side
- Clamps must be ordered separately

Universal Pipe Guards & Clamps

Pipe Dia. in	mm	Stainless ¹	Clamp Kit
4.00	102	P206543	P206508
5.00	127	P206543	P206509
6.00	152	P206543	P224492

1 - Requires clamp kit for installation

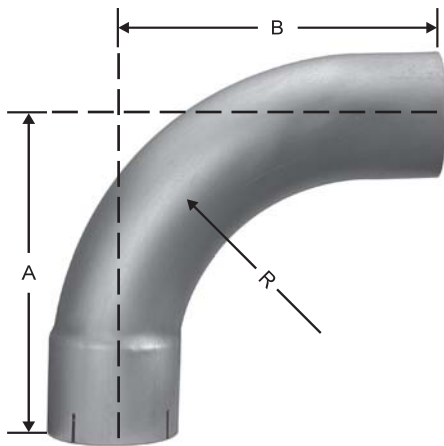


Pipe Guard Clamp Kits

- Two clamps per kit
- Chrome plated
- 12 gauge cold rolled steel construction

90° O.D. - I.D.

- 16 gauge aluminized or chrome plated steel
- One end O.D., one end I.D. slotted

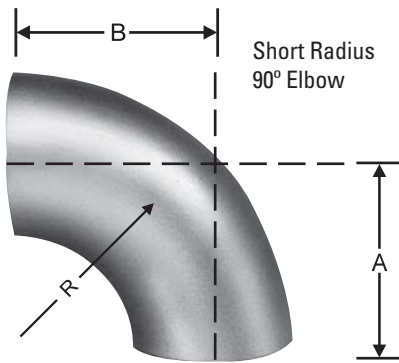
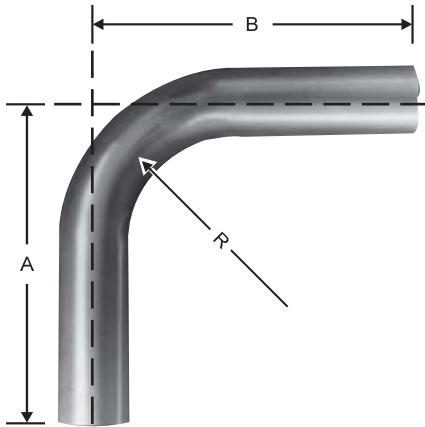


Diameter O.D.-I.D.		Leg Length (A)		Leg Length (B)		Center Line Radius (R)		Aluminized	Chrome		
in	mm	in	mm	in	mm	in	mm				
2.00	51	9.00	229	9.00	229	5.00	127	P207333			
		6.38	162	6.38	162	4.00	102	J008671			
2.50	64	6.25	159	6.25	159	4.00	102	P206339			
		12.00	305	12.00	305	5.00	127	P207335			
2.75	70	6.38	162	6.38	162	5.00	127	P216172			
		3.00	76	8.00	203	8.00	203	5.00	127	P206340	
				14.00	356	14.00	356	5.00	127	P206341	
3.50	89	9.00	229	9.00	229	5.00	127	P206342			
		12.00	305	12.00	305	5.00	127	P224669			
		16.00	406	16.00	406	5.00	127	P206343			
4.00	102	8.00	203	8.00	203	4.50	114		P224671		
		8.00	203	8.00	203	5.00	127	J008681			
		10.00	254	10.00	254	4.50	114		P207345		
		10.00	254	10.00	254	7.00	178	P206344			
		18.00	457	18.00	457	4.50	114		P206353		
4.50	114	18.00	457	18.00	457	7.00	178	P206345			
		25.00	635	32.00	813	7.00	178	P207338			
		12.00	305	12.00	305	7.00	178	J190002			
		5.00	127	8.50	216	8.50	216	5.50	140	J190003	J190004
				11.00	279	11.00	279	5.50	140	P207339	J009547
6.00	152	15.00	381	15.00	381	7.50	191		P207346		
						10.00	254	P206347			
		18.00	457	18.00	457	7.50	191		P206354		
						10.00	254	P206348			
		25.00	635	32.00	813	10.00	254	P207340			
6.00	152	15.00	381	15.00	381	10.00	254	P207341			
		26.00	660	26.00	660	10.00	254	P206350			

ACCESSORIES

90° O.D. - O.D.

- 16 gauge aluminized or chrome plated steel
- Both ends O.D.

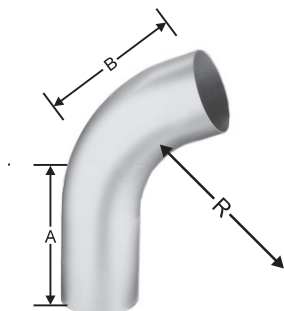


Diameter O.D.-O.D.	Leg Length (A)		Leg Length (B)		Center Line Radius (R)		Aluminized	Chrome	Stainless		
	in	mm	in	mm	in	mm					
2.00	51	9.00	229	9.00	229	5.00	127	P207322			
2.25	57	10.00	254	10.00	254	4.00	102	P216174			
2.50	64	12.00	305	12.00	305	5.00	127	P207324			
2.75	70	12.00	305	12.00	305	5.00	127	P207325			
3.00	76	3.50	89	3.50	89	3.00	76	P206397			
		6.00	152	6.00	152	4.00	102	P207362			
		10.00	254	10.00	254	5.00	127	P207326			
		14.00	356	14.00	356	5.00	127	J190013			
3.50	89	4.00	102	4.00	102	4.00	102	P206398	P235770 ¹		
		8.00	203	8.00	203	4.00	102	P207363			
		9.00	229	9.00	229	5.00	127	J190014			
		12.00	305	12.00	305	5.00	127	P207327			
		16.00	406	16.00	406	5.00	127	P207328			
4.00	102	4.50	114	4.50	114	4.00	102	P206399			
		4.50	114	4.50	114	4.50	102		P235771 ²		
		8.00	203	8.00	203	4.00	102	P207364			
		9.00	229	15.00	381	4.00	102	P207330			
		12.00	305	12.00	305	4.00	102	P206346			
		18.00	457	18.00	457	4.50	114		J190016		
						7.00	178	P207329			
		25.00	635	25.00	635	5.00	127	J190017			
		5.00	127	5.50	140	5.50	140	5.50	140	P206400	P235772 ²
				10.00	254	10.00	254	5.50	140	P207365	
		11.00	279	16.00	406	5.50	140	P207332			
		15.00	381	15.00	381	7.50	191		J190019		
						10.00	254	P207331			
		20.00	508	20.00	508	10.00	254	P206349			
		25.00	635	25.00	635	8.00	203	J190020			
6.00	152	6.50	165	6.50	165	6.00	152	P207361			
		10.00	254	10.00	254	6.00	152	P207366			
		23.00	584	23.00	584	10.00	254	P216175			

1- 409 Stainless Steel
2 - 439 Stainless Steel

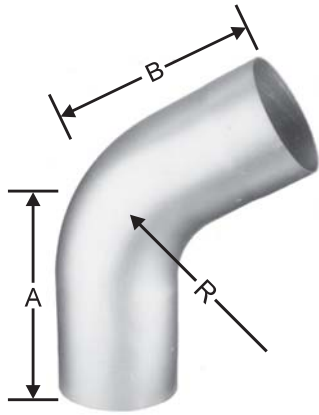
67° O.D. - O.D.

- 16 gauge aluminized steel
- Both ends O.D.
- For Peterbilt Truck



Diameter O.D.-O.D.	Leg Length (A)		Leg Length (B)		Center Line Radius (R)		Part Number	
	in	mm	in	mm	in	mm		
5.00	127	7.50	191	11.00	279	8.00	203	J009560

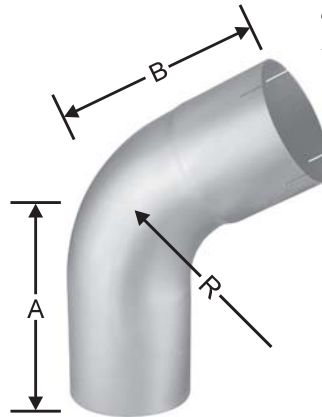
60° O.D. - O.D.



- 16 gauge aluminized steel
- Both ends O.D.

Diameter O.D.-O.D.		Leg Length (A & B)		Center Line Radius (R)		Part Number
in	mm	in	mm	in	mm	
4.00	102	8.00	203	5.00	127	J009644
5.00	127	8.00	203	5.50	140	J009645

60° O.D. - I.D.

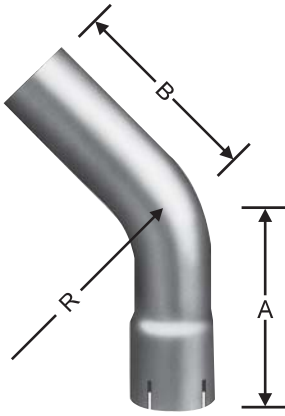


- 16 gauge aluminized steel
- One end O.D., one end I.D. slotted

Diameter O.D.-I.D.		Leg Length (A & B)		Center Line Radius (R)		Part Number
in	mm	in	mm	in	mm	
3.50	89	8.00	203	5.00	127	J009639
4.00	102	8.00	203	5.00	127	J009640
5.00	127	8.00	203	5.50	152	J009641

45° O.D. - I.D.

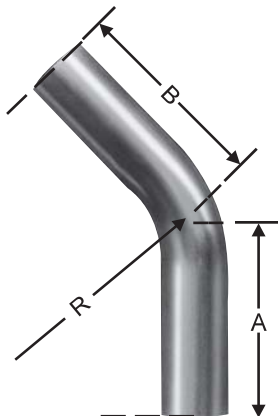
- 16 gauge aluminized or chrome plated steel
- One end O.D., one end I.D. slotted



Diameter O.D.-I.D.		Leg Length (A & B)		Center Line Radius (R)		Aluminized	Chrome
in	mm	in	mm	in	mm		
2.50	64	6.00	152	4.00	102	P206279	
3.00	76	7.00	178	5.00	127	P206280	
3.50	89	8.00	203	5.00	127	P206281	
4.00	102	8.00	203	4.50	114		P206285
		9.25	235	7.00	178	P206282	
		12.00	305	5.00	127	J190023	
5.00	127	8.00	203	8.00	203	J190025	
		8.00	203	7.50	191		P206286
		12.00	305	8.00	203	P206283	
		15.00	381	5.50	140	J190027	
		6.00	152	8.00	203	6.00	152

45° O.D. - O.D.

- 16 gauge aluminized or chrome plated steel
- Both ends O.D.

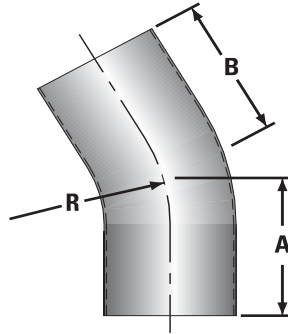


Diameter O.D.-O.D.		Leg Length (A)		Leg Length (B)		Center Line Radius (R)		Aluminized	Chrome	Stainless
in	mm	in	mm	in	mm	in	mm			
2.00	51	6.00	152	6.00	152	5.00	127	P207347		
2.50	64	6.00	152	6.00	152	5.00	127	P207349		
2.75	70	6.00	152	6.00	152	5.00	127	P207350		
3.00	76	7.00	178	7.00	178	5.00	127	P207351		
3.50	89	8.00	203	8.00	203	4.00	127			P235787 ¹
3.50	89	8.00	203	8.00	203	5.00	127	P207352		
4.00	102	8.00	203	8.00	203	4.00	102	P207353		
4.00	102	8.00	203	8.00	203	4.50	102			P235788 ²
5.00	127	8.00	203	8.00	203	5.50	140	P207354	P216169	P235789 ²
6.00	152	8.00	203	8.00	203	6.00	152	P207355		

1- 409 Stainless Steel
2- 439 Stainless Steel

30° O.D. - O.D.

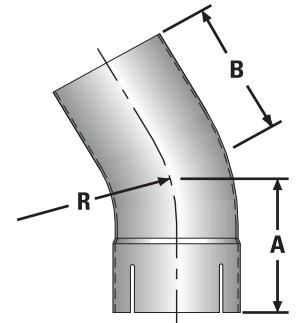
- 16 gauge aluminized steel
- Both ends O.D.



Diameter O.D.-O.D.	Leg Length (A & B)	Center Line Radius (R)	Part Number
in mm	in mm	in mm	
3.50 89	4.00 102	5.00 127	J009635
4.00 102	4.00 102	5.00 127	J009636
5.00 127	4.00 102	5.50 140	J009637

30° O.D. - I.D.

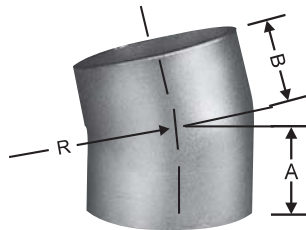
- 16 gauge aluminized steel
- One end O.D., one end I.D. slotted



Diameter O.D.-I.D.	Leg Length (A & B)	Center Line Radius (R)	Part Number
in mm	in mm	in mm	
3.50 89	4.00 102	5.00 127	J009631
4.00 102	4.00 102	5.00 127	J009632
5.00 127	4.00 102	5.50 140	J009633

15° O.D. - O.D.

- 16 gauge aluminized steel
- For use where clearance is a problem

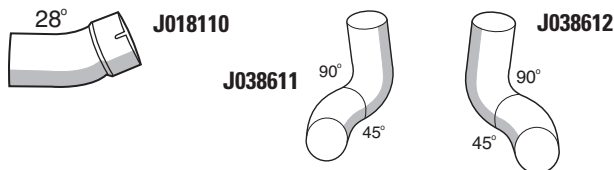


Diameter O.D.-O.D.	Leg Length (A & B)	Center Line Radius (R)	Part Number
in mm	in mm	in mm	
3.00 76	1.75 44	5.00 127	P206393
3.50 89	1.75 44	5.00 127	P206394
4.00 102	2.50 64	4.00 102	P206395
5.00 127	4.00 102	5.50 140	P206396

Bent Tubes for Trucks

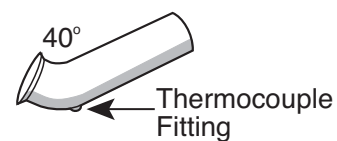
Kenworth Truck Bent Tubes

Kenworth Part No.	Donaldson Part No.	Dia. O.D.	Application
		in mm	
K180-5419	J018110	5.00 127	28° Elbow
K180-14764L	J038611	5.00 127	Left Hand Elbow
K180-14764R	J038612	5.00 127	Right Hand Elbow



Mack Truck Bent Tubes

Mack Part No.	Donaldson Part No.	- Dia. O.D. -	Application
		in mm	
4ME21698	J028528	4.00 102	R & RD Models



Straight Tubing - Exhaust & Intake

- 16 gauge, unless footnoted



Exhaust Straight Tubing -10 ft (3m) length

-- O.D. --		Aluminized	Stainless Steel
in	mm		
2.00	51	P206331	
2.50	64	P206333	
2.75	70	J000127	
3.00	76	P206334	P224685 ²
3.50	89	P206335	P235790 ²
4.00	102	P206336	P224686 ²
5.00	127	P206337	P224687 ¹
6.00	152	P206338	

1- 304 Stainless Steel
2 - 409 Stainless Steel



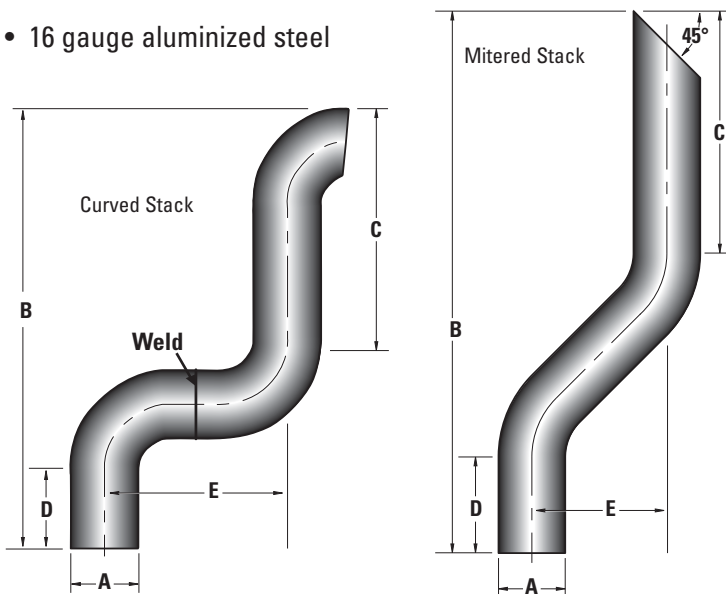
Intake Straight Tubing -10 ft (3m) length

-- O.D. --		Aluminum for Intake
in	mm	
3.00	76	P224684
4.00	102	P207367
5.00	127	P206849
5.50	140	P207368
6.00	152	P206850
7.00	178	P206851
8.00	203	P207369

ACCESSORIES

Dump Truck Stack Pipes

- 16 gauge aluminized steel



Dump Truck Stack Pipes

- O.D. Dia. -		Overall Length (B)		Leg Length (C)		Leg Length (D)		-- Offset -- (E)		Curved Aluminized	Mitered Chrome
in	mm	in	mm	in	mm	in	mm	in	mm		
4.00	102	38.00	965	19.50	495	10.50	267	12.10	307	P224581	
		51.00	1295	32.28	820	7.67	195	8.20	208		P224692
5.00	127	38.00	965	18.00	457	9.00	229	12.10	307	P224582	
		51.00	1295	31.70	805	7.11	181	7.04	179		P224693

Super Stack

- Aluminized
- Packing inside stack will reduce exhaust noise by 2 to 3 dBA
- Mounts directly into existing system replacing the conventional stack

Part Number: M001327

O.D. Dia.		Length	
in	mm	in	mm
5.00	127	35.50	902



Straight Stack Pipes

- Keeps exhaust smoke and fumes from damaging cargos or blackening van bodies
- 16 gauge aluminized steel or chrome



O.D. Style - Straight Stacks

O.D. Dia.		-- Length --		Aluminized	Chrome
in	mm	in	mm		
3.00	76	24.00	610	P208328	
		48.00	1219	P206376	
3.50	89	24.00	610	P208336	
		48.00	1219	P206377	
4.00	102	18.00	457		P208385
		24.00	610	J240012	
		48.00	1219	P206378	P206388
		60.00	1524	J640001	P206390
5.00	127	24.00	610	P224589	P224590
		48.00	1219	P206379	P206389
		60.00	1524	P208393	P206391



I.D. Style - Straight Stacks

I.D. Dia.		-- Length --		Aluminized	Chrome
in	mm	in	mm		
3.00	76	24.00	610	P216191	
		36.00	914	P208324	
		48.00	1219	P207285	P207314
3.50	89	18.00	457	P207281	
		24.00	610	J024735	
		36.00	914	P208348	
		48.00	1219	P207286	
4.00	102	18.00	457	P207282	
		24.00	610	J024737	P224627
		36.00	914	P208364	P224628
		48.00	1219	P207287	
		60.00	1524	P207288	P207299
5.00	127	18.00	457	P207283	
		24.00	610	J024739	J240024
		36.00	914	P208380	J340023
		48.00	1219	P207292	
		60.00	1524	P207289	P207300
6.00	152	48.00	1219	P216197	

45° Mitered Chrome Stack Pipes

- Keeps exhaust smoke and fumes from damaging cargos or blackening van bodies
- 16 gauge



O.D. Style - 45° Mitered Stacks

O.D. Dia.		-- Length --		Chrome
in	mm	in	mm	
4.00	102	18.00	457	P224696
		36.00	914	P224698
		48.00	1219	P224701
5.00	127	18.00	457	P224703
		36.00	914	P216227
		48.00	1219	P216228
		60.00	1524	J540008
		72.00	1829	P224609



I.D. Style - 45° Mitered Stacks

- I.D. Dia. -		-- Length --		Chrome
in	mm	in	mm	
4.00	102	18.00	457	P224604
		36.00	914	P224699
		48.00	1219	P224605
5.00	127	18.00	457	P224607
		36.00	914	P224614
		48.00	1219	P224616
		60.00	1524	P224608
		72.00	1829	P224706
		84.00	2134	P224611
		96.00	2438	P224707

Curved & Long 90° Stack Pipes

- Keeps exhaust smoke and fumes from damaging cargos or blackening van bodies
- 16 gauge aluminized steel or chrome

ACCESSORIES



O.D. Style - Curved Stacks

O.D. Dia.		--- Length ---		----- Curved -----	
in	mm	in	mm	Aluminized	Chrome
3.00	76	24.00	610	P208330	J240016
		48.00	1219	P206380	P207312
3.50	89	24.00	610	P208338	
		48.00	1219	P206381	
4.00	102	24.00	610	J024748	J024749
		36.00	914	P208358	P208359
		48.00	1219	P206382	P206386
		60.00	1524	P208388	P208389
		72.00	1829		J640005
		96.00	2438		P209913
5.00	127	24.00	610	J024750	J024751
		36.00	914	P208374	P208375
		48.00	1219	P206383	P206387
		60.00	1524	P208394	P208395
		72.00	1829		P224600
		96.00	2438		P209912



I.D. Style - Curved Stacks

I.D. Dia.		-- Length --		----- Curved -----	
in	mm	in	mm	Aluminized	Chrome
3.00	76	36.00	914	P208326	
		48.00	1219	P207293	P207318
3.50	89	24.00	610	P224633	
		36.00	914	P208350	P216200
		48.00	1219		P207319
4.00	102	24.00	610	J024746	J024757
		36.00	914	P208366	J034746
		48.00	1219	P207295	P207320
		60.00	1524	P207290	P207301
		72.00	1829		P216202
		84.00	2134		P224635
		96.00	2438		P224636
		96.00	2438		P209910
5.00	127	24.00	610	J024747	J024758
		36.00	914	P208382	P216204
		48.00	1219	P207296	P207321
		60.00	1524	P224709	P207302
		72.00	1829		P216205
		84.00	2134		P224638
6.00	152	36.00	914	P216206	
		36.00	914	P216206	



I.D. Style - Long 90°

I.D. Dia.		-- Length --			
in	mm	in	mm	Aluminized	Chrome
4.00	102	60.00	1524	P224710	P224641
5.00	127	60.00	1524	P224711	

Tailpipes - O.D. & I.D Styles



Tailpipes O.D. & I.D. Styles

-- Dia. --		-- Length --		----- O.D. Style -----		----- I.D. Style -----	
in	mm	in	mm	Aluminized	Chrome	Aluminized	Chrome
2.00	51	9.00	229	P206306		P207415	
2.50	64	12.00	305	P206308		P206301	
2.75	70	12.00	305			P206927	
3.00	76	12.00	305	P206309		P206302	J014621
3.50	89	12.00	305	P206310		P206303	J014622
4.00	102	12.00	305	P206311		P206304	J014623
		18.00	457	P208386	P206384	P207297	P207308
5.00	127	12.00	305			P224617	P224618
		18.00	457	P208392	P206385	P207298	P207309
		20.00	508	P206312		P206305	
6.00	152	20.00	508	P207419		P207559	

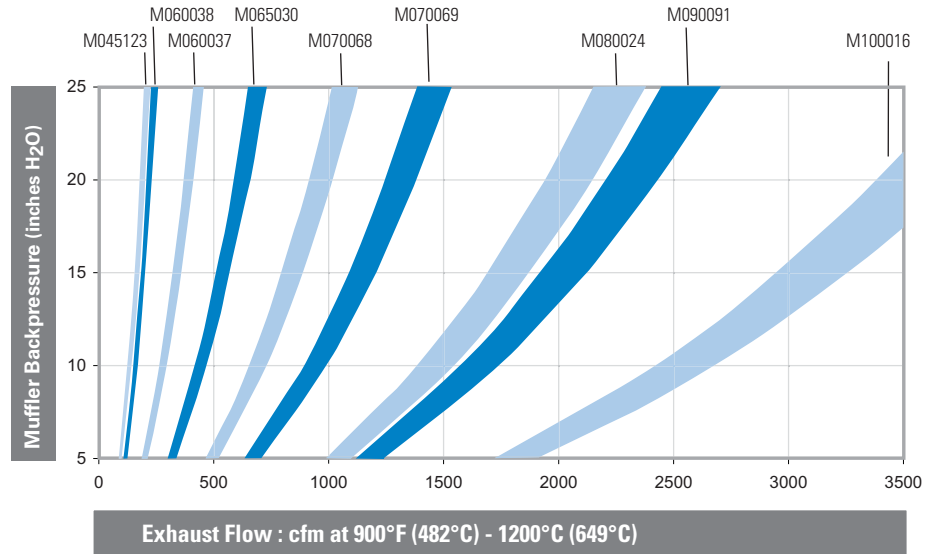
Spark Arrestors

- U.S. Forest Service approved (80% efficiency on incendiary sparks)
- Reduces fire hazard
- Centrifugal force separates solids from exhaust gas
- Aluminized steel with stainless steel critical parts
- Can be installed vertically or horizontally (If possible, the clean out should face away from all fuel tanks, the vehicle operator's position and the air cleaner inlet.)



Selecting a Spark Arrestor

Generally, if a spark arrestor will fit on the exhaust pipe of an engine, it will also have acceptable backpressure for that engine. In some cases, a larger size spark arrestor will be required to stay within backpressure limits, and in those cases adapters will have to be used.



Spark Arrestor Service Tip

The spark arrestor should be inspected and cleaned out every 1,000 operating hours or three times per season. Visually inspect for holes, cracks and metal corrosion. Check the mounting clamp to make sure the spark arrestor is securely mounted. Replace the spark arrestor if your inspection reveals any of the above unsafe conditions.

Inlet I.D. in	mm	Outlet I.D. in	mm	Body Dia. in	mm	Body Length in	mm	Overall Length in	mm	Part Number
1.50	38	1.25 ¹	32	4.38	111	4.75	121	8.38	213	M045123
		1.50	38	6.00	152	3.75	95	9.36	241	M060038
2.00	51	2.00	51	6.00	152	5.00	127	11.10	283	M060037
2.50	64	2.50	64	6.61	168	6.25	159	13.00	330	M065030
3.00	76	3.00	76	7.00	178	7.56	194	14.63	372	M070068
3.50	89	3.50	89	7.00	178	9.00	229	16.50	419	M070069
4.00	102	4.00	102	8.00	203	10.63	270	18.19	461	M080024
5.00	127	5.00	127	9.00	229	11.75	298	20.75	527	M090091
6.00	152	6.00	152	10.00	254	13.38	340	23.50	597	M100016

1 - 1.25" (32mm) is an outer diameter, not inner diameter.

Resonators

- Provides an additional 2 to 3 dBA exhaust noise reduction
- Installs in the exhaust system
- Straight-through design does not increase backpressure
- Aluminized steel
- Both ends I.D. slotted
- Common dimensions for both models:
 - Body Dia. 9" (229 mm)
 - Body Length 10" (254 mm)
 - Overall Length 16.5" (419 mm)



5" (125mm) I.D. and O.D. - Part No. M090072
4" (102 mm) I.D. and O.D. - Part No. M090362

Muffler Guards

- Bright stainless shipped with protective film on one side
- Order clamps separately, unless noted otherwise



Muffler Guards

-- Muffler Diameter --		Style	-- Length --		Wrap	Bright Stainless	409 Stainless
in	mm		in	mm			
8.50 - 9.00	216-229	2	51.00	1295	180°	P206540	
8.50 - 10.00	216-254	1	45.00	1143	270°	X005207 ¹	
		2	51.00	1295	180°	J009429	
10.00-10.50	254-267	2	51.00	1295	180°	P206542	
11-00-11.50	279-292	3	34.00	863	180°		P230761
13.00-13.50	330-343	3	34.00	863	180°		P230762

1 - Includes two (2) clamps

Muffler Guard Clamps

- Two clamps required for installation
- Chrome plated (except * are zinc plated)



Muffler Guard Clamps

Muffler Dia. in	mm	Part Number
8.50	216	P206510
9.00	229	P206511
10.00	254	P206512
11.00	281	P233422*
13.00	332	P233421*

Muffler Hangers

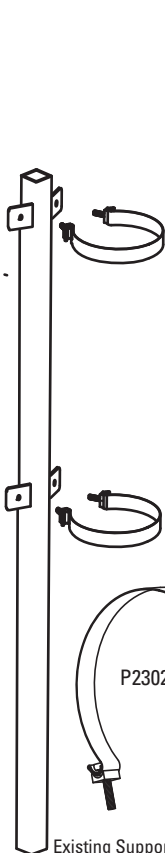
- For vertical and horizontal installations
- 11 gauge steel construction
- 12" (305mm) overall bar length
- 3/8"-16 UNC bolts/nuts included

Muffler Hangers

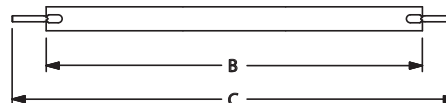
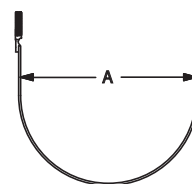
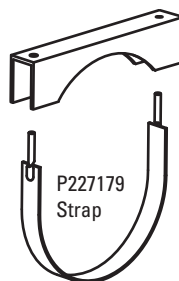
-- Muffler Dia. -- in	mm	Part Number
6.00	152	P206515
7.00	178	P206516
8.50	216	P206517
9.00	229	P206518
10.00	254	P206519
8.25x11.50	210x292	P206520
10.00x15.00	254x381	P206521
11.00	279	P224841



Heavy Duty Muffler Mounting Straps



Existing Bracket



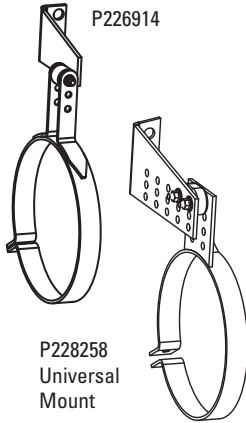
- Works with RE Bluebird buses with Cummins or Cat Engines

--- A ---		--- B ---		--- C ---		Part Number
in	mm	in	mm	in	mm	
11.00	279	23.50	597	27.75	705	P227179

- Works with vertical mount Mack trucks when converting to a 10" diameter muffler.

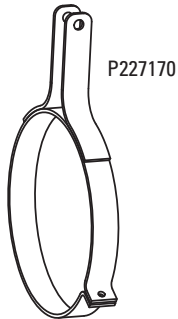
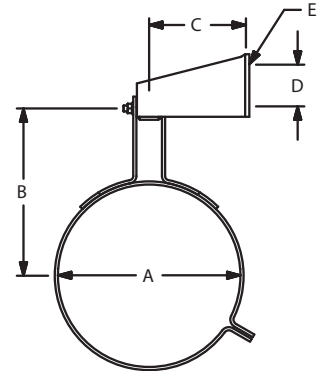
--- A ---		--- B ---		--- C ---		Part Number
in	mm	in	mm	in	mm	
10.00	256	20.00	508	23.50	597	P230241

Horizontal Hangers for Round Mufflers



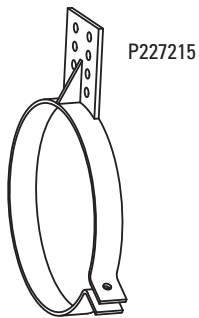
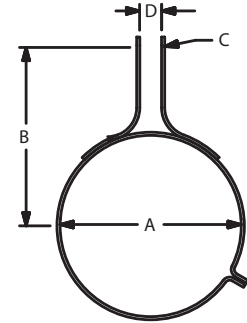
--- A ---		--- B ---		--- C ---		--- D ---		--- E ---		Part Number
in	mm	in	mm	in	mm	in	mm	in	mm	
10.00	256	9.31	236	5.75	146	1.75	44	.38	10	P227728
11.00	279	10.16	258	6.00	152	2.50	66	.75	19	P226914 ⁽⁴⁾
11.00	279	10.03	255	6.50	165	2.00	51	.56	14	P227167 ⁽⁵⁾
11.00	279	10.03	255	6.50	165	2.00	51	.56	14	P227175 ⁽⁶⁾
11.00	279	6.50-10.5	165-268	5.5-9.0	140-229	1.00/2.50	25/66	.50/.75	13/19	P228258 ⁽⁷⁾
13.00	330	6.50-10.5	165-268	5.5-9.0	140-229	1.00/2.50	25/66	.50/.75	13/19	P230046 ⁽⁷⁾

- Works with International School bus when converting to round muffler
- Works with conventional Thomas/Freightliner buses with Cat or Cummins engines
- Works with conventional Thomas/Freightliner buses with Mercedes Benz engine up to 2003
- Universal mount



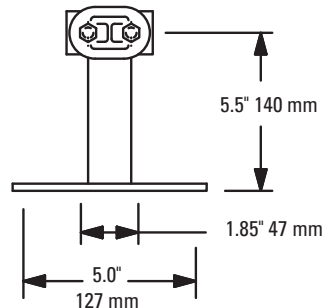
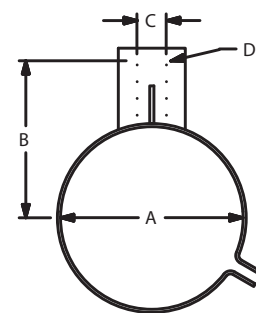
--- A ---		--- B ---		--- C ---		--- D ---		Part Number
in	mm	in	mm	in	mm	in	mm	
10.00	256	10.78	274	.56	14	1.31	33	P230284
11.00	279	10.78	274	.56	14	1.31	33	P227170 ⁽⁸⁾

- Works with 2004 Thomas Conventional with Mercedes Benz Engine



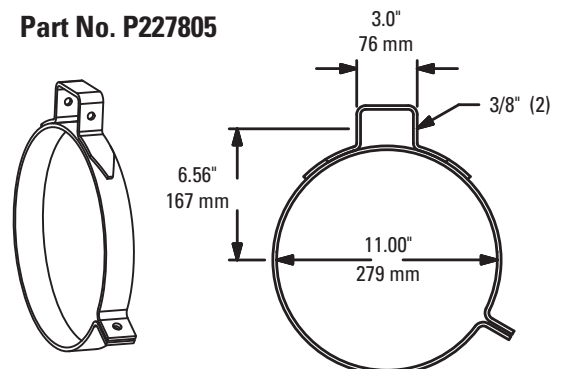
- Universal application

--- A ---		--- B ---		--- C ---		--- D ---		Part Number
in	mm	in	mm	in	mm	in	mm	
11.00	279	6.25 / 9.25	178 / 235	1.75	44	.50	13	P227215
13.00	330	7.25 / 10.25	184 / 262	1.75	44	.50	13	P230047



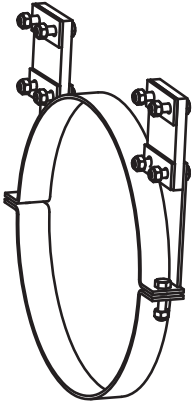
- Works great with u-bolt and w-foot body bands, and P228260 or P227839 hangers
- Black paint finish
- Used on Bluebird FE/FC Bus

Part No. P227805



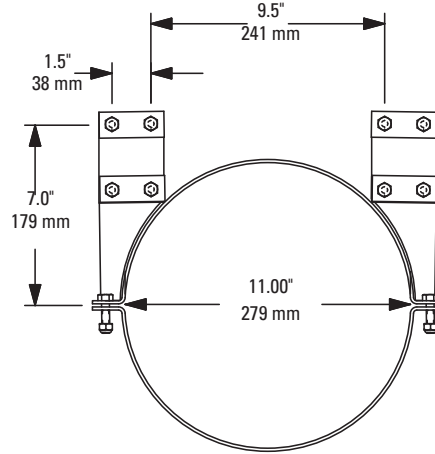
School Bus Hangers

ACCESSORIES

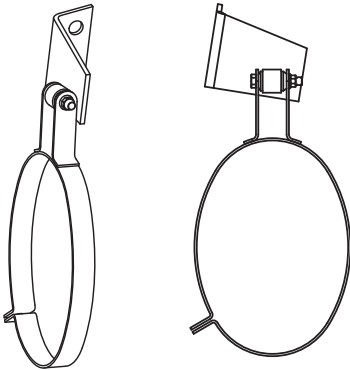


Part No. P227182

- Used for rear engine Thomas buses
- Horizontal mount
- All bolts shown are included



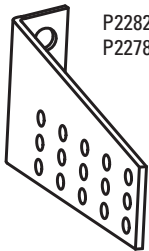
Horizontal Hanger for Oval Mufflers



Part No. P229114

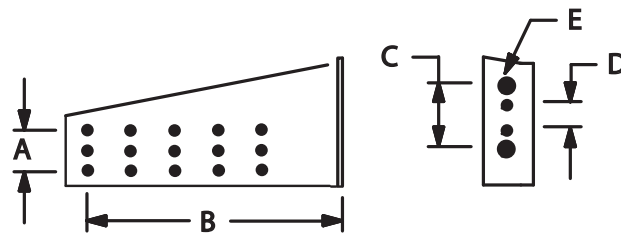
- Unique for Front Engine International School Bus with Oval DOC muffler
- Direct replacement to OE hanger
- Works with oval muffler diameter of 8.25" (210mm) x 11.5" (292mm)

Universal Horizontal Hangers



P228260 & P227839

- Schools buses retrofits
- Corner mount with two bolts

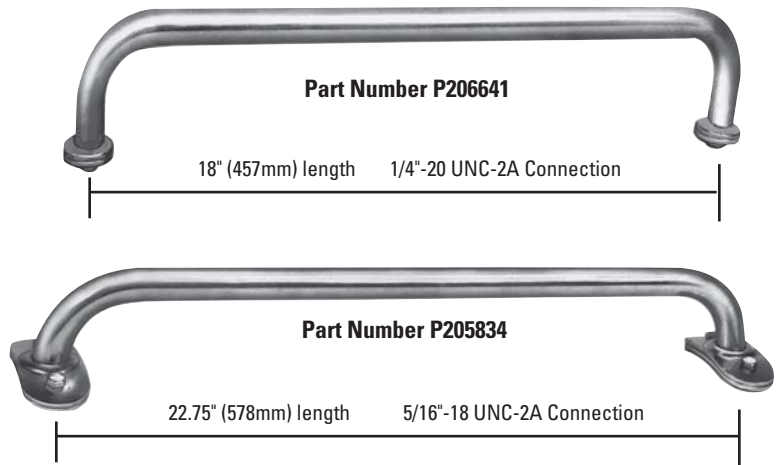


A		B		C		D		E		Part Number
in	mm	in	mm	in	mm	in	mm	in	mm	
1.30	33	5.31/9.94	135/252	2.50	64	1.26	32	.50	.13	P227839 ⁽³⁾
1.62	41	2.94/9.94	75/252	2.50	64	1.00	25	50/75	13/19	P228260

3. Bracket holes are .62"(16mm) x .35"(9mm) slots

Grab Handles

- For use with muffler and pipe guards
- Chrome plated



ACCESSORIES

Manifold Tube

- For manifold connections
- Size: 4" (102 mm) O.D.
- Basic application: Cummins NH series engines
- 16 gauge cold rolled steel



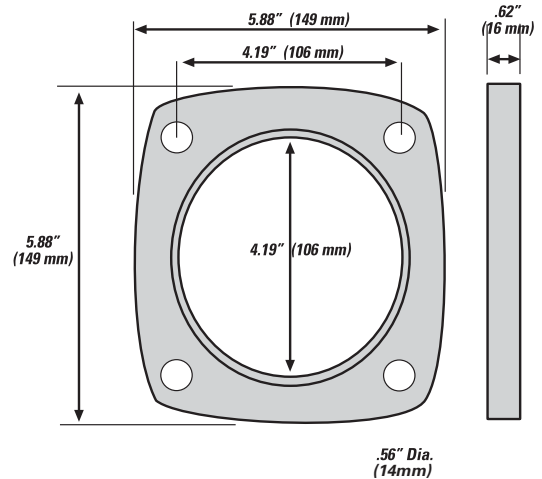
Manifold Tube
Part Number
P206617

Manifold Flange

- 16 gauge cold rolled steel



Manifold Flange
Part Number P206616



Threaded Adapter



--- O.D. ---	Thread (NPT)	Part
inch mm	inch mm	Number
3.00 76	3.00 76	J009514
3.50 89	3.50 89	J009516
4.00 102	4.00 102	J009518

NPT - National Pipe Thread

6" (154mm) height

Exhaust Ejectors

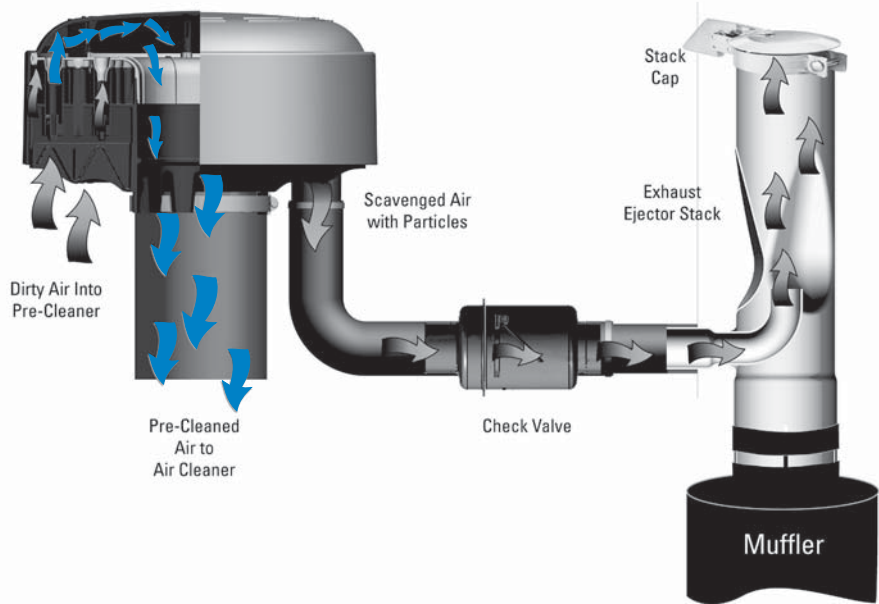
Components For Scavenged Air Systems - Exhaust Ejectors & Check Valves

A Donaldson exhaust ejectors and check valves are a key components to create a scavenged or aspirated air system. The ejector is used with Donaldson Donaspin™ or Strata™ Cap pre-cleaners, Strata™ systems, or PowerCore® PSD air cleaners.

A scavenged air system is typically used in off-highway equipment to extend air filter life. The exhaust ejector mounts as a stack at the end of exhaust system. It is recommended that the stack be covered with a curved exhaust stack or rain cap.

The redesigned ejector line offers a shorter length tube than our original standard and expanded ID offerings. With less space to work with, the new offering may work in applications where the previous models did not fit.

----- Basic Scavenged Air System -----



Exhaust Ejectors

- Can be used with any pre-cleaner that has scavenge tube connection.
- Adds only 4" (102 mm) to 8" (203 mm) H₂O (.3" (76mm) to .6" (152mm) Hg.) to exhaust backpressure
- Models all fit up to a muffler outlet tube outer diameter
- All models have a nominal OD outlet end for proper fit of stack caps and other accessories
- For proper structural support, muffler outlet tube length and stack engagement must be a minimum length of 1.5-2.0" / 38-51 mm
- Finish on all models is high temperature, black, semi-gloss finish

Compact Style

Part Number	Engine Intake CFM	Inlet I.D.		Scavenge Tube O.D.		Ejector Length		Exhaust Flow Rate (CFM)	
		inch	mm	inch	mm	inch	mm	Min. ¹	Max. ²
H001278 ⁵	165-215	2.77	70	1.25	32	9.75	248	415	545
H001279 ⁵	300-390	3.02	77	1.25	32	10.80	274	760	990
H001284 ⁵	450-590	4.02	102	1.25	32	14.38	365	1140	1500



1 - Minimum exhaust flow based on 20" (508mm) of water dead head vacuum
 2 - Maximum exhaust flow based on 40" (1016mm) of water dead head vacuum
 3 - Use 3-ply Silicone Scavenge Hose (1.50" (38mm) I.D., 3 ft. (914mm) length) P171378 and Lined Hose Clamp P115200
 4 - Use 3-ply Silicone Scavenge Hose (2.00" (51mm) I.D., 3 ft. (914mm) length) P171381 and Lined Hose Clamp P115200
 5 - Use 3-ply Silicone Scavenge Hose (1.25" (32mm) I.D., 3 ft. (914mm) length) P171376 and Lined Hose Clamp P532924

Exhaust Gas Temperature of 900° F (482° C) assumed

Exhaust Ejectors & Check Valves

Exhaust Ejectors for Scavenged or Aspirated Air System

All exhaust ejectors are constructed heavy-gauge, aluminized steel, and painted with a high-temperature black paint. Select the appropriate ejector by the intake airflow or exhaust flow (CFM) of your engine.



Engine Intake CFM		Exhaust CFM @ 900° F (482°C)		Standard Ejectors			Expanded I.D. Ejectors			Length		Scavenge Tube O.D.	
Low	High	Low	High	Inlet Dia.* inches	mm	Part Number	Inlet Dia.* inches	mm	Part Number	inches	mm	inches	mm
220	365	554	919	3.02	77.0	H002612	3.16	80.3	H002762	12.00	304.8	1.25	32
315	450	793	1133	4.02	102.0	H002613	4.17	105.9	H002763	18.00	457.2	1.25	32
425	600	1070	1511	4.02	102.0	H002614	4.17	105.9	H002764	18.00	457.2	1.50	38
500	740	1259	1864	5.03	127.8	H002615	5.17	131.0	H002765	22.00	558.8	1.50	38
660	950	1662	2393	5.03	127.8	H002616	5.17	131.0	H002766	22.00	558.8	1.75	44
800	1150	2015	2896	6.04	153.4	H002617	6.19	157.0	H002767	24.00	609.6	2.00	51
950	1350	2393	3400	6.04	153.4	H002618	6.19	157.0	H002768	24.00	609.6	2.00	51
1100	1500	2770	3778	6.04	153.4	H002619	6.19	157.0	H002769	24.00	609.6	2.00	51

* This dimension only applies to 2.5" /64mm of length – not the full length of the ejector.

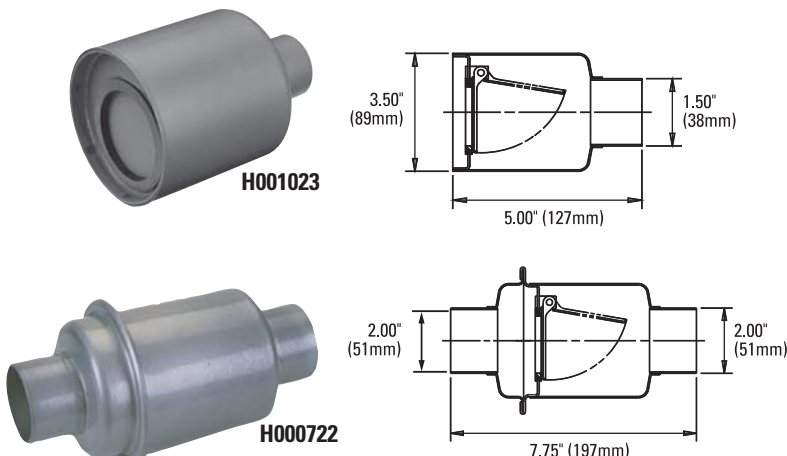
3 ft. / .91 m Silicone Scavenge Hose & Lined Hose Clamp for:

- 1.25" / 32 mm Scavenge Tube: Hose: P171376 and Lined Hose Clamp P532924
- 1.50" / 38 mm Scavenge Tube: Hose: P171378 and Lined Hose Clamp P115200
- 2.00" / 51 mm Scavenge Tube: Hose: P171381 and Lined Hose Clamp P115200

Ejector Check Valve Prevents Exhaust Backflow

The exhaust ejector check valve prevents backflow of damaging exhaust gases by way of an internal hinge flap. Add an ejector check valve when configuring the intake system to expel filtered contaminant through the exhaust system.

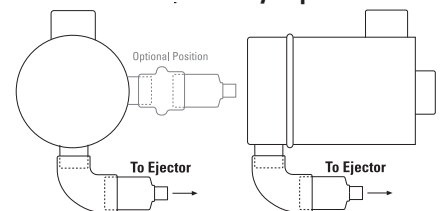
- Mounts horizontally (see installation diagrams)
- Durable, non-corrosive metal construction
- No servicing required



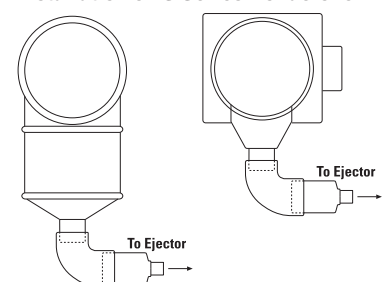
Check Valve Installation

The illustrations are side views of two-stage air cleaners, showing the position of the check valve. A 3" (76mm) inner diameter rubber reducing elbow or hump reducer is required for installation.

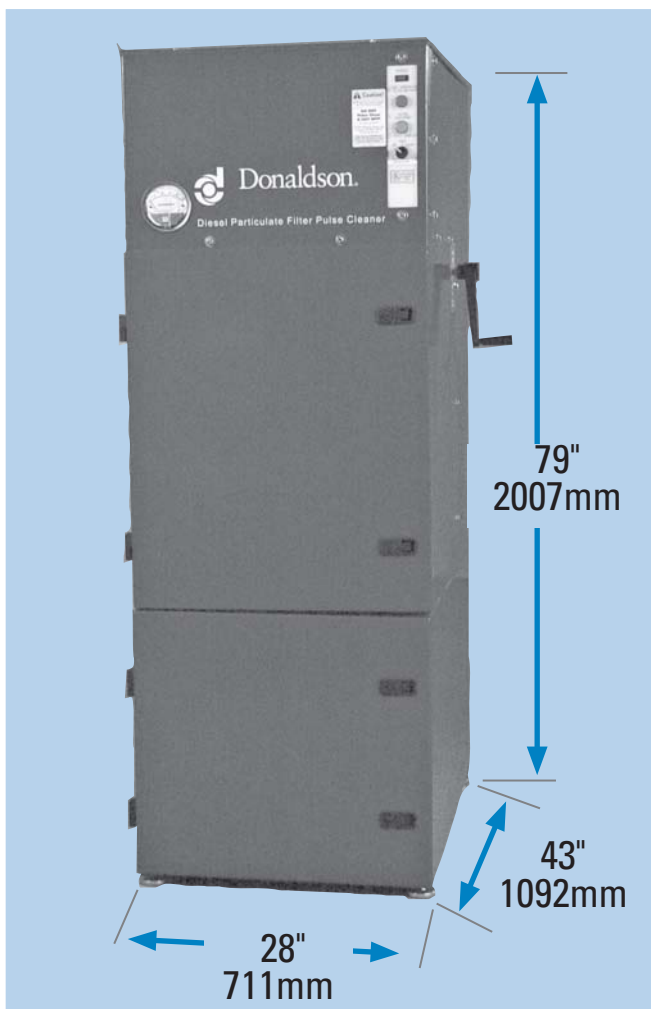
Installation on F Series Cyclopac™



Installation on S Series Donalclone™



DPF CLEANING SYSTEM



Specifications

Cabinet Dimensional Footprint:

28" W x 43" D x 79" H

711 mm W x 1092mm D x 2007 mm H

Clearance Requirement:

Right side: 12" (304,8mm) for crank handle

Back side: 12" (304,8mm) for filter service

Left side: 4" (101,6mm) Filter Limits:

(1) 11"-15" (279,4mm - 381mm)

(2) 13"-20" (330,2mm - 508mm) length

Unit Weight: 317 kg.

Electrical and Compressed

Air Requirements

Standard connection: 23V, 7amp

Clean, dry compressed air source:

6,2 bar minimum shop air at 4 CFM

Replacement Parts

Ash Receptacle and Test Sleeve

Finish (interior and exterior)

Hi-gloss, powdered coating finish

Diesel Particulate Filters (DPF) require routine cleaning to remove ash and unburned hydrocarbons that build up over time. The Donaldson filter cleaning systems will save you the expense of an outside DPF cleaning service. The pulse cleaner uses air pulses to clean the DPF and efficiently capture contaminant. This system is ideal for truck and bus maintenance facilities.

Features

- Uses high-volume, low-pressure pulse* to dislodge unburned soot/ash from the DPF
- Captures soot/ash in disposable ash receptacle
- Self-contained cleaning system prevents contaminant from escaping into ambient air during operation
- Short process time - 15 minutes or less
- Unique hood design accommodates Donaldson and other DPFs (from 11" (279mm) -15" (381mm) diameter and 13" (330mm) -20" (508mm) long)
- Adapters for other DPF sizes and unique shapes are available
- Standard electrical connection
- Installation time - approximately 1 hour
- Unit ships with an installation, operation and maintenance manual and training video on DVD



Basic Operation*

The pulse cleaner uses air pulses to clean the DPF and efficiently capture contaminant.

The diesel ash and soot removed from the DPF collects in a replaceable ash receptacle. The ash receptacle is expected to last up to 30 cleaning cycles, although actual life will depend on the amount of ash removed during the cleaning process.

Extremely plugged DPFs may need to be thermally regenerated for which we recommend the Donaldson Thermal Regenerator cleaning unit).



Ash Receptacle with Cap

* Meets noise exposure requirements per OSHA 1910.95 (b)(2), table G-16

Donaldson Gen2 DPF Pulse Cleaner

Safety Features

Air Pressure Relief Valve

Solenoid Valve

Control Panel

Pressure Gauge

Filter Position Interlock

Air Tank Drain

Hood / Adapter

Test Sleeve DO NOT DISCARD
Part No. P230116
Filter Placement Location

Door Interlock Switches

Ash Receptacle Filter
Part No. P228279

Retention Handle

Pressure Assembly

Air Connection
1/2" Line 4 CFM @ 90 psi

Electrical Connection
120 VAC, 15 Amps

Blower Check Valve
(behind tank - not shown)

Air Tank

Crank Handle

Blower & Blower Filter

Lift Table

High Temperature DPF Sensor

Panel Filter
Part No. P191203

Levelers

DPF CLEANING SYSTEM

Control Panel



- Power Switch**
Turns Power On(Reset)/Off
- High Temperature Filter Shutdown**
Flashes when sensor detects HOT filter and shuts down.
- Filter Positioned Indicator**
Illuminates when the filter is properly positioned. The light will flash when PULSE cycle complete.
- Operation Selector Switch**
TEST - Used to determine the relative restriction of the filter and ash receptacle filter.
PULSE - Starts the pulse cleaning cycle.

Pressure Gauge

The pressure gauge, located on the front top panel of the Donaldson Gen2 DPF Pulse Cleaner, is your primary indicator for determining filter cleanliness and the service life of the ash receptacle filter. The pressure gauge measures restriction from 0-25" (635mm) H₂O. A clean filter will measure 1-3" (76mm) H₂O restriction depending its size. The Ash Receptacle Filter should be replaced when test reading is > 2" (51mm) H₂O.



DPF Pulse Cleaning Steps

1. Remove the DPF from the vehicle
2. Place DPF on lift table and secure
3. Test and record DPF pressure level
4. Initiate pulse cleaning cycle
5. Test and record DPF pressure level
6. Re-install DPF



Specifications

Dimensional foot print

28" (711mm) Width x 43" (1092.2mm) Deep x 68" (1727.2mm) Height
 Clearance requirement: 12" (30.48mm) on all sides.
 Unit Weight: 226.80kg
 Requires an exterior vent connection to roof or outside wall.

Electrical & Compressed

Air Requirements
 Power Supply: Single phase 30 amp 208 or 240VAC with 15 amp 120VAC
 Clean, dry compressed air source: 65-100 PSI shop air at 4 CFM

Service Parts

Thermal shields for diesel particulate filters

Finish:

Hi-gloss, powdered coating finish

DPF filters will plug over time and require a lengthy thorough high-temperature cleaning cycle (thermal regenerating) that bakes off the contaminant and unburned hydrocarbons.

The Donaldson Thermal Regenerator allows to integrate a routine cleaning cycle into your fleet maintenance. This system is ideal for mid to large fleets equipped with diesel particulate filters.

Features

- Burns soot/hydrocarbons off filter
- Heating cycle enhanced with low-volume, low-pressure pulse
- Enclosed cleaning system
- Collection hopper for ash
- Built-in safety features
- Accommodates competitive filters and Donaldson filters (DPF sizes from 11" (279mm) to 15" (381mm) diameter and up to 20" (508mm) long).

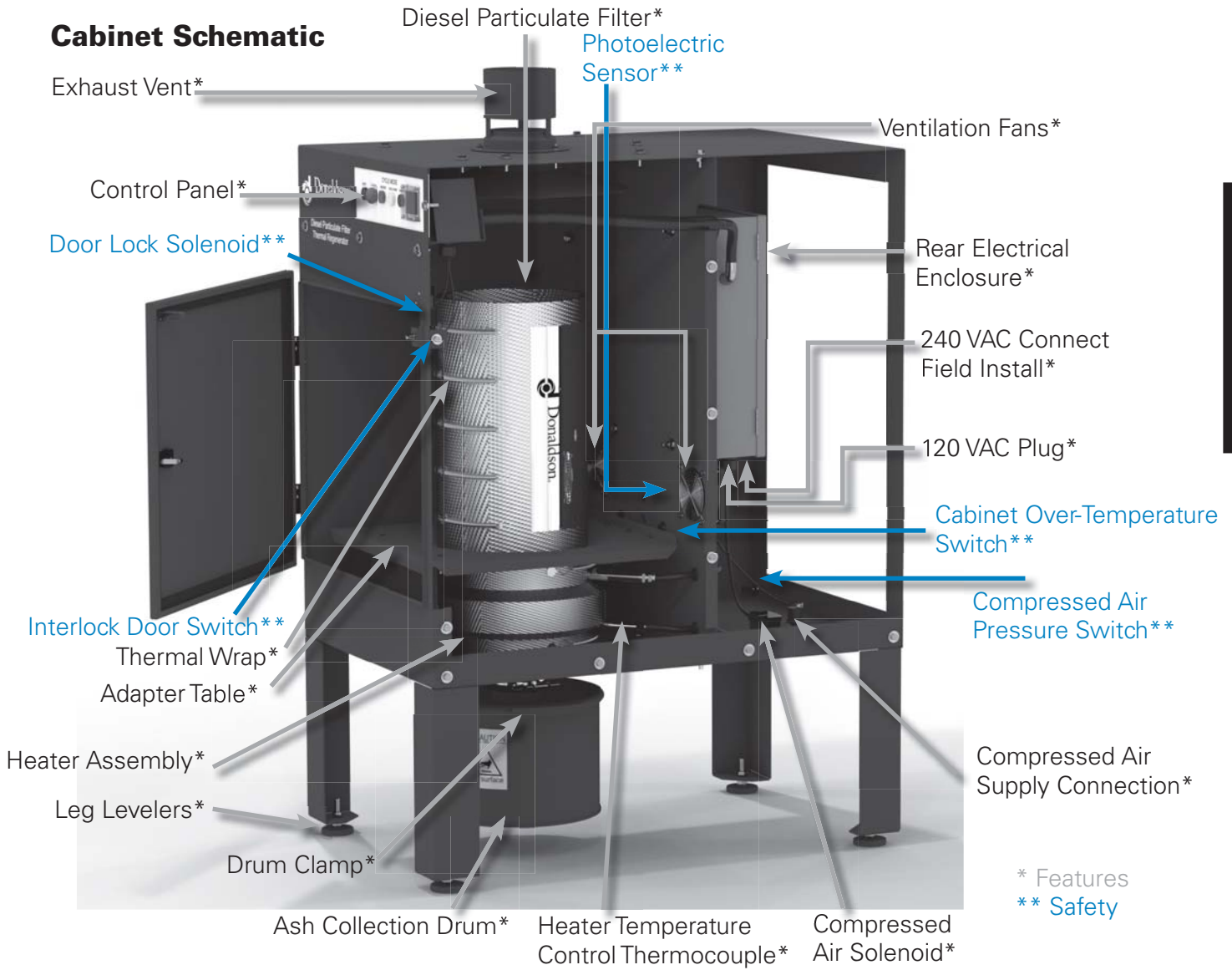
Basic Operation*

This operation is even more simple than our pulse cleaner system. Once the filter is in the unit and the cleaning cycle started - you turn it on and walk-away.

The cleaning cycle duration is seven (7) hours. Start it at the beginning of your day or at the end. With all the safety devices built in to the operation, you can easily leave this unit running anytime of the day. During the cleaning process the filter goes through a pre-heating stage, a controlled combustion air pulse heating cycle, followed by a cool down cycle to slowly lower the temperature of the filter and reduce the potential of filter damage from thermal shock.

After the cool down cycle is completed, the diesel particulate filter can be removed from the Thermal Regenerator cabinet and reinstalled in the Pulse Cleaner for a final cleaning of the ash residue.

* A diesel particulate filter must be pulse cleaned before you start the process and after it's complete.



Basic Cleaning Steps

1. Remove DPF centerbody from muffler.
2. Pulse clean the filter (requires separate unit).
3. Wrap a thermal shield (supplied) around the DPF centerbody.
4. Place on the adapter table in the cabinet and close door.
5. Press button on control panel to initiate cleaning cycle (7 hours).
6. Remove thermal shields
7. Pulse clean filter before reinstalling in vehicle.

Cabinet Control Panel

Start Button
Initiates the cleaning cycle.



E-Stop
Emergency Stop button

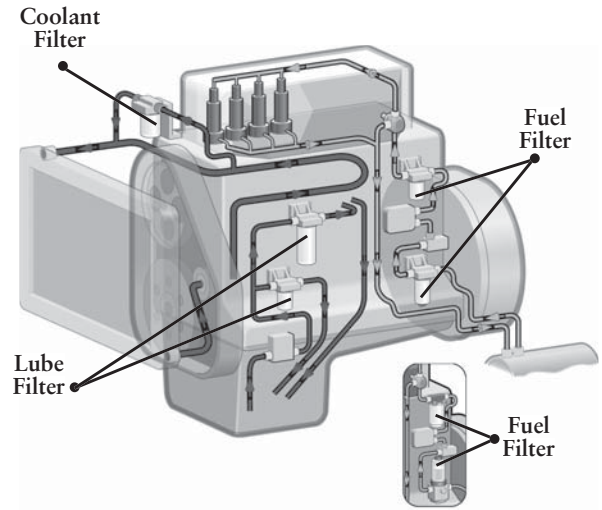
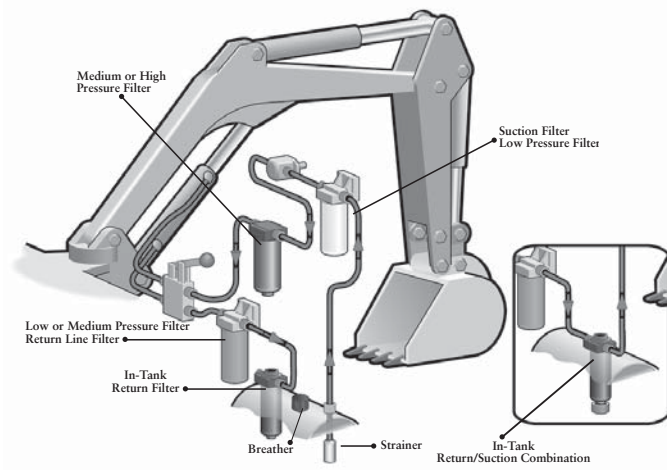
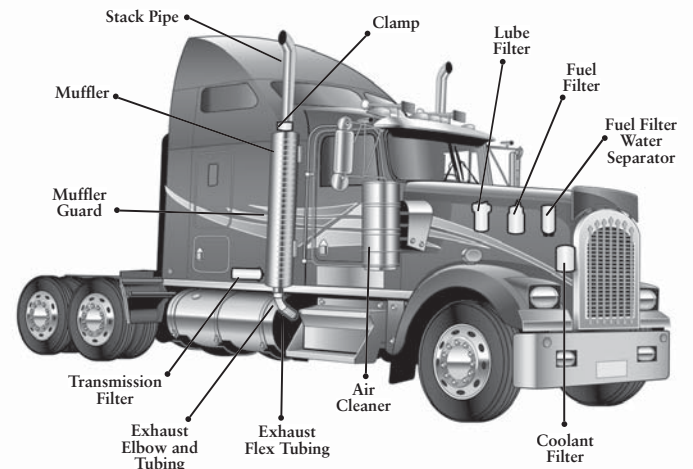
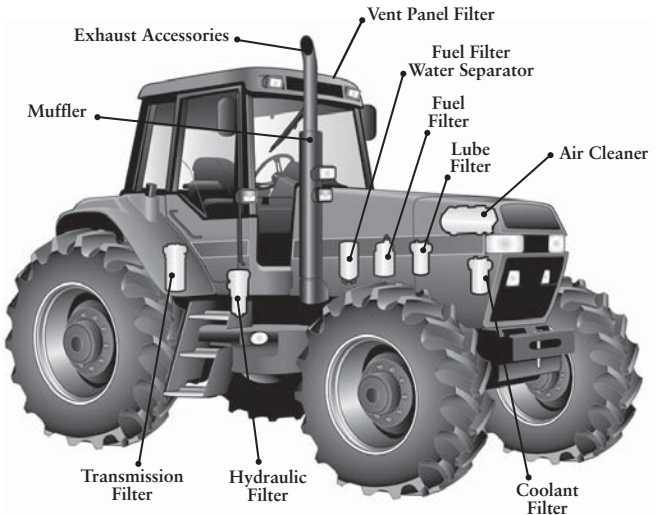
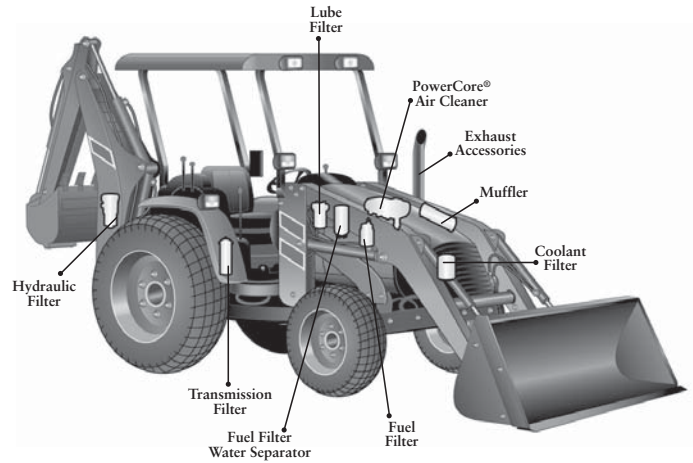
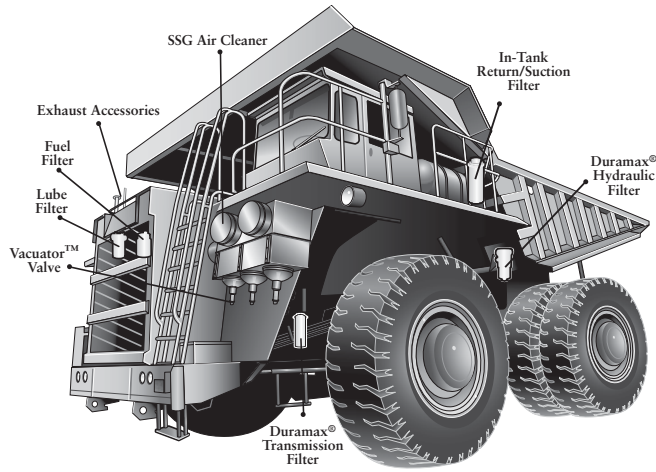
Heating/Cool Down Cycle & Complete Indicators

The entire process will take 7 hours. The lights will illuminate continuously during their respective cycle or until the cleaned filter is removed from the unit.

Tamper-proof Temperature Display

The information on this display works with built in safety sensors. Do not tamper or remove the display's protective shield. Damage to the display may void your warranty or disable the cleaning system.

ACCESSORIES





Section Index

Muffler Selection by Style with Attenuation Ranges & Exhaust Flow

Use this section to select a replacement muffler by style back pressure and attenuation range

If you're looking for a replacement for an off-road application, consider our off-road exhaust mufflers. These newer, painted, aluminized steel mufflers have some unique features as compared to our standard line. These mufflers are the ones shown in blue text.

Style 1	47
Style 2	48
Style 2A & 3	49
Style 4 & 5	50
Style 6	51

Muffler Dimensions by Part Number..... 52

Use this section to verify the dimensional characteristics of a Donaldson muffler.

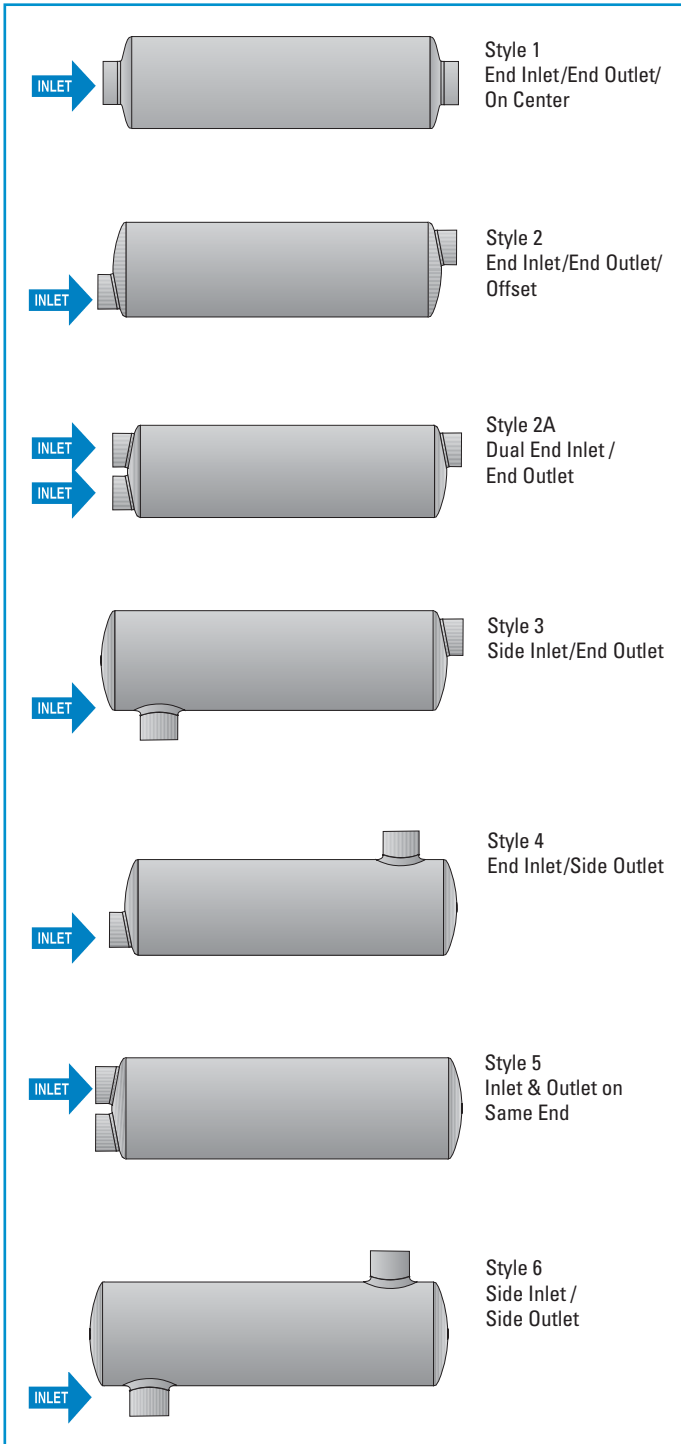
Muffler Dimensions by Style

Use this section to verify the dimensional characteristics of a Donaldson muffler.

Style 1	59-60
Style 2	61-62
Style 3	63
Style 4	64
Style 5	65
Style 6	66

Muffler Selection by Style & Engine Exhaust Data

MUFFLER SPECS



Selecting the Right Muffler for Your Engine

NOTE: Depending on your location, some diesel engines require the use of an emissions aftertreatment device to meet emissions regulations. In the United States, federal law prohibits the replacement of an emissions device (i.e., catalytic converter, combined catalytic converter/muffler, diesel particulate filter, etc.) with a non-emissions reducing (such as a straight pipe or conventional muffler) or un-approved emissions device. If operating the vehicle outside of the United States, make sure to check with and comply with any emission regulations for your locale.

Step 1

Determine the exhaust flow (CFM) and acceptable exhaust system backpressure of your engine, refer to your owners manual or contact your engine manufacturer for this information. To calculate exhaust flow, see our instructions on page 7.

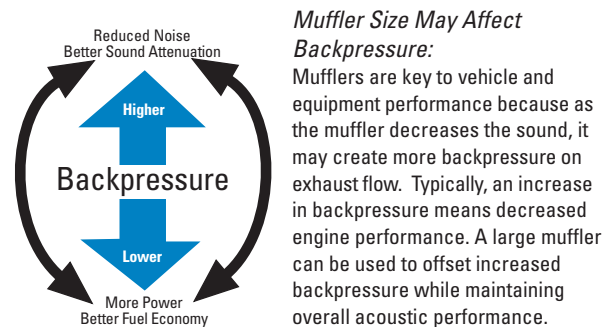
Note: If you are specifying a dual muffler system divide engine's exhaust flow (CFM) by two.

Step 2

Find your muffler style (inlet/outlet positions and shape: round or oval) using the illustrations on the left. Proceed to the same style in page 45-51.

Step 3

Within the style, choose desired inlet diameter that is at or below your exhaust flow rate AND at or below the acceptable backpressure level.



Mufflers for Off-Road Use

Many of our mufflers are specifically designed for off-road equipment. These mufflers are shown in blue type on pages 45-51 and have the following features:

- High temperature black finish
- Mount or install in any position
- Aluminized steel construction
- All have round bodies with domed ends
- Slotted inlet/outlet connections



Choose the desired inlet diameter for the engine's air flow requirement that is at or below the acceptable backpressure level.

Style 1 - End Inlet/End Outlet/On Center

-- Inlet I.D. --		--- Outlet I.D. ---		Body Diameter		Body Length		Attenuation Range dB(A)	Part Number	----- Exhaust Flow (cfm) @ -----		
inch	mm	inch	mm	inch	mm	inch	mm			3" Hg 40.8" H ₂ O	2" Hg 27.2" H ₂ O	1" Hg 13.6" H ₂ O
2.00	51	2.00	51	6.00	152	15.75	400	12-18	M060479	498	393	283
		2.10 OD	53 OD	4.38	111	12.50	318	8-12	M045237	531	433	306
2.50	64	2.50	64	6.62	168	17.75	451	12-18	M065138	780	613	441
		2.63 OD	67 OD	6.62	168	15.00	381	6-12	M065071	790	645	456
2.89	73	3.16 OD	80	8.50	216	31.75	806	15-20	M085293 ⁷	1091	891	630
3.00	76	3.00	76	8.50	216	19.75	502	12-18	M085407	1125	884	636
		3.13 OD	80 OD	8.00	203	12.18	309	10-15	M080018	835	682	482
		4.00	102	11.00	279	36.00	914	13-19	M111029	2193	1791	1266
3.50	89	3.50	89	7.00	178	14.00	356	10-15	M070028	1245	1017	719
		3.50	89	9.00	229	21.75	552	12-18	M091046	1525	1203	865
		3.50	89	9.00	229	44.50	1130	18-25	M090146	1001	817	578
4.00	102	4.00	102	8.50	216	34.37	873	12-18	M085421	2099	1714	1212
		4.00	102	8.50	216	34.37	873	8-12	M085171	3119	2546	1800
		4.00	102	9.00	229	44.44	1129	13-18	M090544	2006	1638	1158
		4.00	102	9.00	229	20.00	508	10-15	M090594	1667	1361	962
		4.00	102	10.33	262	44.50	1130	25-35	M100464 ¹	1420	1159	820
		4.00	102	10.00	254	23.75	603	12-18	M101167	2000	1570	1130
		4.00	102	10.00	254	44.44	1129	12-18	M100466	1948	1590	1125
		4.00 OD	102 OD	9.00	229	29.31	744	10-15	M090095 ⁷	1628	1330	940
		5.00	127	9.00	229	44.44	1129	15-20	M090781	2639	2155	1524
		5.00	127	10.00	254	44.44	1129	19-25	M100695	1543	1260	891
5.00	127	5.00	127	9.00	229	20.00	508	10-15	M090595	2478	2023	1431
		5.00	127	9.00	229	44.44	1129	13-18	M090074	2887	2357	1667
		5.00	127	9.00	229	44.44	1129	12-17	M090535	3260	3100	2340
		5.00	127	10.00	254	44.44	1129	16-23	M100944	2950	2494	1765
		5.00	127	10.00	254	44.44	1129	19-25	M100582	1600	1435	1015
		5.00	127	10.00	254	44.44	1129	19-25	M101159 ⁴	1650	1465	1035
		5.00	127	10.00	254	44.44	1129	19-25	M101182 ³	1650	1465	1035
		5.00	127	10.00	254	44.44	1129	19-25	M100580	2530	2215	1565
		5.00	127	10.00	254	44.44	1129	15-20	M100465	2790	2277	1610
		5.00	127	10.00	254	44.44	1129	19-25	M101158 ⁴	2625	2305	1630
		5.00	127	10.00	254	44.44	1129	19-25	M101181 ³	2625	2305	1630
		5.00	127	10.00	254	44.44	1129	13-18	M100463	3260	3100	2340
		5.00	127	10.00	254	44.44	1129	16-23	M101263	2530	2215	1565
		5.00	127	10.00	254	59.95	1522	19-25	M100807	2610	2131	1507
		5.00	127	11.00	279	50.50	1283	19-25	M110849	2950	2505	1775
		5.00	127	11.84	301	25.75	654	12-18	M120747	3100	2450	1762
2 NPT	2 NPT	6.00	152	14.50	368	8-12	M060247	776	633	448		
2.5 NPT	2.5 NPT	6.00	152	15.00	381	8-12	M060005	773	631	446		
3 NPT	3 NPT	7.00	178	14.00	356	10-15	M070008	1293	1056	747		
3.5 NPT	3.5 NPT	7.00	178	18.38	467	10-15	M070050	1408	1149	813		
4 NPT	4 NPT	9.00	229	20.00	508	10-15	M090009	1767	1443	1020		

Mufflers in blue text have high temperature black finish and are designed for off-road applications.

1 - Wrapped muffler (reduces noise and surface temperature)
 3 - Silent Partner™ Exhaust & Engine Brake Silencer-Aluminized
 4 - Silent Partner™ Exhaust & Engine Brake Silencer-Stainless Steel
 7 - Face flange on inlet

Muffler Selection by Style, Attenuation & Exhaust Flow



Stated backpressure levels include muffler, average tubing lengths, and accessories.

Style 2 - End Inlet/End Outlet/Offset

MUFFLER SPECS

-- Inlet I.D. -- inch mm	--- Outlet I.D. --- inch mm		Body Diameter inch mm		Body Length inch mm		Attenuation Range dB(A)	Part Number	----- Exhaust Flow (cfm) @ ----- 3" Hg 2" Hg 1" Hg 40.8" H ₂ O 27.2" H ₂ O 13.6" H ₂ O		
	inch	mm	inch	mm	inch	mm					
2.00 51	2.00	51	6.00	152	15.75	400	12-18	M060480	498	393	283
	2.00	51	6.00	152	16.90	429	15-20	M060055	515	420	297
	2.00	51	6.00	152	24.00	610	15-20	M060232	515	420	297
2.50 64	2.50	64	6.62	168	17.75	451	12-18	M065139	780	613	441
	2.50	64	6.62	168	18.56	471	15-20	M065034	709	579	409
	2.50	64	6.62	168	27.75	705	16-22	M065065	709	579	409
3.00 76	3.00	76	8.3 x 11.5	211 x 292	26.00	660	19-25	M090170	828	676	478
	3.00	76	8.50	216	19.75	502	12-18	M085408	1125	884	636
	3.00	76	8.50	216	20.50	521	15-20	M085056	1094	894	632
	3.00	76	8.50	216	27.50	699	18-22	M085078	964	787	557
	3.00	76	8.50	216	27.75	705	18-22	M085080	964	787	557
	3.00	76	8.50	216	31.25	794	17-22	M085023	1094	894	632
	3.00	76	8.5 x 11.8	216 x 300	26.00	660	19-25	M090159 ¹	828	676	478
3.50 89	3.00	76	8.50	216	38.00	965	15-20	M085008	1124	918	649
	3.50	89	8.3 x 11.5	211 x 292	26.00	660	15-20	M090158	1325	1081	765
	3.50	89	9.00	229	21.75	552	12-18	M091047	1525	1203	865
	3.50	89	8.5 x 11.8	216 x 300	26.00	660	15-20	M090210 ¹	1325	1081	765
	4.00	102	8.2 x 11.5	208 x 292	26.00	660	13-18	M090520	1719	1403	992
	4.00	102	8.2 x 11.5	208 x 292	30.00	762	13-18	M090680	1719	1403	992
4.00 102	3.50	89	8.2 x 11.5	208 x 292	26.00	660	16-21	M090538	1340	1094	773
	4.00	102	10.00	254	23.75	603	12-18	M101168	2000	1570	1130
	4.00	102	8.2 x 11.5	208 x 292	26.00	660	12-18	M090280	1719	1403	992
	4.00	102	8.2 x 11.5	208 x 292	26.00	660	13-18	M090534	1776	1450	1025
	4.00	102	10.00	254	27.12	689	15-20	M100048	1702	1390	983
	4.00	102	10.00	254	35.38	899	15-20	M100043	1702	1390	983
	4.00	102	10 x 15	254 x 381	26.00	660	15-20	M120100	1997	1631	1153
	4.00	102	10.3 x 15.3	261 x 389	42.00	1067	22-28	M120197 ¹	1386	1131	800
	4.00	102	11.00	279	30.00	762	15-20	M110012	1730	1412	999
	4.00	102	11.00	279	36.00	914	19-25	M110189	1819	1485	1050
4 OD 102 OD	5.00	127	11.00	279	36.00	914	13-19	M111028	2393	1954	1382
5.00 127	5.00	127	10 x 15	254 x 381	26.00	660	15-20	M120225	2887	2357	1667
	5.00	127	10 x 15	254 x 381	26.00	660	15-20	M120108	2329	1902	1345
	5.00	127	10 x 15	254 x 381	36.00	914	15-20	M120365	2265	1849	1307
	5.00	127	10 x 15	254 x 381	44.00	1118	13-18	M120448	2222	1814	1283
	5.00	127	11.00	279	44.00	1118	13-18	M110077	2205	1800	1273
	5.00	127	11.84	301	25.75	654	12-18	M120748	3100	2450	1762
6.00 152	6.00	152	10 x 15	254 x 381	31.75	806	10-15	M122300	3740	3054	2159
	6.00	152	12 x 18	305 x 457	30.00	762	11-16	M140048	3765	3074	2174
	6.00	152	14 x 21	357 x 533	35.00	889	12-18	M170101	4113	3358	2375
8.00 203	8.00	203	16 x 24	406 x 607	45.00	1143	11-15	M190002	6352	5186	3667

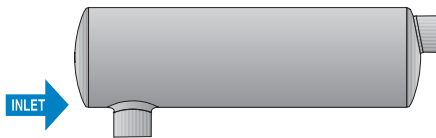
Choose the desired inlet diameter for the engine's air flow requirement that is at or below the acceptable backpressure level.



Choose the desired inlet diameter for the engine's air flow requirement that is at or below the acceptable backpressure level.

Style 2A - Dual End Inlet/End Outlet

-- Inlet I.D. --		--- Outlet I.D. ---		Body Diameter		Body Length		Attenuation Range dB(A)	Part Number	----- Exhaust Flow (cfm) @ -----		
inch	mm	inch	mm	inch	mm	inch	mm			3" Hg 40.8" H ₂ O	2" Hg 27.2" H ₂ O	1" Hg 13.6" H ₂ O
2.5 (2)	64 (2)	2.75	70	8.50	216	30.00	762	15-20	M085172	685	559	395
		3.00	76	8.50	216	31.25	794	15-20	M085189 ²	875	714	505
		3 OD	76 OD	8.75	222	30.12	765	19-25	M085267 ^{2,7}	1160	947	670
2.75 (2)	70 (2)	4.00	102	8.2 x 11.5	208 x 292	27.00	686	15-18	M090563	982	802	567



Mufflers in blue text have high temperature black finish and are designed for off-road applications.

Style 3 - Side Inlet/End Outlet

-- Inlet I.D. --		--- Outlet I.D. ---		Body Diameter		Body Length		Attenuation Range dB(A)	Part Number	----- Exhaust Flow (cfm) @ -----		
inch	mm	inch	mm	inch	mm	inch	mm			3" Hg 40.8" H ₂ O	2" Hg 27.2" H ₂ O	1" Hg 13.6" H ₂ O
1.68	43	1.64	42	4.38	111	13.78	350	12-18	M045193	220	180	127
2.00	51	2.00	51	6.00	152	15.75	400	12-18	M060481	498	393	283
		2.00	51	6.00	152	18.81	478	15-20	M060158	383	313	221
2.50	64	2.50	64	6.62	168	17.75	451	12-18	M065140	780	613	441
		2.50	64	6.62	168	20.89	531	15-20	M065044	564	461	326
3.00	76	3.00	76	8.50	216	19.75	502	12-18	M085409	1125	884	636
		3.00	76	8.80	224	27.12	689	15-20	M085226 ¹	808	659	466
3.02	77	3.00	76	8.50	216	26.25	667	15-20	M085090	808	659	466
3.50	89	3.00	76	8.50	216	27.00	686	12-18	M085084	801	654	462
		3.50	89	9.00	229	21.75	552	12-18	M091048	1525	1203	865
		3.50	89	8.3 x 11.5	211 x 292	26.13	664	15-20	M090301	1114	910	643
4.00	102	4.00	102	10.00	254	23.75	603	12-18	M101169	2000	1570	1130
		4.00	102	10.00	254	28.00	711	15-20	M100146	1341	1095	774
		4.00	102	11.00	279	33.00	838	15-20	M110674 ⁶	1677	1369	968
		4.00	102	11.00	279	36.00	914	19-25	M110479	1608	1313	928
		5.00	127	9.00	229	44.50	1130	15-20	M090823	2329	1902	1345
		5.00	127	11.84	301	32.13	816	12-18	M120598	2264	1848	1307
		5.00	127	10 x 15	254 x 381	21.00	533	12-17	M120566	2205	1800	1273
		3.85 OD	98 OD	10 x 15	254 x 381	15.00	381	12-18	M120382	2265	1849	1307
5.00	127	Down Spout		11.00	279	36.00	914	13-19	M111024	1702	1390	983
		5.00	127	10.00	254	44.50	1130	13-18	M100213	2415	1972	1394
		5.00	127	11.84	301	25.75	654	12-18	M120749	3100	2450	1762
		5.00	127	10 x 15	254 x 381	35.87	911	15-20	M120235	2098	1713	1211

1 - Wrapped muffler (reduces noise and surface temperature)
 2 - Stainless Steel
 6 - Band clamp on inlet tube
 7 - Face flange on inlet

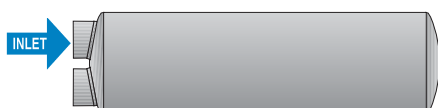
Muffler Selection by Style, Attenuation & Exhaust Flow



Stated backpressure levels include muffler, average tubing lengths, and accessories.

Style 4 - End Inlet/Slide Outlet

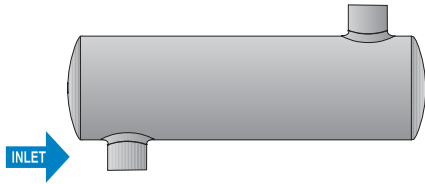
-- Inlet I.D. --		--- Outlet I.D. ---		Body Diameter		Body Length		Attenuation Range dB(A)	Part Number	----- Exhaust Flow (cfm) @ -----		
inch	mm	inch	mm	inch	mm	inch	mm			3" Hg 40.8" H ₂ O	2" Hg 27.2" H ₂ O	1" Hg 13.6" H ₂ O
2.00	51	2.00	51	6.00	152	15.75	400	12-18	M060481	498	393	283
2.50	64	2.50	64	6.62	168	17.75	451	12-18	M065140	780	613	441
3.00	76	3.00	76	8.50	216	19.75	502	12-18	M085409	1125	884	636
		3.00	76	8.50	216	26.25	667	15-20	M085206	715	583	413
3.50	89	3.50	89	9.00	229	21.75	552	12-18	M091048	1525	1203	865
		4.00	102	8.2 x 11.5	208 x 292	32.56	827	13-18	M090547	1500	1224	866
		4.00 OD	102 OD	8.2 x 11.5	208 x 292	32.56	827	13-18	M090548	1913	1562	1105
4.00	102	4.00	102	10.00	254	23.75	603	12-18	M101169	2000	1570	1130
		4.00	102	10.00	254	27.75	705	13-18	M100052	1679	1371	969
		4.00	102	11.00	279	36.00	914	15-21	M110112	1852	1512	1069
		4.00	102	11.00	279	36.00	914	15-21	M110148	1852	1512	1069
		4.00 OD	102 OD	11.00	279	36.00	914	15-21	M110311	1852	1512	1069
		4.00	102	10 x 15	254 x 381	30.38	772	15-20	M120367	1708	1394	986
		4.00	102	10 x 15	254 x 381	23.88	556	14-19	M120135	2100	1750	1260
		4.00 OD	102 OD	4.00 OD	102 OD	11.00	279	36.00	914	15-21	M111025	1976
5.00	127	5.00	127	11.00	279	46.00	1168	15-20	M110014	2462	2010	1421
		5.00	127	11.84	301	25.75	654	12-18	M120749	3100	2450	1762
		5.00	127	10 x 15	254 x 381	28.00	711	12-17	M120417	1895	1570	1130
		5.00	127	10 x 15	254 x 381	36.00	914	15-20	M120366	2400	1960	1386



Mufflers in blue text have high temperature black finish and are designed for off-road applications.

Style 5 - Inlet & Outlet on Same End

-- Inlet I.D. --		--- Outlet I.D. ---		Body Diameter		Body Length		Attenuation Range dB(A)	Part Number	----- Exhaust Flow (cfm) @ -----		
inch	mm	inch	mm	inch	mm	inch	mm			3" Hg 40.8" H ₂ O	2" Hg 27.2" H ₂ O	1" Hg 13.6" H ₂ O
2.00	51	2.00	51	6.00	152	15.75	400	12-18	M060482	498	393	283
		2.00	51	6.00	152	16.90	429	15-20	M060250	513	419	296
2.50	64	2.50	64	6.62	168	17.75	451	12-18	M065141	780	613	441
		2.50	64	6.62	168	20.00	508	15-20	M065073	718	586	414
3.00	76	3.00	76	8.50	216	22.00	559	15-20	M085207	1087	888	628
		3.00	76	8.50	216	19.75	502	12-18	M085410	1125	884	636
3.50	89	3.50	89	9.00	229	21.75	552	12-18	M091049	1525	1203	865
4.00	102	4.00	102	10.00	254	23.75	603	12-18	M101170	2000	1570	1130
		4.00	102	10.00	254	27.75	705	15-20	M100049	1450	1184	837
		4.00	102	10 x 15	254 x 381	26.00	660	18-20	M120154	1390	1135	803
		5.00	127	10 x 15	254 x 381	27.00	686	15-20	M120713	2069	1689	1159
5.00	127	5.00	127	10 x 15	254 x 381	26.25	667	15-20	M120176	2046	1670	1181
		5.00	127	10 x 15	254 x 381	26.00	660	8-12	M120131	2913	2378	1682
		5.00	127	10 x 15	254 x 381	33.38	848	19-25	M120189	2050	1674	1184
		5.00	127	10 x 15	254 x 381	44.00	1118	13-18	M120450	2679	2188	1547
		5.00	127	11.84	301	25.75	654	12-18	M120750	3100	2450	1762



Stated backpressure levels include muffler, average tubing lengths, and accessories.

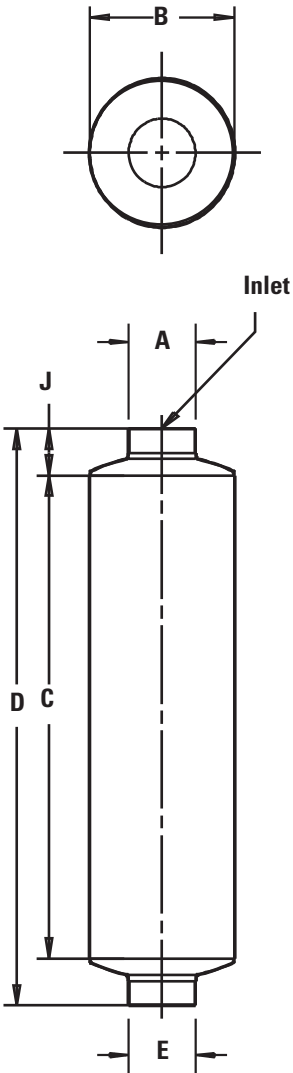
Style 6 - Side Inlet/Side Outlet

-- Inlet I.D. --		--- Outlet I.D. ---		Body Diameter		Body Length		Attenuation	Part	----- Exhaust Flow (cfm) @ -----		
inch	mm	inch	mm	inch	mm	inch	mm	Range	Number	3" Hg	2" Hg	1" Hg
								dB(A)		40.8" H ₂ O	27.2" H ₂ O	13.6" H ₂ O
2.00	51	2.00	51	6.00	152	15.50	394	12-18	M060483	498	393	283
		2.00	51	6.00	152	18.81	478	12-18	M060251	487	398	281
2.50	64	2.50	64	6.62	168	17.50	444	12-18	M065142	780	613	441
		2.50	64	6.62	168	20.81	529	15-20	M065074	692	565	400
3.00	76	3.00	76	8.50	216	19.50	495	12-18	M085411	1125	884	636
		3.00	76	8.50	216	27.00	686	15-20	M085208	1043	651	602
3.50	89	3.50	89	8.3 x 11.5	211 x 292	26.00	660	15-20	M090598	1164	950	672
		3.50	89	9.00	229	21.50	546	12-18	M091050	1525	1203	865
4.00	102	4.00	102	10.00	254	23.50	597	12-18	M101171	2000	1570	1130
		4.00	102	10.12	257	28.00	711	15-20	M100572	1659	1355	958
		4 OD	102 OD	11.00	279	36.00	914	13-19	M111026	1887	1541	1090
5.00	127	5.00	127	11.84	301	25.50	648	12-18	M120751	3100	2450	1762
		5.00	127	10 x 15	254 x 381	28.00	711	15-20	M120418	2350	1919	1357

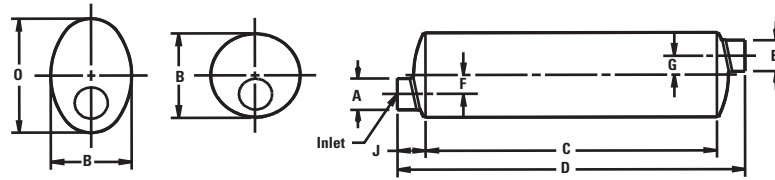
Mufflers in blue text have high temperature black finish and are designed for off-road applications.

Choose the desired inlet diameter for the engine's air flow requirement that is at or below the acceptable backpressure level.

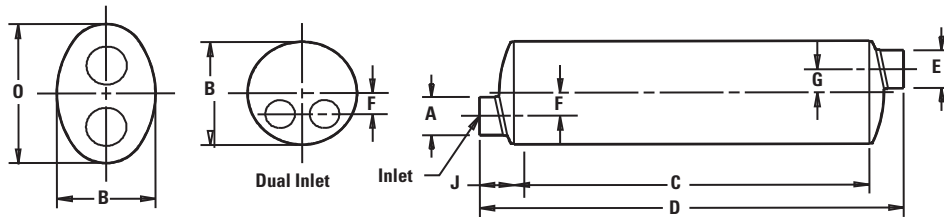
Style 1 - End Inlet /End Outlet /On Center



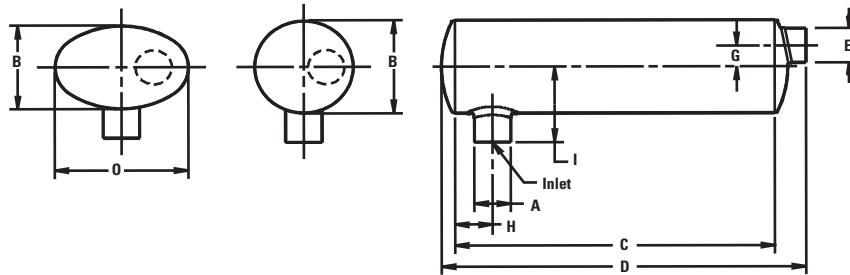
Style 2 - End Inlet /End Outlet /Offset



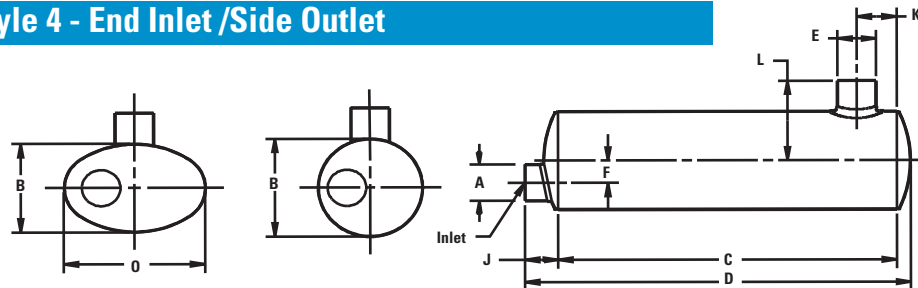
Style 2A - Dual End Inlet /End Outlet



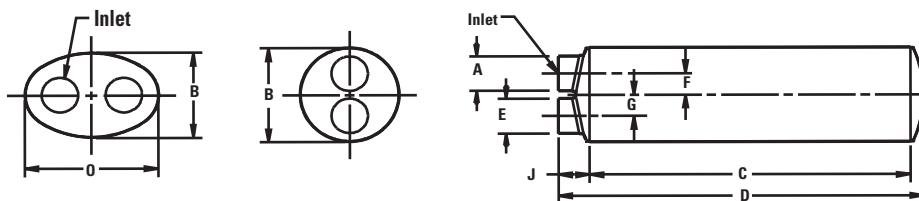
Style 3 - Side Inlet /End Outlet



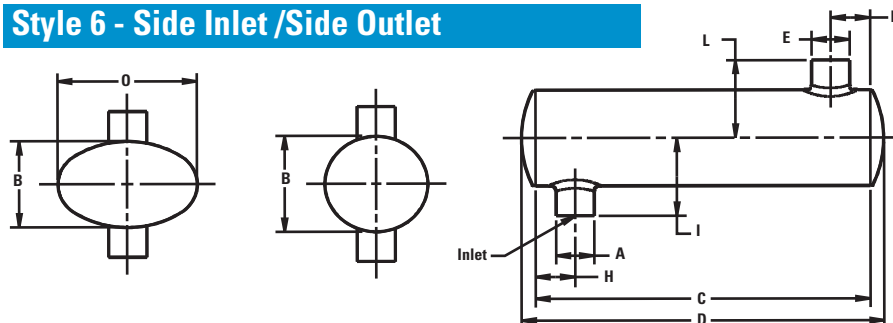
Style 4 - End Inlet /Side Outlet



Style 5 - Inlet & Outlet on Same End

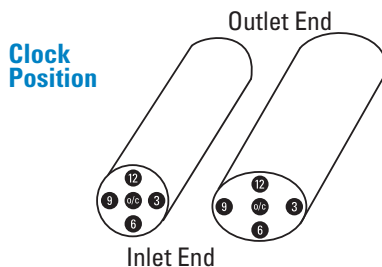


Style 6 - Side Inlet /Side Outlet



MUFFLER SPECS

Part Number	Muffler Style	Body				Outlet I.D. (E)	Offset		Inlet Tube			Outlet Tube from End Center		Clock Position		Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)	End Center (K)	(L)	Inlet	Outlet	
M045193	3	1.68 43	4.38 111	13.78 350	15.78 401	1.64 42			2.75 70	4.00 102					12:00	4 2
M045237	1	2.00 51	4.38 111	12.50 318	17.00 432	2.10 OD 53 OD					2.50 64					4 2
M060005	1	2.5 NPT	6.00 152	15.00 381	18.12 460	2.5NPT					1.56 40					9 4
M060055	2	2.00 51	6.00 152	16.90 429	21.90 556	2.00 51	1.50 38	1.50 38			2.50 64				6:00 12:00	7 3
M060158	3	2.00 51	6.00 152	18.81 478	21.50 546	2.00 51		1.50 38	3.50 89	5.00 127					3:00 6:00	9 4
M060232	2	2.00 51	6.00 152	24.00 610	29.00 737	2.00 51	1.50 38	1.50 38			2.50 64				6:00 12:00	9 4
M060247	1	2 NPT	6.00 152	14.50 368	20.00 508	2 NPT					2.75 70					7 3
M060250	5	2.00 51	6.00 152	16.90 429	19.40 493	2.00 51	1.50 38	1.50 38			2.50 64				6:00 12:00	8 4
M060251	6	2.00 51	6.00 152	18.81 478	18.81 478	2.00 51			3.50 89	5.00 127		3.50 89	5.00 127		6:00 12:00	8 4
M060479 ⁸	1	2.00 51	6.00 152	15.75 400	21.00 533	2.00 51					2.62 67					7.6 3.4
M060480 ⁸	2	2.00 51	6.00 152	15.75 400	21.00 533	2.00 51	1.50 38	1.50 38			2.62 67				6:00 12:00	7.6 3.4
M060481 ⁹	3/4	2.00 51	6.00 152	15.75 400	19.25 489	2.00 51			1.88 48	5.00 127					6:00	7.6 3.4
M060482 ⁸	5	2.00 51	6.00 152	15.75 400	19.25 489	2.00 51	1.50 38	1.50 38			2.62 67					8.4 3.8
M060483 ⁸	6	2.00 51	6.00 152	15.50 394	17.24 438	2.00 51			1.75 44	5.00 127		1.75 44	5.00 127		6:00 12:00	7.4 3.4
M060483 ⁸	2	2.50 64	6.62 168	18.56 471	23.00 584	2.50 64	1.62 41	1.62 41			1.50 38				6:00 12:00	9 4
M065044	3	2.50 64	6.62 168	20.89 531	23.50 597	2.50 64		1.62 41	3.50 89	6.00 152					6:00 9:00	12 5
M065065	2	2.50 64	6.62 168	27.75 705	35.00 889	2.50 64	1.62 41	1.62 41			3.50 89				6:00 12:00	13 6
M065071	1	2.50 64	6.62 168	15.00 381	22.00 559	2.60 OD 66 OD					3.50 89					7 3
M065073	5	2.50 64	6.62 168	20.00 508	21.50 546	2.50 64	1.62 41	1.62 41			1.50 38				6:00 12:00	10 5
M065074	6	2.50 64	6.62 168	20.81 529	20.81 529	2.50 64			3.50 89	6.00 152		3.50 89	6.00 152		6:00 12:00	10 5
M065138 ⁸	1	2.50 64	6.62 168	17.75 451	24.00 610	2.50 64					3.12 79					9.8 4.5
M065139 ⁸	2	2.50 64	6.62 168	17.75 451	24.00 610	2.50 64	1.62 41	1.62 41			3.12 79				6:00 12:00	9.8 4.5
M065140 ⁹	3/4	2.50 64	6.62 168	17.75 451	22.04 560	2.50 64			2.38 60	5.75 146					6:00	10 4.5
M065141 ⁸	5	2.50 64	6.62 168	17.75 451	22.04 560	2.50 64	1.63 41	1.63 41			3.12 79				6:00 12:00	10.6 4.8
M065142 ⁸	6	2.50 64	6.62 168	17.50 444	19.84 504	2.50 64			2.50 64	5.75 146		2.25 57	5.75 146		6:00 12:00	9.4 4.2


Footnotes

- | | |
|---|--|
| 1 Wrapped muffler (reduces noise and surface temperature) | 6 Band clamp on inlet tube |
| 2 Stainless Steel | 7 Face flange on inlet |
| 3 Silent Partner™ Muffler -Aluminized | 8 Made for off-road use |
| 4 Silent Partner™ Muffler -Stainless Steel | 9 Made for off-road use, flows in either direction |
| 5 Resonator | |

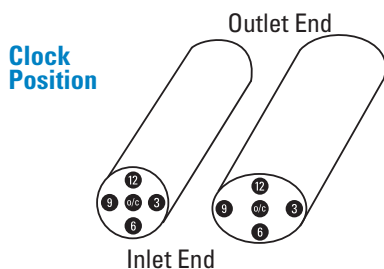
Muffler Specifications by Part Number



MUFFLER SPECS

Part Number	Muffler Style	----- Body -----				Outlet I.D. (E)	---- Offset ----		----- Inlet Tube -----			Outlet Tube from End Center (K) (L)		Clock Position Inlet Outlet		Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)					
M070008	1	3 NPT	7.00 178	14.00 356	19.75 502	3 NPT					2.38 60					13 6
M070028	1	3.50 89	7.00 178	14.00 356	19.75 502	3.50 89					2.38 60					10 5
M070050	1	3.5 NPT	7.00 178	18.38 467	25.62 651	3.5 NPT					3.00 76					18 8
M080018	1	3.00 76	8.00 203	12.18 309	17.00 432	3.13 OD 80 OD					1.38 35					10 5
M085008	2	3.50 89	8.50 216	38.00 965	43.00 1092	3.00 76	1.75 44	2.00 51			2.50 64			6:00 12:00		23 10
M085023	2	3.00 76	8.50 216	31.25 794	36.25 921	3.00 76	2.00 51	2.00 51			2.50 64			6:00 12:00		19 9
M085056	2	3.00 76	8.50 216	20.50 521	25.00 635	3.00 76	2.00 51	2.00 51			1.50 38			6:00 12:00		14 6
M085078	2	3.00 76	8.50 216	27.50 699	32.00 813	3.00 76	2.00 51	2.00 51			1.50 38			6:00 12:00		20 9
M085080	2	3.00 76	8.50 216	27.75 705	33.75 857	3.00 76	2.00 51	2.00 51			3.50 89			6:00 6:00		20 9
M085084	3	3.50 89	8.50 216	27.00 686	29.50 749	3.00 76		2.00 51	4.50 114	7.25 184				3:00 6:00		20 9
M085090	3	3.02 77	8.50 216	26.25 667	29.50 749	3.00 76		2.00 51	3.50 89	6.75 171				3:00 6:00		20 9
M085171	1	4.00 102	8.50 216	34.37 873	40.00 1016	4.00 102					2.50 64					21 10
M085172	2A	2.50 (2) 64 (2)	8.50 216	30.00 762	39.00 991	2.75 70	1.62 (2) 41 (2)	2.00 51			2.50 (2) 64 (2)			6:00(2) 6:00		24 11
M085189 ²	2A	2.50 (2) 64 (2)	8.50 216	31.25 794	36.25 921	3.00 76	1.62 (2) 41 (2)	2.00 51			2.50 (2) 64 (2)			6:00 (2) 12:00		23 10
M085206	4	3.00 76	8.50 216	26.25 667	29.50 749	3.00 76	2.00 51				3.25 83	3.50 89	6.75 171	6:00 9:00		20 9
M085207	5	3.00 76	8.50 216	22.00 559	23.50 597	3.00 76	2.00 51	2.00 51			1.50 38			6:00 12:00		16 7
M085208	6	3.00 76	8.50 216	27.00 686	27.00 686	3.00 76			3.50 89	6.75 171		3.50 89	6.75 171	6:00 12:00		17 8
M085226 ¹	3	3.00 76	8.80 224	27.12 689	29.56 751	3.00 76		2.00 51	4.56 116	6.75 171				3:00 6:00		28 13
M085267 ^{1,2}	2A	2.50 (2) ⁷ 64 (2) ⁷	8.75 222	30.12 765	38.97 990	3 OD 76 OD	1.62 (2) 41 (2)	2.00 51			5.72/3.22 146/82			6:00 (2) 12:00		32 15
M085293	1	2.89 ⁷ 73 ⁷	8.50 216	31.75 806	46.25 1175	3.16 OD 80 OD										28 12
M085407 ⁸	1	3.00 76	8.50 216	19.75 502	26.50 673	3.00 76					3.38 86					15.2 7
M085408 ⁸	2	3.00 76	8.50 216	19.75 502	26.50 673	3.00 76	2.00 51	2.00 51			3.38 86			6:00 12:00		15.2 7
M085409 ⁹	3/4	3.00 76	8.50 216	19.75 502	24.27 616	3.00 76			2.88 73	6.50 165				6:00		15.4 7
M085410 ⁸	5	3.00 76	8.50 216	19.75 502	24.27 616	3.00 76	2.00 51	2.00 51			3.38 86			6:00 12:00		17 7.7
M085411 ⁸	6	3.00 76	8.50 216	19.50 495	21.78 553	3.00 76			3.00 76	6.50 165		3.00 76	6.50 165	6:00 12:00		14.2 6.4
M085421	1	4.00 102	8.50 216	34.37 873	40.00 1016	4.00 102					2.50 64					21 10
M090009	1	4 NPT	9.00 229	20.00 508	26.00 660	4 NPT					3.00 76					23 10
M090072 ⁵	1	5.00 127	9.00 229	10.00 254	16.50 419	5.00 127					3.00 76					9 4

Part Number	Muffler Style	Body				Outlet I.D. (E)	Offset		Inlet Tube			Outlet Tube from End Center		Clock Position		Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)	End Center (K)	Center (L)	Inlet	Outlet	
M090074	1	5.00 127	9.00 229	44.44 1129	51.00 1295	5.00 127					3.00 76					29 13
M090095	1	4.00 ⁷ 102 ⁷	9.00 229	29.31 744	73.00 1854	4 OD 102 OD										33 15
M090146	1	3.50 89	9.00 229	44.50 1130	51.00 1295	3.50 89					3.00 76					32 15
M090158	2	3.50 89	8.3 x 11.5 211 x 292	26.00 660	32.25 819	3.50 89	2.50 64	2.50 64			3.12 79			3:00 9:00		24 11
M090159 ¹	2	3.00 76	8.5 x 11.8 216 x 300	26.00 660	33.75 857	3.00 76	2.50 64	2.50 64			3.88 99			3:00 3:00		29 13
M090170	2	3.00 76	8.3 x 11.5 211 x 292	26.00 660	33.75 857	3.00 76	2.50 64	2.50 64			3.88 99			3:00 3:00		20 9
M090210 ¹	2	3.50 89	8.5 x 11.8 216 x 300	26.00 660	32.25 819	3.50 89	2.50 64	2.50 64			3.12 79			3:00 9:00		34 15
M090280	2	4.00 102	8.2 x 11.5 208 x 292	26.00 660	32.25 819	4.00 102	2.50 64	2.50 64			3.12 79			3:00 9:00		22 10
M090301	3	3.50 89	8.3 x 11.5 211 x 292	26.13 664	29.25 743	3.50 89		2.50 64	3.25 83	7.00 178				6:00 9:00		23 10
M090362 ⁵	1	4.00 102	9.00 229	10.00 254	16.50 419	4.00 102					3.00 76					9 4
M090520	2	3.50 89	8.2 x 11.5 208 x 292	26.00 660	32.25 819	4.00 102	2.50 64	2.50 64			3.12 79			3:00 9:00		21 10
M090534	2	4.00 102	8.2 x 11.5 208 x 292	26.00 660	33.75 857	4.00 102	2.50 64	2.50 64			3.88 99			3:00 9:00		26 12
M090535	1	5.00 127	9.00 229	44.44 1129	51.00 1295	5.00 127					3.00 76					30 14
M090538	2	4.00 102	8.2 x 11.5 208 x 292	26.00 660	32.25 819	3.50 89	2.50 64	2.50 64			3.12 79			3:00 12:00		26 12
M090544	1	4.00 102	9.00 229	44.44 1129	51.00 1295	4.00 102					3.00 76					27 12
M090547	4	3.50 89	8.2 x 11.5 208 x 292	32.56 827	35.16 893	4.00 102	2.50 64				2.60 66	20.48 520	6.00 152	9:00 7:00		22 10
M090548	4	3.50 89	8.2 x 11.5 208 x 292	32.56 827	35.16 893	4 OD 102 OD	2.50 64				2.60 66	20.48 520	8.70 221	3:00 7:30		21 10
M090563	2A	2.75 (2) 70 (2)	8.2 x 11.5 208 x 292	27.00 686	32.75 832	4.00 102	0.15/4.00 9/102	2.50 64			2.63 (2) 67 (2)			9:00-3:00 3:00		22 10
M090594	1	4.00 102	9.00 229	20.00 508	26.50 673	4.00 102					3.00 76					14 6
M090595	1	5.00 127	9.00 229	20.00 508	26.50 673	5.00 127					3.00 76					15 7
M090598	6	3.50 89	8.3 x 11.5 211 x 292	26.00 660	26.00 660	3.50 89			3.38 86	7.00 178		3.38 86	7.00 178	6:00 12:00		20 9
M090680	2	3.50 89	8.2 x 11.5 208 x 292	30.00 762	36.25 921	4.00 102	2.50 64	2.50 64			3.12 79			3:00 9:00		25 11
M090781	1	4.00 102	9.00 229	44.44 1129	51.00 1295	5.00 127					3.00 76					30 14
M090823	3	4.00 102	9.00 229	44.50 1130	48.00 1219	5.00 127			3.81 97	6.69 170				6:00		30 13
M091046 ⁸	1	3.50 89	9.00 229	21.75 552	29.00 737	3.50 89					3.62 89					15.8 7.2



Footnotes

- 1 Wrapped muffler (reduces noise and surface temperature)
- 2 Stainless Steel
- 3 Silent Partner™ Muffler -Aluminized
- 4 Silent Partner™ Muffler -Stainless Steel
- 5 Resonator
- 6 Band clamp on inlet tube
- 7 Face flange on inlet
- 8 Made for off-road use
- 9 Made for off-road use, flows in either direction

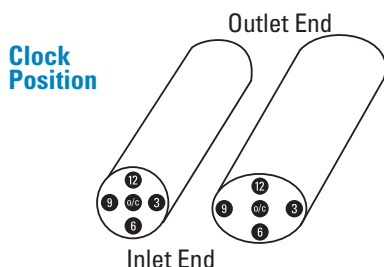
Muffler Specifications by Part Number



MUFFLER SPECS

Part Number	Muffler Style	----- Body -----				Outlet I.D. (E)	---- Offset ----		----- Inlet Tube -----			Outlet Tube from End Center (K) (L)		Clock Position Inlet Outlet		Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)					
M091047 ⁸	2	3.50 89	9.00 229	21.75 552	29.00 737	3.50 89	2.10 53	2.10 53			3.62 89			6:00	12:00	15.8 7.2
M091048 ⁹	3/4	3.50 89	9.00 229	21.75 552	26.38 670	3.50 89			3.38 86	7.25 184				6:00		15.9 7.2
M091049 ⁸	5	3.50 89	9.00 229	21.75 552	26.44 672	3.50 89	2.10 53	2.10 53			3.62 89			6:00	12:00	17.3 7.9
M091050 ⁸	6	3.50 89	9.00 229	21.50 546	23.64 600	3.50 89			3.25 83	7.25 184		3.25 83	7.25 184	6:00	12:00	15.1 6.9
M100043	2	4.00 102	10.00 254	35.38 899	41.75 1060	4.00 102	2.44 62	2.44 62			2.88 73			6:00	12:00	32 15
M100048	2	4.00 102	10.00 254	27.12 689	33.50 851	4.00 102	2.44 62	2.44 62			2.88 73			6:00	12:00	27 12
M100049	5	4.00 102	10.00 254	27.75 705	30.62 778	4.00 102	2.44 62	2.44 62			2.88 73			12:00	6:00	23 10
M100052	4	4.00 102	10.00 254	27.75 705	30.75 781	4.00 102	2.44 62				3.00 76	24.25 616	8.75 222	6:00	2:00	25 11
M100146	3	4.00 102	10.00 254	28.00 711	32.00 813	4.00 102		2.44 62	4.50 114	8.00 203				6:00	9:00	27 12
M100213	3	5.00 127	10.00 254	44.50 1130	48.00 1219	5.00 127			5.50 140	7.50 191				6:00		33 15
M100463	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127					3.00 76					31 14
M100464 ¹	1	4.00 102	10.33 262	44.50 1130	51.00 1295	4.00 102					3.00 76					52 24
M100465	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127					3.00 76					28 13
M100466	1	4.00 102	10.00 254	44.44 1129	51.00 1295	4.00 102					3.00 76					27 12
M100572	6	4.00 102	10.12 257	28.00 711	30.62 778	4.00 102			4.50 114	8.00 203		4.50 114	8.00 203	6:00	12:00	22 10
M100580	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127					3.00 76					29 13
M100582	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127					3.00 76					31 14
M100695	1	4.00 102	10.00 254	44.44 1129	51.00 1295	5.00 127					3.00 76					30 14
M100807	1	5.00 127	10.00 254	59.94 1522	66.50 1689	5.00 127					3.00 76					48 22
M100944	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127					3.00 76					32 15
M101158 ⁴	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127					3.00 76					43 20
M101159 ⁴	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127					3.00 76					43 20
M101167 ⁸	1	4.00 102	10.00 254	23.75 603	32.00 813	4.00 102					4.12 105					19.3 8.8
M101168 ⁸	2	4.00 102	10.00 254	23.75 603	32.00 813	4.00 102	2.44 62	2.44 62			4.12 105			6:00	12:00	19.3 8.8
M101169 ⁹	3/4	4.00 102	10.00 254	23.75 603	29.24 743	4.00 102			3.88 99	8.00 203				6:00		19.8 9
M101170 ⁸	5	4.00 102	10.00 254	23.75 603	29.24 743	4.00 102	2.44 62	2.44 62			4.12 105			6:00	12:00	22 10
M101171 ⁸	6	4.00 102	10.00 254	23.50 597	26.24 666	4.00 102			3.75 95	8.00 203		3.75 95	8.00 203	6:00	12:00	19.1 8.7
M101181 ³	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127					3.00 76					43 20
M101182 ³	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127					3.00 76					43 20

Part Number	Muffler Style	Body				Outlet I.D. (E)	Offset		Inlet Tube			Outlet Tube from End Center		Clock Position		Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)	End Center (K)	End Center (L)	Inlet	Outlet	
M101263	1	5.00 127	10.00 254	44.44 1129	53.00 1346	5.00 127				3.00 76						31 14
M110012	2	4.00 102	11.00 279	30.00 762	36.00 914	4.00 102	2.50 64	2.50 64		3.00 76			6:00	12:00		26 12
M110014	4	5.00 127	11.00 279	46.00 1168	51.75 1314	5.00 127	2.50 64			4.25 108	38.50 978	8.50 216	6:00	12:00		45 20
M110077	2	5.00 127	11.00 279	44.00 1118	50.00 1270	5.00 127	2.50 64	2.50 64		3.00 76			6:00	12:00		44 20
M110112	4	4.00 102	11.00 279	36.00 914	39.00 991	4.00 102	2.50 64			3.00 76	15.97 406	8.64 219	6:00	9:00		29 13
M110148	4	4.00 102	11.00 279	36.00 914	39.00 991	4.00 102	2.50 64			3.00 76	17.25 438	8.64 219	6:00	12:00		29 13
M110189	2	4.00 102	11.00 279	36.00 914	41.25 1048	4.00 102	2.50 64	2.50 64		2.63 67			6:00	12:00		34 15
M110311	4	4.00 OD 102	11.00 279	36.00 914	41.00 1041	4.00 102	2.50 64			5.00 127	27.10 688	8.64 219	6:00	12:00		27 12
M110479	3	4.00 102	11.00 279	36.00 914	39.00 991	4.00 102		2.50 64	4.25 108	8.64 219			6:00	3:00		31 14
M110674 ⁶	3	4.00 102	11.00 279	33.00 838	36.00 914	4.00 102			3.75 95	8.64 219			6:00			27 12
M110849	1	5.00 127	11.00 279	50.50 1283	57.00 1448	5.00 127				3.00 76						48 22
M111024	3	4.00 102	11.00 279	36.00 914	44.59 1133	Down Spout			3.75 95	8.64 219			12:00	6:00		34 15
M111025	4	4 OD 102 OD	11.00 279	36.00 914	41.00 1041	4 OD 102 OD				5.00 127	19.66 499	10.50 267		6:00		27 12
M111026	6	4.00 102	11.00 279	36.00 914	36.00 914	4 OD 102 OD			3.75 95	8.64 219			12:00	9:00		29 13
M111028	2	4 OD 102 OD	11.00 279	36.00 914	44.00 1118	5.00 127		2.50 64		5.00 127				12:00		36 16
M111029	1	3.00 76	11.00 279	36.00 914	42.00 1067	4.00 102				3.00 76						34 15
M120100	2	4.00 102	10 x15 254 x 381	26.00 660	32.50 826	4.00 102	4.25 108	4.25 108		3.25 83			3:00	9:00		30 14
M120108	2	5.00 127	10 x15 254 x 381	26.00 660	32.50 826	5.00 127	3.12 79	3.12 79		3.25 83			3:00	9:00		34 15
M120131	5	5.00 127	10 x15 254 x 381	26.00 660	29.39 747	5.00 127	3.12 79	3.12 79		3.25 83			3:00	9:00		32 15
M120135	4	4.00 102	10 x15 254 x 381	21.88 556	24.75 629	4.00 102	4.25 108			2.88 73	7.25 184	9.80 249	3:00	9:00		25 11
M120154	5	4.00 102	10 x15 254 x 381	26.00 660	28.38 721	4.00 102	4.25 108	4.25 108		2.25 57			3:00	9:00		31 14
M120176	5	5.00 127	10 x15 254 x 381	26.25 667	29.38 746	5.00 127	3.12 79	3.12 79		3.00 76			3:00	9:00		29 13
M120189	5	5.00 127	10 x15 254 x 381	33.38 848	39.50 1003	5.00 127	3.59 91	3.59 91		4.44 113			3:00	9:00		46 21
M120197 ¹	2	4.00 102	10.3 x15.3 261 x 389	36.00 914	42.00 1067	4.00 102	4.25 108	0.50 13		3.00 76			3:00	9:00		58 26
M120225	2	5.00 127	10 x15 254 x 381	26.00 660	32.50 826	5.00 127	3.12 79	3.12 79		3.25 86			3:00	9:00		31 14

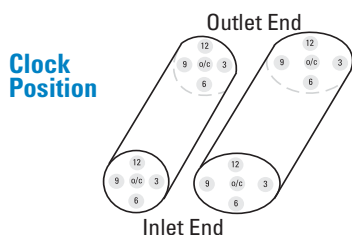

Footnotes

- 1 Wrapped muffler (reduces noise and surface temperature)
- 2 Stainless Steel
- 3 Silent Partner™ Muffler -Aluminized
- 4 Silent Partner™ Muffler -Stainless Steel
- 5 Resonator
- 6 Band clamp on inlet tube
- 7 Face flange on inlet
- 8 Made for off-road use
- 9 Made for off-road use, flows in either direction

Muffler Specifications by Part Number

MUFFLER SPECS

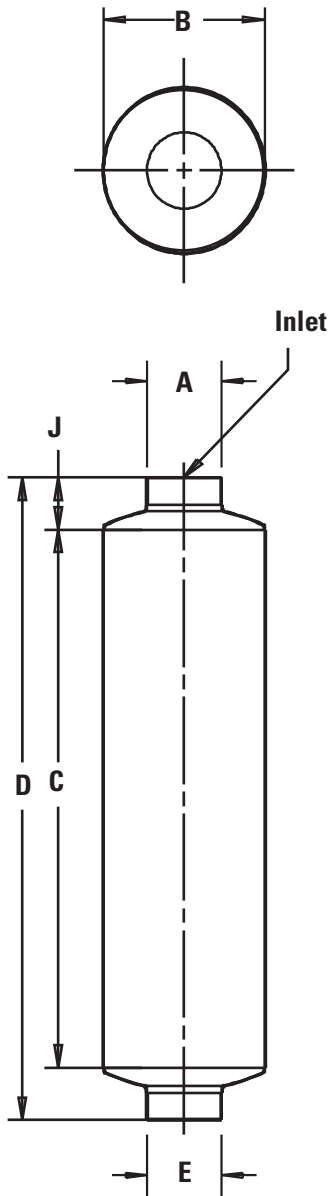
Part Number	Muffler Style	Body				Outlet I.D. (E)	Offset		Inlet Tube			Outlet Tube from End Center		Clock Position		Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)	End (K)	Center (L)	Inlet	Outlet	
M120235	3	5.00 127	10 x15 254 x 381	35.87 911	39.87 1013	5.00 127		3.12 79	6.13 153	8.00 203				6:00 9:00	39 18	
M120365	2	5.00 127	10 x15 254 x 381	36.00 914	42.50 1080	5.00 127	3.12 79	3.12 79			3.25 83			6:00 12:00	44 20	
M120366	4	5.00 127	10 x15 254 x 381	36.00 914	39.25 997	5.00 127	3.12 79				3.12 79	28.38 721	9.50 241	3:00 9:00	48 22	
M120367	4	4.00 102	10 x15 254 x 381	30.38 772	34.00 864	4.00 102	4.25 108				3.50 89	22.88 581	10.50 267	3:00 9:00	32 15	
M120382	3	4.00 102	10 x15 254 x 381	15.00 381	21.57 548	3.85 OD 98 OD		4.40 112	3.25 83	10.80 274				9:00 9:00	18 8	
M120147	4	5.00 127	10 x15 254 x 381	28.00 711	32.00 813	5.00 127	3.12 79				4.00 102	5.00 127	8.00 203	3:00 12:00	32.4 15	
M120418	6	5.00 127	10 x15 254 x 381	28.00 711	28.25 718	5.00 127			5.00 127	8.00 203		5.00 127	8.00 203	6:00 12:00	27 12	
M120448	2	5.00 127	10 x15 254 x 381	44.00 1118	50.00 1270	5.00 127	3.59 91	3.59 91			3.00 76			3:00 9:00	50 23	
M120450	5	5.00 127	10 x15 254 x 381	44.00 1118	47.38 1203	5.00 127	3.59 91	3.59 91			3.25 83			3:00 9:00	46 21	
M120566	3	4.00 102	10 x15 254 x 381	21.00 533	25.25 641	5.00 127		4.25 108	3.13 80	10.80 274				3:00 3:00	25 11	
M120598	3	4.00 102	11.84 301	32.13 816	35.50 902	5.00 127			4.50 114	11.02 280				6:00	30 14	
M120713	5	4.00 102	10 x15 254 x 381	27.00 686	31.13 791	5.00 127	4.40 112	4.25 108			4.00 102			3:00 9:00	31 14	
M120747 ⁸	1	5.00 127	11.84 301	25.75 654	34.00 864	5.00 127					4.12 105				26.7 12	
M120748 ⁸	2	5.00 127	11.84 301	25.75 654	34.00 864	5.00 127	2.81 71	2.81 71			4.12 105			6:00 12:00	26.7 12	
M120749 ⁹	3/4	5.00 127	11.84 301	25.75 654	31.69 805	5.00 127			4.88 124	8.75 222				6:00	27.5 12.5	
M120750 ⁸	5	5.00 127	11.84 301	25.75 654	31.69 805	5.00 127	2.81 71	2.81 71			4.12 105			6:00 12:00	28.7 13	
M120751 ⁸	6	5.00 127	11.84 301	25.50 648	29.14 740	5.00 127			4.75 121	8.75 222		4.75 121	8.75 222	6:00 12:00	26.4 12	
M122300	2	6.00 152	10 x15 254 x 381	31.75 806	42.50 1080	6.00 152	3.59 91	3.59 91			5.38 137			3:00 9:00	43 20	
M140048	2	6.00 152	12 x18 305 x 457	30.00 762	38.00 965	6.00 152	4.50 114	4.50 114			4.00 102			3:00 9:00	50 23	
M170101	2	6.00 152	14 x21 357 x 533	35.00 889	47.00 1194	6.00 152	5.25 133	5.25 133			6.00 152			3:00 9:00	89 40	



Footnotes

- 1 Wrapped muffler (reduces noise and surface temperature)
- 2 Stainless Steel
- 3 Silent Partner™ Muffler -Aluminized
- 4 Silent Partner™ Muffler -Stainless Steel
- 5 Resonator
- 6 Band clamp on inlet tube
- 7 Face flange on inlet
- 8 Made for off-road use
- 9 Made for off-road use, flows in either direction

Style 1 - End Inlet /End Outlet /On Center

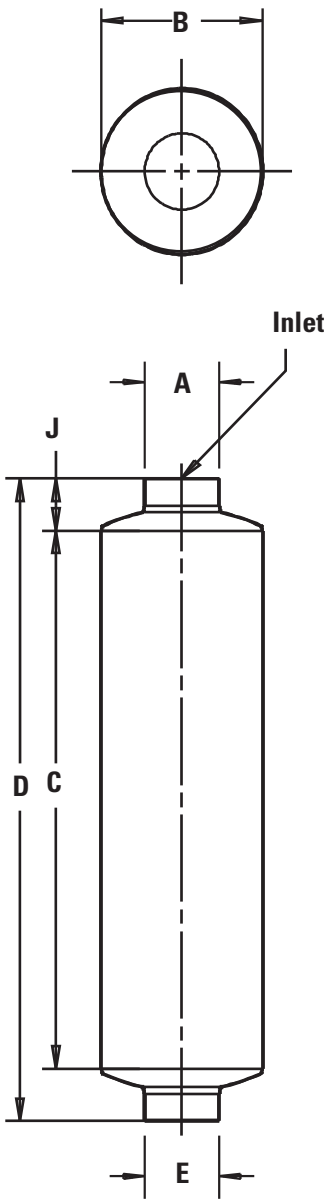


Part Number	Muffler Style	Body				Outlet I.D. (E)	Inlet Tube Length (J)	Wgt lbs. / kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)			
M060247	1	2 NPT	6.00 152	14.50 368	20.00 508	2 NPT	2.75 70	7 3
M060005	1	2.5 NPT	6.00 152	15.00 381	18.12 460	2.5 NPT	1.56 40	9 4
M070008	1	3 NPT	7.00 178	14.00 356	19.75 502	3 NPT	2.38 60	13 6
M070050	1	3.5 NPT	7.00 178	18.38 467	25.62 651	3.5 NPT	3.00 76	18 8
M090009	1	4 NPT	9.00 229	20.00 508	26.00 660	4 NPT	3.00 76	23 10
M045237	1	2.00	4.38 111	12.50 318	17.00 432	2.10 OD 53 OD	2.50 64	4 2
M060479 ⁸	1	2.00	6.00 152	15.75 400	21.00 533	2.00 51	2.62 67	7.6 3.4
M065071	1	2.50	6.62 168	15.00 381	22.00 559	2.60 OD 66 OD	3.50 89	7 3
M065138 ⁸	1	2.50	6.62 168	17.75 451	24.00 610	2.50 64	3.12 79	9.8 4.5
M085293	1	2.89 ⁷	8.50 216	31.75 806	46.25 1175	3.16 OD 80 OD		28 12
M085407 ⁸	1	3.00	8.50 216	19.75 502	26.50 673	3.00 76	3.38 86	15.2 7
M080018	1	3.00	8.00 203	12.18 309	17.00 432	3.13 OD 80 OD	1.38 35	10 5
M111029	1	3.00	11.00 279	36.00 914	42.00 1067	4.00 102	3.00 76	34 15
M070028	1	3.50	7.00 178	14.00 356	19.75 502	3.50 89	2.38 60	10 5
M090146	1	3.50	9.00 229	44.50 1130	51.00 1295	3.50 89	3.00 76	32 15
M091046 ⁸	1	3.50	9.00 229	21.75 552	29.00 737	3.50 89	3.62 89	15.8 7.2
M085171	1	4.00	8.50 216	34.37 873	40.00 1016	4.00 102	2.50 64	21 10
M085421	1	4.00	8.50 216	34.37 873	40.00 1016	4.00 102	2.50 64	21 10
M090095	1	4.00 ⁷	9.00 229	29.31 744	73.00 1854	4 OD 102 OD		33 15
M090362 ⁵	1	4.00	9.00 229	10.00 254	16.50 419	4.00 102	3.00 76	9 4
M090544	1	4.00	9.00 229	44.44 1129	51.00 1295	4.00 102	3.00 76	27 12
M090594	1	4.00	9.00 229	20.00 508	26.50 673	4.00 102	3.00 76	14 6
M090781	1	4.00	9.00 229	44.44 1129	51.00 1295	5.00 127	3.00 76	30 14
M100464 ¹	1	4.00	10.33 262	44.50 1130	51.00 1295	4.00 102	3.00 76	52 24
M100466	1	4.00	10.00 254	44.44 1129	51.00 1295	4.00 102	3.00 76	27 12
M100695	1	4.00	10.00 254	44.44 1129	51.00 1295	5.00 127	3.00 76	30 14
M101167 ⁸	1	4.00	10.00 254	23.75 603	32.00 813	4.00 102	4.12 105	19.3 8.8

Muffler Specifications by Style & Inlet Size

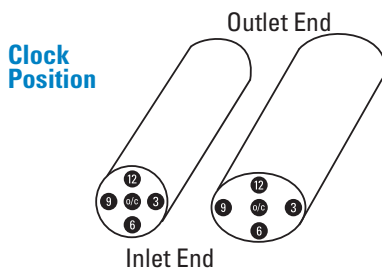
Style 1 - End Inlet /End Outlet /On Center

MUFFLER SPECS



Part Number	Muffler Style	Body				Outlet I.D. (E)	Inlet Tube Length (J)	Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)			
M090072 ⁵	1	5.00 127	9.00 229	10.00 254	16.50 419	5.00 127	3.00 76	9 4
M090074	1	5.00 127	9.00 229	44.44 1129	51.00 1295	5.00 127	3.00 76	29 13
M090535	1	5.00 127	9.00 229	44.44 1129	51.00 1295	5.00 127	3.00 76	30 14
M090595	1	5.00 127	9.00 229	20.00 508	26.50 673	5.00 127	3.00 76	15 7
M100463	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127	3.00 76	31 14
M100465	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127	3.00 76	28 13
M100580	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127	3.00 76	29 13
M100582	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127	3.00 76	31 14
M100807	1	5.00 127	10.00 254	59.94 1522	66.50 1689	5.00 127	3.00 76	48 22
M100944	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127	3.00 76	32 15
M101158 ⁴	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127	3.00 76	43 20
M101159 ⁴	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127	3.00 76	43 20
M101181 ³	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127	3.00 76	43 20
M101182 ³	1	5.00 127	10.00 254	44.44 1129	51.00 1295	5.00 127	3.00 76	43 20
M101263	1	5.00 127	10.00 254	44.44 1129	53.00 1346	5.00 127	3.00 76	31 14
M110849	1	5.00 127	11.00 279	50.50 1283	57.00 1448	5.00 127	3.00 76	48 22
M120747 ⁸	1	5.00 127	11.84 301	25.75 654	34.00 864	5.00 127	4.12 105	26.7 12

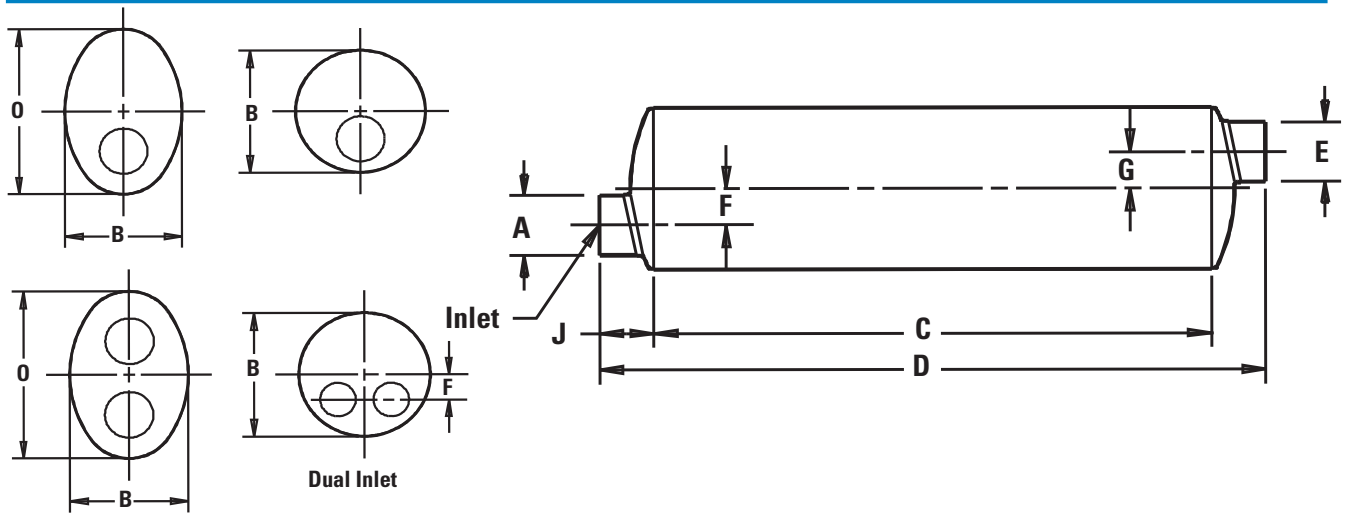
Style 2 and 2A on pages 61 and 62



Footnotes

- | | |
|---|--|
| 1 Wrapped muffler (reduces noise and surface temperature) | 6 Band clamp on inlet tube |
| 2 Stainless Steel | 7 Face flange on inlet |
| 3 Silent Partner™ Muffler -Aluminized | 8 Made for off-road use |
| 4 Silent Partner™ Muffler -Stainless Steel | 9 Made for off-road use, flows in either direction |
| 5 Resonator | |

Style 2 - End Inlet /End Outlet /Offset and Style 2A - Dual End Inlet /End Outlet

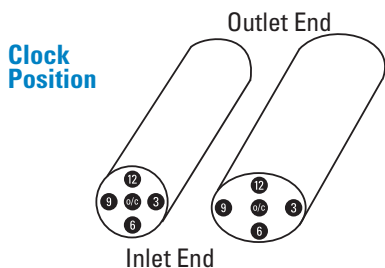

MUFFLER SPECS

Part Number	Muffler Style	Body				Outlet I.D. (E)	Offset		Inlet Tube			Outlet Tube from End Center (L)	Clock Position		Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)		Inlet	Outlet	
M060055	2	2.00 51	6.00 152	16.90 429	21.90 556	2.00 51	1.50 38	1.50 38			2.50 64		6:00	12:00	7 3
M060232	2	2.00 51	6.00 152	24.00 610	29.00 737	2.00 51	1.50 38	1.50 38			2.50 64		6:00	12:00	9 4
M060480 ⁸	2	2.00 51	6.00 152	15.75 400	21.00 533	2.00 51	1.50 38	1.50 38			2.62 67		6:00	12:00	7.6 3.4
M065034	2	2.50 64	6.62 168	18.56 471	23.00 584	2.50 64	1.62 41	1.62 41			1.50 38		6:00	12:00	9 4
M065139 ⁸	2	2.50 64	6.62 168	17.75 451	24.00 610	2.50 64	1.62 41	1.62 41			3.12 79		6:00	12:00	9.8 4.5
M085172	2A	2.50 (2) 64 (2)	8.50 216	30.00 762	39.00 991	2.75 70	1.62 (2) 41 (2)	2.00 51			2.50 (2) 64 (2)		6:00(2)	6:00	24 11
M085189 ²	2A	2.50 (2) 64 (2)	8.50 216	31.25 794	36.25 921	3.00 76	1.62 (2) 41 (2)	2.00 51			2.50 (2) 64 (2)		6:00 (2)	12:00	23 10
M085267 ^{1,2}	2A	2.50 (2) ⁷ 64 (2) ⁷	8.75 222	30.12 765	38.97 990	3 OD 76 OD	1.62 (2) 41 (2)	2.00 51			5.72/3.22 146/82		6:00 (2)	12:00	32 15
M090563	2A	2.75 (2) 70 (2)	8.2 x11.5 208 x 292	27.00 686	32.75 832	4.00 102	0.15/4.00 9/102	2.50 64			2.63 (2) 67 (2)		9:00-3:00	3:00	22 10
M085023	2	3.00 76	8.50 216	31.25 794	36.25 921	3.00 76	2.00 51	2.00 51			2.50 64		6:00	12:00	19 9
M085056	2	3.00 76	8.50 216	20.50 521	25.00 635	3.00 76	2.00 51	2.00 51			1.50 38		6:00	12:00	14 6
M085078	2	3.00 76	8.50 216	27.50 699	32.00 813	3.00 76	2.00 51	2.00 51			1.50 38		6:00	12:00	20 9
M085080	2	3.00 76	8.50 216	27.75 705	33.75 857	3.00 76	2.00 51	2.00 51			3.50 89		6:00	6:00	20 9
M090159 ¹	2	3.00 76	8.5 x11.8 216 x 300	26.00 660	33.75 857	3.00 76	2.50 64	2.50 64			3.88 99		3:00	3:00	29 13
M090170	2	3.00 76	8.3 x11.5 211 x 292	26.00 660	33.75 857	3.00 76	2.50 64	2.50 64			3.88 99		3:00	3:00	20 9
M085408 ⁸	2	3.00 76	8.50 216	19.75 502	26.50 673	3.00 76	2.00 51	2.00 51			3.38 86		6:00	12:00	15.2 7
M085008	2	3.50 89	8.50 216	38.00 965	43.00 1092	3.00 76	1.75 44	2.00 51			2.50 64		6:00	12:00	23 10
M090158	2	3.50 89	8.3 x11.5 211 x 292	26.00 660	32.25 819	3.50 89	2.50 64	2.50 64			3.12 79		3:00	9:00	24 11
M090210 ¹	2	3.50 89	8.5 x11.8 216 x 300	26.00 660	32.25 819	3.50 89	2.50 64	2.50 64			3.12 79		3:00	9:00	34 15

Muffler Specifications by Style & Inlet Size

MUFFLER SPECS

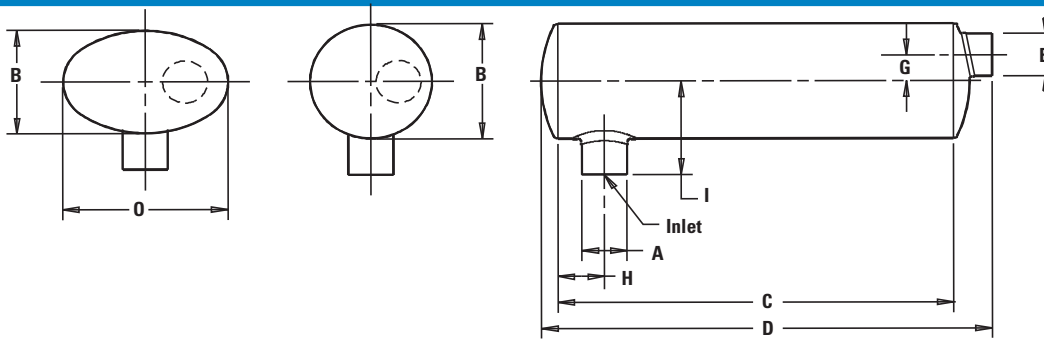
Part Number	Muffler Style	Body				Outlet I.D. (E)	Offset		Inlet Tube			Outlet Tube from End Center (K)	Clock Position		Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)		Inlet	Outlet	
M090520	2	3.50 89	8.2 x11.5 208 x 292	26.00 660	32.25 819	4.00 102	2.50 64	2.50 64			3.12 79		3:00	9:00	21 10
M090680	2	3.50 89	8.2 x11.5 208 x 292	30.00 762	36.25 921	4.00 102	2.50 64	2.50 64			3.12 79		3:00	9:00	25 11
M091047 ⁸	2	3.50 89	9.00 229	21.75 552	29.00 737	3.50 89	2.10 53	2.10 53			3.62 89		6:00	12:00	15.8 7.2
M090280	2	4.00 102	8.2 x11.5 208 x 292	26.00 660	32.25 819	4.00 102	2.50 64	2.50 64			3.12 79		3:00	9:00	22 10
M090534	2	4.00 102	8.2 x11.5 208 x 292	26.00 660	33.75 857	4.00 102	2.50 64	2.50 64			3.88 99		3:00	9:00	26 12
M090538	2	4.00 102	8.2 x11.5 208 x 292	26.00 660	32.25 819	3.50 89	2.50 64	2.50 64			3.12 79		3:00	12:00	26 12
M100043	2	4.00 102	10.00 254	35.38 899	41.75 1060	4.00 102	2.44 62	2.44 62			2.88 73		6:00	12:00	32 15
M100048	2	4.00 102	10.00 254	27.12 689	33.50 851	4.00 102	2.44 62	2.44 62			2.88 73		6:00	12:00	27 12
M101168 ⁸	2	4.00 102	10.00 254	23.75 603	32.00 813	4.00 102	2.44 62	2.44 62			4.12 105		6:00	12:00	19.3 8.8
M110012	2	4.00 102	11.00 279	30.00 762	36.00 914	4.00 102	2.50 64	2.50 64			3.00 76		6:00	12:00	26 12
M110189	2	4.00 102	11.00 279	36.00 914	41.25 1048	4.00 102	2.50 64	2.50 64			2.63 67		6:00	12:00	34 15
M111028	2	4 OD 102 OD	11.00 279	36.00 914	44.00 1118	5.00 127		2.50 64			5.00 127			12:00	36 16
M120100	2	4.00 102	10 x15 254 x 381	26.00 660	32.50 826	4.00 102	4.25 108	4.25 108			3.25 83		3:00	9:00	30 14
M120197 ¹	2	4.00 102	10.3 x15.3 261 x 389	36.00 914	42.00 1067	4.00 102	4.25 108	0.50 13			3.00 76		3:00	9:00	58 26
M110077	2	5.00 127	11.00 279	44.00 1118	50.00 1270	5.00 127	2.50 64	2.50 64			3.00 76		6:00	12:00	44 20
M120108	2	5.00 127	10 x15 254 x 381	26.00 660	32.50 826	5.00 127	3.12 79	3.12 79			3.25 83		3:00	9:00	34 15
M120225	2	5.00 127	10 x15 254 x 381	26.00 660	32.50 826	5.00 127	3.12 79	3.12 79			3.25 86		3:00	9:00	31 14
M120365	2	5.00 127	10 x15 254 x 381	36.00 914	42.50 1080	5.00 127	3.12 79	3.12 79			3.25 83		6:00	12:00	44 20
M120448	2	5.00 127	10 x15 254 x 381	44.00 1118	50.00 1270	5.00 127	3.59 91	3.59 91			3.00 76		3:00	9:00	50 23
M120748 ⁸	2	5.00 127	11.84 301	25.75 654	34.00 864	5.00 127	2.81 71	2.81 71			4.12 105		6:00	12:00	26.7 12
M122300	2	6.00 152	10 x15 254 x 381	31.75 806	42.50 1080	6.00 152	3.59 91	3.59 91			5.38 137		3:00	9:00	43 20
M140048	2	6.00 152	12 x18 305 x 457	30.00 762	38.00 965	6.00 152	4.50 114	4.50 114			4.00 102		3:00	9:00	50 23
M170101	2	6.00 152	14 x21 357 x 533	35.00 889	47.00 1194	6.00 152	5.25 133	5.25 133			6.00 152		3:00	9:00	89 40
M190002	2	8.00 203	16 x24 406 x 607	45.00 1143	57.00 1448	8.00 203	6.00 152	6.00 152			6.00 152		3:00	3:00	124 56



Footnotes

- 1 Wrapped muffler (reduces noise and surface temperature)
- 2 Stainless Steel
- 3 Silent Partner™ Muffler -Aluminized
- 4 Silent Partner™ Muffler -Stainless Steel
- 5 Resonator
- 6 Band clamp on inlet tube
- 7 Face flange on inlet
- 8 Made for off-road use
- 9 Made for off-road use, flows in either direction

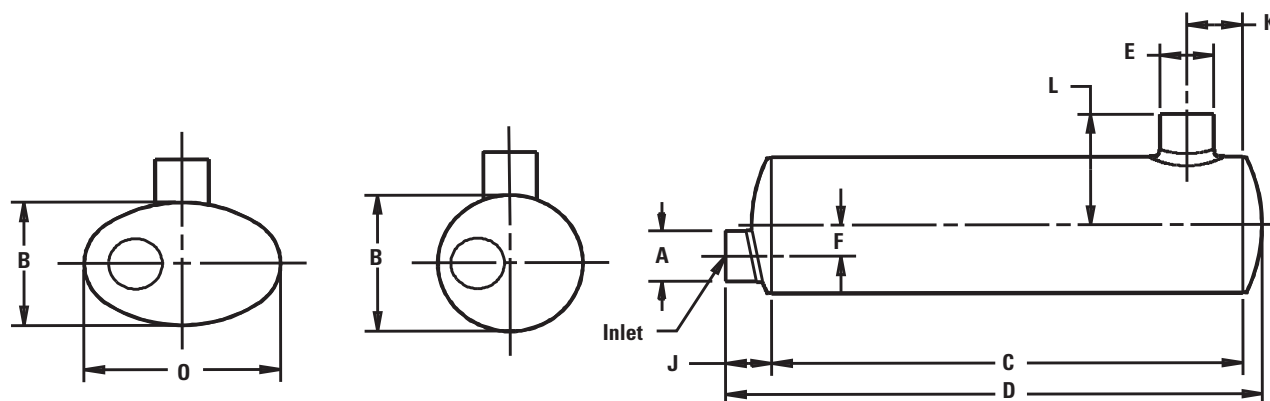
Style 3 - Side Inlet /End Outlet



Part Number	Muffler Style	Body				Outlet I.D. (E)	Offset		Inlet Tube			Outlet Tube from End Center		Clock Position Inlet	Clock Position Outlet	Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)	(K)	(L)			
M045193	3	1.68 43	4.38 111	13.78 350	15.78 401	1.64 42		2.75 70	4.00 102				12:00		4 2	
M060158	3	2.00 51	6.00 152	18.81 478	21.50 546	2.00 51	1.50 38	3.50 89	5.00 127				3:00	6:00	9 4	
M060481 ⁹	3/4	2.00 51	6.00 152	15.75 400	19.25 489	2.00 51		1.88 48	5.00 127				6:00		7.6 3.4	
M065044	3	2.50 64	6.62 168	20.89 531	23.50 597	2.50 64	1.62 41	3.50 89	6.00 152				6:00	9:00	12 5	
M065140 ⁹	3/4	2.50 64	6.62 168	17.75 451	22.04 560	2.50 64		2.38 60	5.75 146				6:00		10 4.5	
M085084	3	3.50 89	8.50 216	27.00 686	29.50 749	3.00 76	2.00 51	4.50 114	7.25 184				3:00	6:00	20 9	
M085090	3	3.02 77	8.50 216	26.25 667	29.50 749	3.00 76	2.00 51	3.50 89	6.75 171				3:00	6:00	20 9	
M085226 ¹	3	3.00 76	8.80 224	27.12 689	29.56 751	3.00 76	2.00 51	4.56 116	6.75 171				3:00	6:00	28 13	
M085409 ⁹	3/4	3.00 76	8.50 216	19.75 502	24.27 616	3.00 76		2.88 73	6.50 165				6:00		15.4 7	
M090301	3	3.50 89	8.3 x 11.5 211 x 292	26.13 664	29.25 743	3.50 89	2.50 64	3.25 83	7.00 178				6:00	9:00	23 10	
M090823	3	4.00 102	9.00 229	44.50 1130	48.00 1219	5.00 127		3.81 97	6.69 170				6:00		30 13	
M091048 ⁹	3/4	3.50 89	9.00 229	21.75 552	26.38 670	3.50 89		3.38 86	7.25 184				6:00		15.9 7.2	
M100146	3	4.00 102	10.00 254	28.00 711	32.00 813	4.00 102	2.44 62	4.50 114	8.00 203				6:00	9:00	27 12	
M100213	3	5.00 127	10.00 254	44.50 1130	48.00 1219	5.00 127		5.50 140	7.50 191				6:00		33 15	
M101169 ⁹	3/4	4.00 102	10.00 254	23.75 603	29.24 743	4.00 102		3.88 99	8.00 203				6:00		19.8 9	
M110479	3	4.00 102	11.00 279	36.00 914	39.00 991	4.00 102	2.50 64	4.25 108	8.64 219				6:00	3:00	31 14	
M110674 ⁶	3	4.00 102	11.00 279	33.00 838	36.00 914	4.00 102		3.75 95	8.64 219				6:00		27 12	
M111024	3	4.00 102	11.00 279	36.00 914	44.59 1133	Down Spout		3.75 95	8.64 219				12:00	6:00	34 15	
M120235	3	5.00 127	10 x 15 254 x 381	35.87 911	39.87 1013	5.00 127	3.12 79	6.13 153	8.00 203				6:00	9:00	39 18	
M120382	3	4.00 102	10 x 15 254 x 381	15.00 381	21.57 548	3.85 OD 98 OD	4.40 112	3.25 83	10.80 274				9:00	9:00	18 8	
M120566	3	4.00 102	10 x 15 254 x 381	21.00 533	25.25 641	5.00 127	4.25 108	3.13 80	10.80 274				3:00	3:00	25 11	
M120598	3	4.00 102	11.84 301	32.13 816	35.50 902	5.00 127		4.50 114	11.02 280				6:00		30 14	
M120749 ⁹	3/4	5.00	11.84	25.75	31.69	5.00		4.88	8.75				6:00		27.5	

Muffler Specifications by Style & Inlet Size

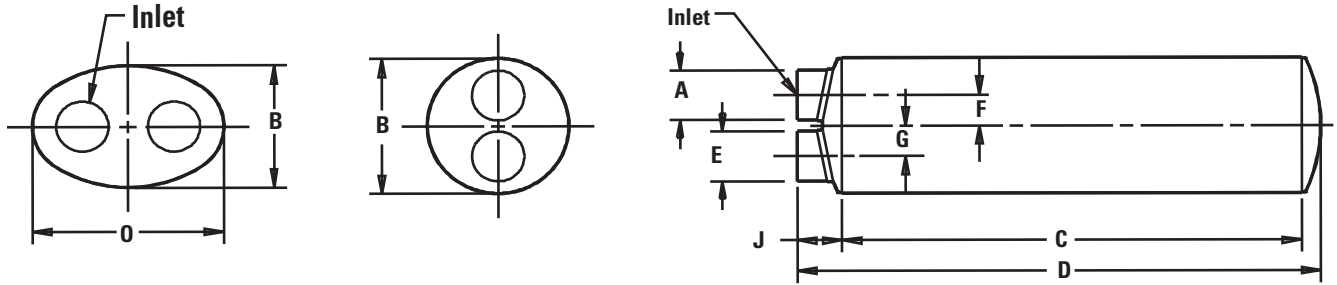
Style 4 - End Inlet /Side Outlet



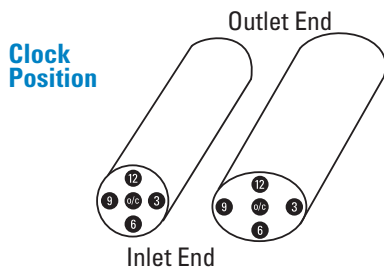
MUFFLER SPECS

Part Number	Muffler Style	Body				Outlet I.D. (E)	Offset		Inlet Tube			Outlet Tube from End Center		Clock Position Inlet	Clock Position Outlet	Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)	End Center (K)	End Center (L)			
M060481 ⁹	3/4	127	301	654	805	127			124	222						12.5
		2.00	6.00	15.75	19.25	2.00			1.88	5.00				6:00		7.6
M065140 ⁹	3/4	51	152	400	489	51			48	127						3.4
		2.50	6.62	17.75	22.04	2.50			2.38	5.75				6:00		10
M085206	4	64	168	451	560	64			60	146						4.5
		3.00	8.50	26.25	29.50	3.00	2.00				3.25	3.50	6.75	6:00	9:00	20
M085409 ⁹	3/4	76	216	667	749	76			73	165						9
		2.88	6.50	19.75	24.27	3.00			2.88	6.50				6:00		15.4
M090547	4	76	216	502	616	76			73	165						7
		3.00	8.50	19.75	24.27	3.00			2.88	6.50				6:00		15.4
M090548	4	76	216	502	616	76			73	165						7
		3.50	8.2 x 11.5	32.56	35.16	4.00	2.50				2.60	20.48	6.00	9:00	7:00	22
M090548	4	89	208 x 292	827	893	102	64				66	520	152			10
		3.50	8.2 x 11.5	32.56	35.16	4 OD	2.50				2.60	20.48	8.70	3:00	7:30	21
M091048 ⁹	3/4	89	229	552	670	89			86	184						10
		3.50	9.00	21.75	26.38	3.50			3.38	7.25				6:00		15.9
M100052	4	89	229	552	670	89			86	184						7.2
		4.00	10.00	27.75	30.75	4.00	2.44				3.00	24.25	8.75	6:00	2:00	25
M101169 ⁹	3/4	102	254	705	781	102			99	203						11
		4.00	10.00	23.75	29.24	4.00			3.88	8.00				6:00		19.8
M110112	4	102	254	705	781	102			99	203						9
		4.00	11.00	36.00	39.00	4.00	2.50				3.00	15.97	8.64	6:00	9:00	29
M110112	4	102	279	914	991	102	64				76	406	219			13
		4.00	11.00	36.00	39.00	4.00	2.50				3.00	17.25	8.64	6:00	12:00	29
M110148	4	102	279	914	991	102	64				76	438	219			13
		4.00	11.00	36.00	39.00	4.00	2.50				3.00	17.25	8.64	6:00	12:00	29
M120367	4	102	279	914	991	102	64				76	438	219			13
		4.00	10 x 15	30.38	34.00	4.00	4.25				3.50	22.88	10.50	3:00	9:00	32
M110311	4	102	254 x 381	772	864	102	108				89	581	267			15
		4.00	11.00	36.00	41.00	4.00	2.50				5.00	27.10	8.64	6:00	12:00	27
M110311	4	102	279	914	1041	102	64				127	688	219			12
		4 OD	11.00	36.00	41.00	4 OD					5.00	19.66	10.50		6:00	27
M111025	4	102 OD	279	914	1041	102 OD					127	499	267			12
		5.00	11.00	46.00	51.75	5.00	2.50				4.25	38.50	8.50	6:00	12:00	45
M110014	4	127	279	1168	1314	127	64				108	978	216			20
		5.00	10 x 15	36.00	39.25	5.00	3.12				3.12	28.38	9.50	3:00	9:00	48
M120366	4	127	254 x 381	914	997	127	79				79	721	241			22
		5.00	11.84	25.75	31.69	5.00			4.88	8.75				6:00		27.5
M120749 ⁹	3/4	127	301	654	805	127			124	222						12.5

Style 5 - Inlet & Outlet on Same End



Part Number	Muffler Style	Body				Outlet I.D. (E)	Offset		Inlet Tube			Outlet Tube from End Center (L)	Clock Position		Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)		Inlet	Outlet	
M060250	5	2.00 51	6.00 152	16.90 429	19.40 493	2.00 51	1.50 38	1.50 38		2.50 64		6:00	12:00	8 4	
M060482 ⁸	5	2.00 51	6.00 152	15.75 400	19.25 489	2.00 51	1.50 38	1.50 38		2.62 67				8.4 3.8	
M065073	5	2.50 64	6.62 168	20.00 508	21.50 546	2.50 64	1.62 41	1.62 41		1.50 38		6:00	12:00	10 5	
M065141 ⁸	5	2.50 64	6.62 168	17.75 451	22.04 560	2.50 64	1.63 41	1.63 41		3.12 79		6:00	12:00	10.6 4.8	
M085207	5	3.00 76	8.50 216	22.00 559	23.50 597	3.00 76	2.00 51	2.00 51		1.50 38		6:00	12:00	16 7	
M085410 ⁸	5	3.00 76	8.50 216	19.75 502	24.27 616	3.00 76	2.00 51	2.00 51		3.38 86		6:00	12:00	17 7.7	
M091049 ⁸	5	3.50 89	9.00 229	21.75 552	26.44 672	3.50 89	2.10 53	2.10 53		3.62 89		6:00	12:00	17.3 7.9	
M100049	5	4.00 102	10.00 254	27.75 705	30.62 778	4.00 102	2.44 62	2.44 62		2.88 73		12:00	6:00	23 10	
M101170 ⁸	5	4.00 102	10.00 254	23.75 603	29.24 743	4.00 102	2.44 62	2.44 62		4.12 105		6:00	12:00	22 10	
M120154	5	4.00 102	10 x15 254 x 381	26.00 660	28.38 721	4.00 102	4.25 108	4.25 108		2.25 57		3:00	9:00	31 14	
M120713	5	4.00 102	10 x15 254 x 381	27.00 686	31.13 791	5.00 127	4.40 112	4.25 108		4.00 102		3:00	9:00	31 14	
M120131	5	5.00 127	10 x15 254 x 381	26.00 660	29.39 747	5.00 127	3.12 79	3.12 79		3.25 83		3:00	9:00	32 15	
M120176	5	5.00 127	10 x15 254 x 381	26.25 667	29.38 746	5.00 127	3.12 79	3.12 79		3.00 76		3:00	9:00	29 13	
M120189	5	5.00 127	10 x15 254 x 381	33.38 848	39.50 1003	5.00 127	3.59 91	3.59 91		4.44 113		3:00	9:00	46 21	
M120450	5	5.00 127	10 x15 254 x 381	44.00 1118	47.38 1203	5.00 127	3.59 91	3.59 91		3.25 83		3:00	9:00	46 21	
M120750 ⁸	5	5.00 127	11.84 301	25.75 654	31.69 805	5.00 127	2.81 71	2.81 71		4.12 105		6:00	12:00	28.7 13	



Footnotes

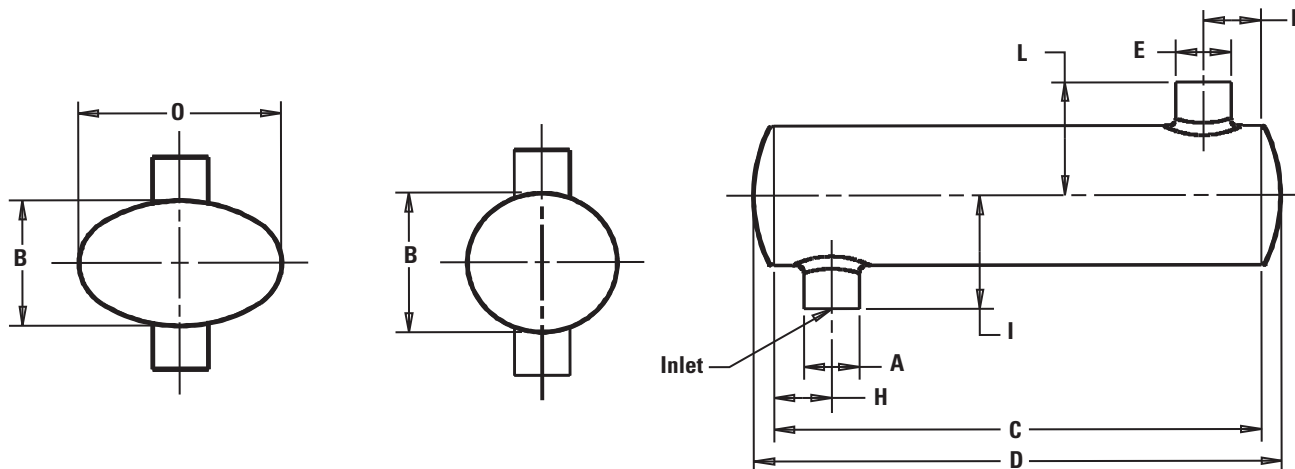
- 1 Wrapped muffler (reduces noise and surface temperature)
- 2 Stainless Steel
- 3 Silent Partner™ Muffler -Aluminized
- 4 Silent Partner™ Muffler -Stainless Steel
- 5 Resonator

- 6 Band clamp on inlet tube
- 7 Face flange on inlet
- 8 Made for off-road use
- 9 Made for off-road use, flows in either direction

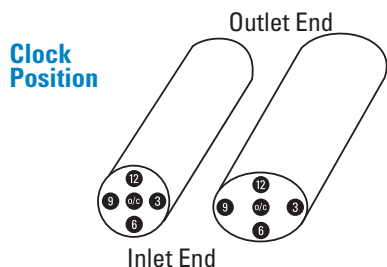
Muffler Specifications by Style & Inlet Size

Style 6 - Side Inlet /Side Outlet

MUFFLER SPECS



Part Number	Muffler Style	Body				Outlet I.D. (E)	Offset		Inlet Tube			Outlet Tube from End Center (L)		Clock Position Inlet	Clock Position Outlet	Wgt lbs. kg
		Inlet I.D. (A)	Dia. (B) or (BxO)	Length (C)	Overall Length (D)		Inlet (F)	Outlet (G)	Loc. (H)	Length (I)	Length (J)	(K)	(L)			
M060251	6	2.00 51	6.00 152	18.81 478	18.81 478	2.00 51			3.50 89	5.00 127		3.50 89	5.00 127	6:00	12:00	8 4
M060483 ⁸	6	2.00 51	6.00 152	15.50 394	17.24 438	2.00 51			1.75 44	5.00 127		1.75 44	5.00 127	6:00	12:00	7.4 3.4
M065074	6	2.50 64	6.62 168	20.81 529	20.81 529	2.50 64			3.50 89	6.00 152		3.50 89	6.00 152	6:00	12:00	10 5
M065142 ⁸	6	2.50 64	6.62 168	17.50 444	19.84 504	2.50 64			2.50 64	5.75 146		2.25 57	5.75 146	6:00	12:00	9.4 4.2
M085208	6	3.00 76	8.50 216	27.00 686	27.00 686	3.00 76			3.50 89	6.75 171		3.50 89	6.75 171	6:00	12:00	17 8
M085411 ⁸	6	3.00 76	8.50 216	19.50 495	21.78 553	3.00 76			3.00 76	6.50 165		3.00 76	6.50 165	6:00	12:00	14.2 6.4
M090598	6	3.50 89	8.3 x 11.5 211 x 292	26.00 660	26.00 660	3.50 89			3.38 86	7.00 178		3.38 86	7.00 178	6:00	12:00	20 9
M091050 ⁸	6	3.50 89	9.00 229	21.50 546	23.64 600	3.50 89			3.25 83	7.25 184		3.25 83	7.25 184	6:00	12:00	15.1 6.9
M100572	6	4.00 102	10.12 257	28.00 711	30.62 778	4.00 102			4.50 114	8.00 203		4.50 114	8.00 203	6:00	12:00	22 10
M101171 ⁸	6	4.00 102	10.00 254	23.50 597	26.24 666	4.00 102			3.75 95	8.00 203		3.75 95	8.00 203	6:00	12:00	19.1 8.7
M111026	6	4.00 102	11.00 279	36.00 914	36.00 914	4 OD 102 OD			3.75 95	8.64 219		9.23 234	9.50 241	12:00	9:00	29 13
M120418	6	5.00 127	10 x 15 254 x 381	28.00 711	28.25 718	5.00 127			5.00 127	8.00 203		5.00 127	8.00 203	6:00	12:00	27 12
M120751 ⁸	6	5.00 127	11.84 301	25.50 648	29.14 740	5.00 127			4.75 121	8.75 222		4.75 121	8.75 222	6:00	12:00	26.4 12



Footnotes

- 1 Wrapped muffler (reduces noise and surface temperature)
- 2 Stainless Steel
- 3 Silent Partner™ Muffler -Aluminized
- 4 Silent Partner™ Muffler -Stainless Steel
- 5 Resonator
- 6 Band clamp on inlet tube
- 7 Face flange on inlet
- 8 Made for off-road use
- 9 Made for off-road use, flows in either direction

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Purpose of an Exhaust System

Exhaust system design specifications are typically defined by the OEs. They are looking for a solutions that can redirect engine exhaust, reduce exhaust noise and most recently, reduce emissions (hydrocarbons, carbon monoxide, soluble organic fraction (SOF)).

Diesel engines are a reliable and efficient power source for vehicle and equipment manufacturers. Governmental regulations across the globe are driving diesel engine users to consider buying new vehicles or retrofitting their existing engines to meet the new emissions regulations.

Muffler Design & Performance

Donaldson mufflers are designed and tested with specific focus on three performance variables: attenuation, backpressure and structural.

Attenuation

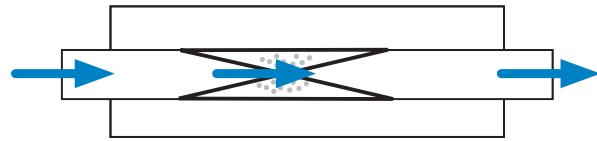
For exhaust systems, attenuation refers to the reduction in sound level measured between an engine without a muffler and the same engine with a muffler. This sound level is typically measured in a decibal scale (dBAs). Traditional mufflers use tubes, baffles, and expansion chambers and insulation to help control noise. Newer applications include emissions reduction devices installed in the exhaust system. Many of the devices also provide the needed noise attenuation either in part or in total.

Sound quality is an additional noise characteristic that is important to the end user. An example of a sound quality concern is the sound of fingernails on a chalk board – this screeching sound makes people wince, yet the measured sound level would not be significant. A low throaty rumble may seem even quiet (and almost desirable) but may be amplified and become annoying if it reverberates within the operator's cabin.

Heavy-duty mufflers typically employ one of four sound reduction techniques including:

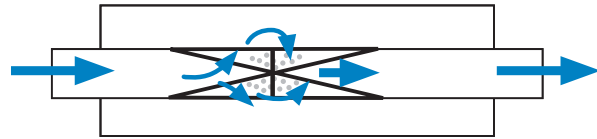
Reactive silencing

What's important: the ratio of the body diameter to the tube



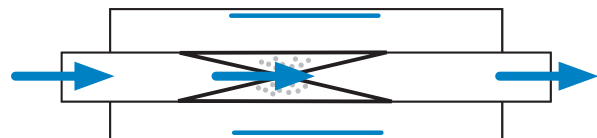
Resistive silencing

Exhaust flow is forced through a small area. It removes energy to reduce noise level.



Absorptive silencing

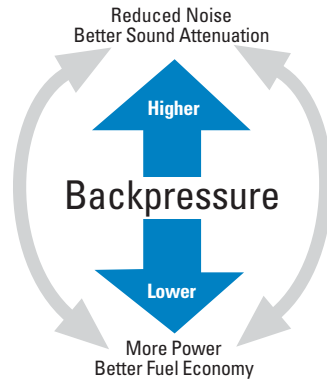
Transforms wave energy into thermal energy. Uses acoustic packing (or wrap) just inside the outer shell of the muffler.



Engine manufacturers generally expect a reduction in engine exhaust sound level of 15-25 dBA. The overall noise level of a vehicle or piece of stationary equipment is the actual regulated value. The overall noise level is typically measured while driving past a microphone at a specific speed and distance. Maximum noise levels in the U.S. are regulated by the U.S. EPA (Environmental Protection Agency).

Backpressure

A key performance factor in selecting the proper muffler is backpressure. For the most efficient engine performance it is important to apply a muffler that minimizes backpressure.



Backpressure is the force necessary to flow gasses through the Exhaust system, or the resistance to exhaust flow. System considerations include friction and momentum effects - expansion / contraction / elbows, and velocity head loss at outlet.

To minimize backpressure, long tube lengths, small tube diameters, and sudden contractions should be avoided.

Backpressure can reduce horsepower and fuel economy. For example, turbocharged diesel engines lose about 0.5% in horsepower and fuel economy per inch Hg backpressure. To help you minimize backpressure, our selection guide provides exhaust flow ratings at 1" (25mm), 2" (51mm) and 3" (76mm) Hg (mercury).

Conversion: 1.0" (25mm) Hg = 13.6" (345mm)H₂O

Our muffler spec'ing section outlines the steps you need to take for proper muffler selection.

Structural

Another performance factor is the structural durability of the system configuration. Position, mounting support, weight and the type of material that the unit is made from are the key sub-components of system structure.

For example, the original OE stanchion or chassis mounting components are adequate for a replacement muffler. If you apply a heavier muffler, like one with an emissions device inside, it's critical to upgrade the hangers, brackets and stanchion with more robust and heavier components. Most exhaust system problems encountered by Donaldson field service are due to improper bracketing and/or use of clamps – not the muffler or muffler construction.

Exhaust Product Materials

There are a number of materials found in diesel exhaust applications. Some of the materials are appropriate for heavy duty applications and have the mechanical properties to provide good service life.

Since materials vary in strength, corrosion resistance, and price, a particular material may be preferred in individual applications and components. Some of the most common materials, their qualities, and their typical uses are listed in the following table.

Materials*	Used in	Qualities
Aluminized Mild Steel	Mufflers	Good Corrosion Resistance
	Exhaust Components	
Stainless Steel (with and without aluminized coating)	Flexible Tubing	Stronger Excellent Corrosion Resistance
	Mufflers	
	Exhaust components	
	Emissions Products	
Chrome	Accessories	Bright Mirror Finish
Galvanized	Flexible Tubing	Low Material Cost Temperature Limit 600°F (316°)
Cold Rolled	Accessories	Poor Corrosion Resistance Low Cost

Aluminized steel is the preferred material for traditional diesel exhaust applications. Aluminized steel is a low carbon steel with a thin layer of aluminum alloyed to the surface. The aluminum provides a barrier for protection of the base material. Aluminized steel parts have an ultimate service temperature of 1250°F (677°C) with a continuous duty temperature limit of 1000°F (538°C). This material closely matches the expected service temperatures of diesel engine applications and has excellent corrosion resistance to acidic diesel exhaust gases. Aluminized steel parts provide good field life at a reasonable cost.

Series 400 stainless steels are used for many extended service life diesel applications, and often in gasoline applications due to their higher operating temperatures. This material family provides slightly better strength at exhaust system temperatures than aluminized steel.

Type 409 is the most common 400 series stainless

steel used in exhaust applications. Type 409 is stronger than aluminized but exhibits cosmetic problems at exhaust system temperature. At first exposure to high temperature it discolors. Over time it develops a nondestructive coating of surface rust. After an extended time in the field a 409 product will display external discoloration and look worse than a similar part made from aluminized steel, but will last much longer.

Another choice is 409 stainless steel with an aluminum coating. Aluminized 409 is used on diesel catalytic converter mufflers due to its excellent high temperature resistance and the corrosion protection of the aluminized coating. Aluminized 409 is found primarily on emission products or high temperature gasoline applications.

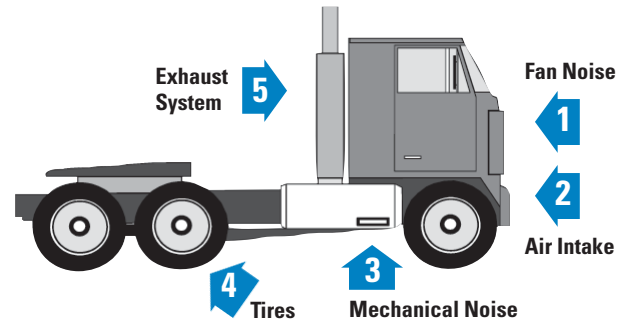
Series 300 stainless steels are also utilized in exhaust systems. The most common material is Type 304. This material has excellent corrosion resistance and very good high temperature strength and is used in some muffler applications where very high stresses occur. This is a premium material and is also used in many for gasoline applications. The most prevalent use of the material in heavy duty diesel applications is for flex pipe. Flex pipe produced from light gauge 304 stainless steel is an excellent choice considering all the factors of cost, durability, and service life.

Often chrome plated cold rolled steel parts are found on exhaust system parts. This material is a reasonable choice for cosmetic applications where a bright mirror finish is desired. Corrosion from the inside of the product can still occur. Chrome parts may be very challenging to produce. It is important to produce the parts with a high level of quality because surface irregularities are very visible to the end user.

An alternate choice for chrome parts is bright annealed stainless steel. This material provides a bright mirror like finish with excellent exhaust service life. Bright stainless steel is typically used for muffler heat shields and generally an expensive material choice.

Noise Sources

Five Major Sources of Noise in Trucks



Easy Maintenance Tips Reduce Exhaust Noise

- 1 Check the exhaust tubing. Repair or replace worn or leaking components.
- 2 Make sure your exhaust system is properly supported.
- 3 Installing a resonator or wye connector muffler is an economical way to reduce noise.
- 4 Modify a single exhaust system to a dual.
- 5 Check stack and tailpipe position. A straight stack will be quieter than a curved stack on vertical exhaust systems. Turn your horizontal tailpipes toward the center of the road.

Type of Equipment	Net installed power · P (in kW) · Electric Power P _{el} ⁽¹⁾ in kW · Mass of appliance m in kg · Cutting width L in cm	Permissible sound power level in dB/1 pW	
		Stage I as from 3 January 2002	Stage II as from 3 January 2006
Compaction machines (vibrating rollers, vibratory plates, vibratory rammers)	P ≤ 8	108	105
	8 < P ≤ 70	109	106
	P > 70	89 + 11 lgP	86 + 11 lgP
Tracked dozers, tracked loaders, tracked excavator-loaders	P ≤ 55	106	103
	P > 55	87 + 11 lgP	84 + 11 lgP
Wheeled dozers, wheeled loaders, wheeled excavator-loaders, dumpers, graders, loader-type landfill compactors, combustion engine driven counterbalanced lift trucks, mobile cranes, compaction machines (non-vibrating rollers), paver-finishers, hydraulic power packs	P ≤ 55	104	101
	P ≥ 55	85 + 11 LgP	82 + 11 LgP
Excavators, builders' hoists for the transport of goods, construction winches, motor hoes	P ≤ 15	96	93
	P > 15	83 + 11 lgP	80 + 11 lgP
Hand-held concrete-breakers and picks	m ≤ 15	107	150
	15 < m < 30	94 + 11 lgP	92 + 11 lgm
	m ≥ 30	96 + 11 lgP	94 + 11 lgP
Tower cranes		98 + lgP	96 + lgP
Welding and power generators	P _{el} ≤ 2	97 + lgP _{el}	95 + lgP _{el}
	2 < P _{el} ≤ 10	98 + lgP _{el}	96 + lgP _{el}
	P _{el} > 10	97 + lgP _{el}	95 + lgP _{el}
Compressors	P ≤ 15	99	97
	P > 15	97 + 21gP	95 + 2 lgP
Lawnmowers, lawn trimmers / lawn edge trimmers	L ≤ 50	96	94 ⁽²⁾
	50 < L ≤ 70	100	98
	70 < L ≤ 120	100	98 ⁽²⁾
	L > 120	105	103 ⁽²⁾

¹P_{el} for welding generators: conventional welding current multiplied by the conventional load voltage for the lowest value of the duty factor given by the manufacturer.

²P_{el} for power generators: prime power according to ISO 8528-1: 1993. Point 13.3.2

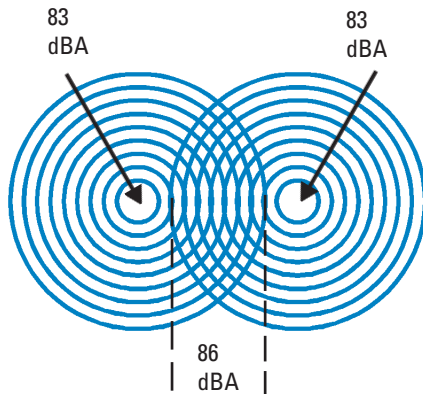
2 Indicative figures only. Definitive figures will depend on amendment of the Directive following the report required in Article 20(3). In the absence of any such amendment, the figures for stage I will continue to apply for stage II.

The permissible sound power level shall be rounded to the nearest whole number (less than 0.5 use lower number: greater than or equal to 0.5 use higher number)

Rules of Thumb

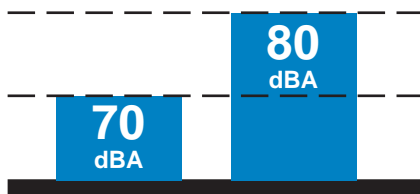
Combining Two Equal Noise Sources Increases Sound Level by 3 dBA

Two equal noise sources combine to create a sound level 3 dBA greater than either source.



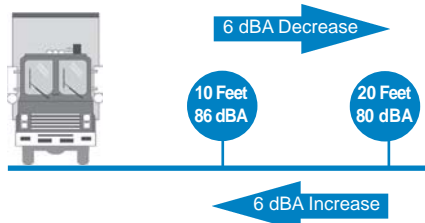
Twice the Loudness is a 10 dBA Increase

The increases are not linear! Increasing noise by 10 dB sounds twice as loud.



Sound Pressure Level Changes With Distance

Doubling the distance to a noise source decreases its sound level by 6 dB. Halving the distance to a noise source increases its sound level by 6 dB.



Emissions Devices & Acoustic Silencing

Various emissions reduction technologies are applied to exhaust systems to meet new emissions standards. The additional components can significantly change or eliminate the traditional acoustic silencing components common in older muffler designs. Depending on the application, emissions reduction devices may totally eliminate the need for further sound control and for others, minimal acoustic silencing may be required. The sound attenuation of emissions devices varies depending on the filtering substrates and configuration of the overall system.

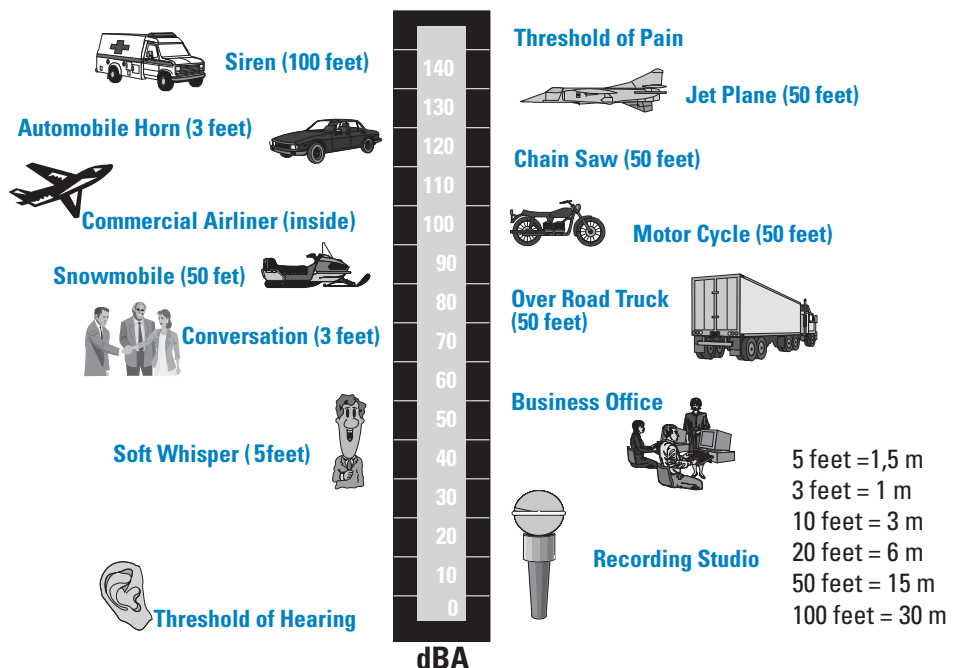


Typical emissions aftertreatment substrates (ceramic and metal)

Familiar Sounds on the dBA Noise Scale

Other examples of sound levels:

70 dB Traffic jam; 90 dB Heavy machinery, 130 dB Jet engine at 10 meters.

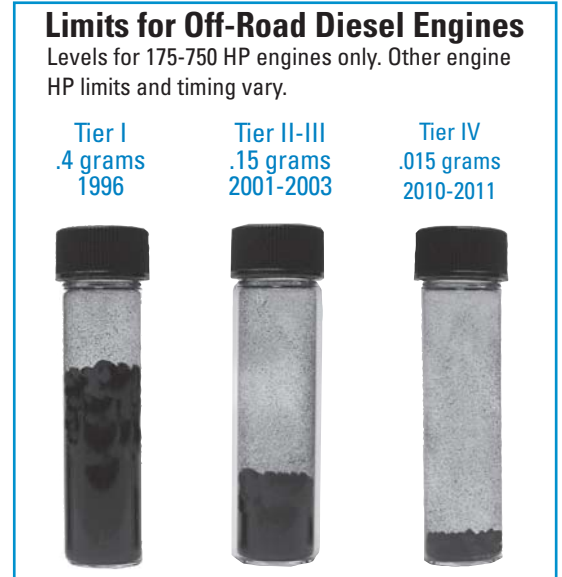
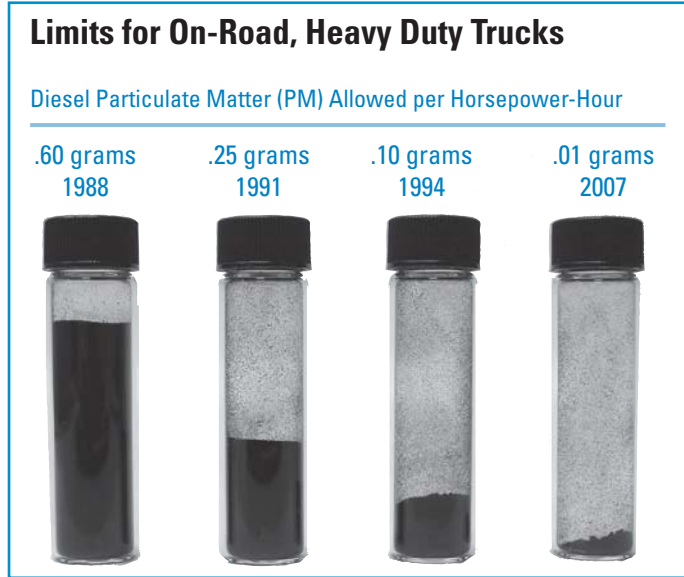


SHOPTALK

Diesel Particulate Matter (PM) Allowed per Horsepower-Hour

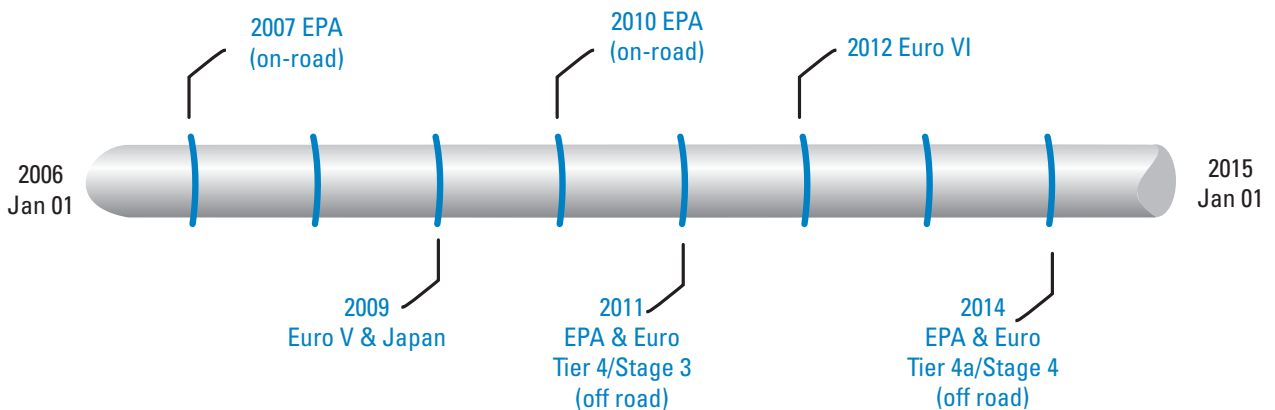
What does "Diesel PM per Horsepower-Hour" Mean?

A 200 horsepower (HP) engine could release as much as 200 times the amount shown in one vial during one hour of operation or a 300 HP engine could release as much as 300 times the amount shown in one vial during one hour of operation.



Soot vials are shown smaller than actual size (2-3/8" height).

Worldwide Emissions Mandates & Timing



Flex Tubing: Cutting & Installation

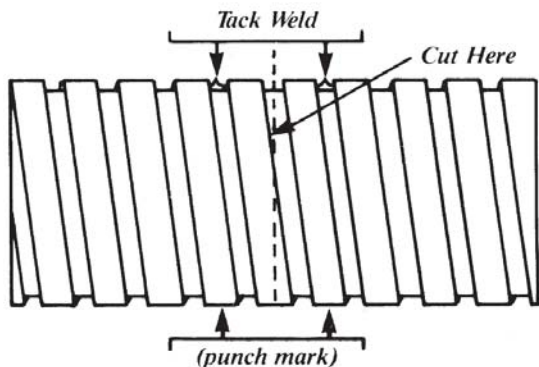
Flexible tubing can twist or unravel when cut, causing its diameter to change and making installation difficult. This occurs because flexible tubing must maintain flexibility in order to function properly, and, therefore, cannot be tightly wound in the manufacturing process. However, flexible tubing can be managed for trouble-free installation by following these guidelines.



Cutting

Step 1 - Prepare

Place a tack weld between convolutions on each side of the intended cut to keep ends from twisting or unraveling.



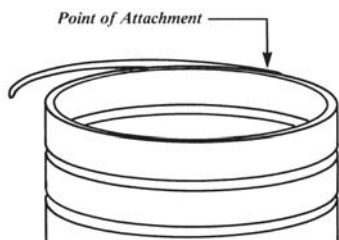
If a welder is not available, insert a mandrel or back-up pipe into the tubing and place a punch mark directly on convolutions on each side of the intended cut. Heavy-duty tape over a de-greased pair also works. Cut through tape and leave in place, clamp over tape.

Step 2 - Cut

Place the tubing securely in a vice. Cut with a metal cutting band saw or a hacksaw with 32 teeth per inch.

Step 3 - Trim

Each side of the cut will now have a spiral "tail" that must be removed to the point at which it is attached. Bend each tail until it breaks, or bend and use a cutting shears to remove.



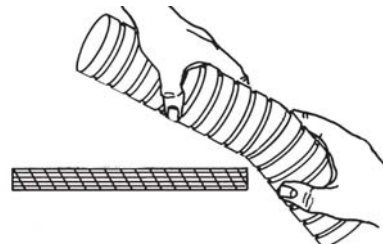
Step 4 - Deburr

Deburr both cut surfaces with a hand-operated drum sander or file.

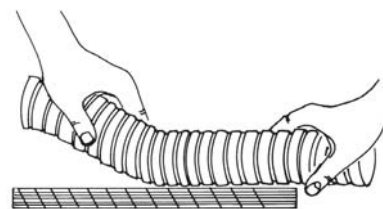
Installation

Flexible tubing's function is to prevent excessive stress on exhaust system components by absorbing vibration and thermal expansion that would otherwise cause system components to shake loose and break.

To provide adequate flexibility, flex tubing should be installed in a half extended state. To reach half extension, place the middle of the tubing over the edge of a work bench, push down on both halves and bend as much as possible.



Then place the entire piece of tubing on the work bench and push the end down until straightened. The tubing is now at half extension.



Note: Do not use flexible tubing to form an exhaust pipe bend. Use elbows instead.

Donaldson & Industry Acronyms

Exhaust/Emissions Acronyms

ATD	After Treatment Device
Bp	Backpressure
CARB	California Air Resources Board
CCM	Catalytic Converter Muffler (or DOC)
CCV	Crankcase Ventilation or Closed Crankcase Vent
CDPF	Catalyzed Diesel Particulate Filter
CFM	Cubic Feet per Minute
CFS	Crankcase Filtration System
CO	Carbon Monoxide
dBA	Decibel, A scale (noise level)
DMF	Diesel Multi-stage Particulate Filter
DOC	Diesel Oxidation Catalyst
DPF	Diesel Particulate Filter
EAT	Exhaust After Treatment
EDM	Emissions Device Monitor
EGR	Exhaust Gas Recirculation
EIEO	End In / End Out (muffler style)
EISO	End In / Side Out (muffler style)
EPA	Environmental Protection Agency
EPA Tier 4/IV	Off-road emissions standards
EPA07	U.S. EPA 2007 on-road regulation
EPA10	U.S. EPA 2010 on-road regulation
ERC	Emissions Resource Center
Euro Stage XX	European Emissions Reduction Regulations
FTP	Federal Test Procedure
HC	Hydrocarbon (unburned fuel)
HP	Horse Power
HTEF	High Temperature Exhaust Filter
ICC	Independent Catalytic Converter
ID	Inside Diameter
IOM	Installation Operation Manual
ISO	International Organization for Standardization
ISO/TS	ISO Technical Specification
LNF	Low NO ₂ Filter (muffler)
LXF	Low NO _x Filter (muffler)
LSD	Low Sulfur Diesel (fuel)
LTF	Low Temperature Filter (muffler)
NO _x	Nitrogen Oxides
OCV	Open Crankcase Ventilation
OD	Outside Diameter
PM	Particulate Matter
SC	Silicone Carbide
SCR	Selective Catalyst Reduction
SEF	Semi-active Electric Filter (muffler)
SIEO	Side In / End Out (muffler style)
SISO	Side In / Side Out (muffler style)
SRF	Standard Recirculation Filter
SS	Stainless Steel
ULSD	Ultra-Low Sulfur Diesel (fuel)
VOC	Volatile Organic Compound
VOF	Volatile Organic Fraction

Engine Brake & Exhaust Silencer



Designed to specifically address engine brake noise

- Addresses engine brake noise, silencing engine brake “bark”
- Reduces exhaust noise 66% versus a standard muffler

Silences engine brake “bark”

- Reduces driver fatigue
- Improves trucking industry image

All stainless steel construction available*

- Won’t rust out like conventional mufflers

Direct replacement

- Easy installation, can be applied on existing trucks

No increase in back pressure

- Silences without engine power loss
- Maintains fuel economy

*Models available in both stainless steel and aluminized steel



Flat Band SealClamp™ Installation Instructions



Step 1

Position 1/3 to 1/2 way onto the larger diameter tube or to completely cover slots.



Step 2

Assemble bolts between clamp bolts and tubes.



Step 3

For all models, tighten by alternating the wrench between fasteners several times to uniformly take up the slack, beginning with the large diameter side of the connection. Tighten the nuts for stainless clamps as illustrated. Tighten alternately until the gasket is fully compressed and the mating bars' surfaces are fully touching. The grade 8 bolts and nuts are rated to 100 ft. lbs. of torque. For best results use an impact wrench.

Important Application Notes

- Use either 9/16 inch (14mm) hex wrench
- Grease the clamps and the joint area before installing
- Do not use for exhaust system mounting support
- Do not use for exhaust manifold or turbocharger connections
- Do not reuse the clamps
- Do not use as a butt joint clamp—use for overlap connections only



Stepped Preformed SealClamp is Individually packaged with installation instructions

SHOP TALK



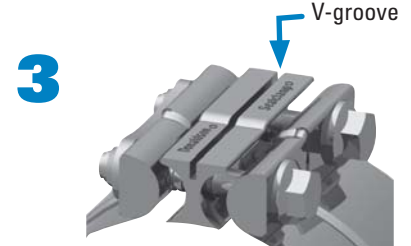
Unique design with fully assembled hardware!

1. Position the SealClamp over the smallest tube. Larger end of the clamp must be on the overlapping tube or flex.
2. Locate the step of the clamp to the overlapping tube at the joint.
3. Using the v-groove as a visual guide, alternately tighten bolts until the groove is approximately half closed (~50 ft. lbs). Do not exceed 70 ft. lbs. torque as clamp damage may occur.

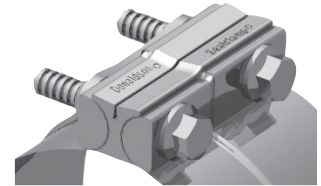


Diseño único para un ensamble completo!

1. Colocar el SealClamp sobre el tubo más pequeño. El diámetro mayor del SealClamp debe estar sobre el tubo rígido o flexible a sobrepasar.
2. Ubicar el escalón de la abrazadera en la unión del tubo sobrepuesto.
3. Usando la ranura como guía visual, apriete alternadamente los pernos hasta que la ranura esté aproximadamente a medio cerrar. No exceda 94,9 N(m (35 lbs-pie) de par de apriete por que puede producir daños en la abrazadera.



Before / Antes / Avant



After / Después / Après

Conception unique avec pièces entièrement assemblées!

1. Placer le collier sur le tuyau de diamètre inférieur. La portion la plus grande du collier doit se trouver sur le tuyau qui chevauche.
2. Positionner la partie étagée du collier sur la portion chevauchante du tuyau en l'alignant sur le joint.
3. En utilisant la rainure comme guide visuel, serrer alternativement les boulons, jusqu'à ce que la rainure soit à moitié fermée. Ne pas dépasser une force de torsion de 35 pied-livre, cela risquerait d'endommager le serre-joint.

Attenuation

In an exhaust system, attenuation refers to the reduction in sound level measured between an engine without a muffler and the same engine with a muffler.

Backpressure

Backpressure is the force necessary to flow exhaust gas through the system. Backpressure reduces horsepower and fuel economy - for turbocharged diesel engines - about 0.5% decrease in horsepower and fuel economy per inch Hg backpressure. Typically measured in inches of mercury (Hg) or inches of water (H₂O) - 1.0" (25mm) Hg - 13.6" (345mm) H₂O

CFM

Cubic feet per minute of airflow.

dBA

The sound level measured in decibels using a sound level meter weighted for the "A" scale frequency response. It has over 82% correlation with loudness as determined by the typical human ear (dB without the "A" scale weighting overall has only 70% correlation to loudness).

Decibel (dB)

A unit used to express the relative difference in acoustic power. Whenever dB is used a reference level is implied. The reference value of 0.0002 dynes/cm² = 0dB.

DOC Muffler

Diesel Oxidation Catalyst (DOC) Muffler. This muffler design contains a catalyst inside that reduces emissions while reducing exhaust noise. Also referred to as a catalytic converter muffler (CCM).

DPF Muffler

Diesel Particulate Filter (DPF) Muffler. This muffler design contains a particulate filter that requires Ultra Low Sulfur Diesel fuel. The filter eliminates a greater amount of particulate matter compared to a DOC Muffler, but has a higher activation temperature (260°C). Like a DOC, it also reduces emissions while reducing exhaust noise.

Dynamometer Test

A test that allows an engine to be run to full horsepower and rated RPM while remaining stationary.

Exhaust Noise Level

Sound level of the exhaust system, typically measured in dBA.

N/A

Naturally aspirated

Resonator

A device inserted in the exhaust system ahead of the muffler that provides additional exhaust noise silencing without adding significant backpressure.

Sound Level Meter

A sound level measuring device that includes a microphone, an amplifier, an output meter and sound frequency networks for measuring sound levels in decibels,

Total Vehicle Noise

The sum of exhaust noise level measurement plus fan, intake, mechanical and tire noise. Noise levels add logarithmically (equal noise levels combined add 3 dB; example 75 dB + 75 dB = 78 dB).

When all you have is a Donaldson part number, this section will lead you to the proper page in the catalog where specific information on that part number can be found.

In some cases you will find two separate page numbers listed, for products such as: mufflers (with references to the specifications section and the muffler selection by engine performance section); and clamps (with references to both dimensional and application information).

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Global Presence with Local Touch

Donaldson has established a global distribution network to serve our customers locally as well as worldwide. We operate as a global company with a network of primary distribution locations that support a mature hub of regional distribution centers and warehouses.

Donaldson distribution centers are strategically located to quickly and accurately deliver filtration and exhaust products wherever replacement products are needed. We work with a

network of transportation, third party logistics companies, consolidators, and cross-docking facilities to meet or exceed our customers' requirements.

All regions of the world benefit from our global umbrella of distribution centers. We focus our efforts on local support and the capabilities of our staff. We continue to make significant investments in facilities, systems, supply chain relationships and staffing to offer the best order fulfillment options available.



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