

1. Contents

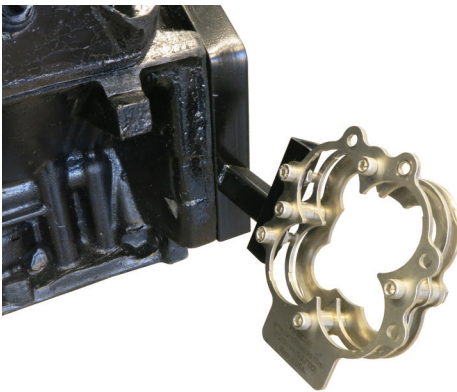


The icengineworks® Collector Dummies are modular, reusable devices engineered to assist the exhaust header fabricator to accurately and firmly find and lock in the best position for the exhaust header collector around the engine bay and to model more precisely exhaust header designs when using same Series icengineworks® modeling blocks.

They are also designed to offer firm support during the fabrication stage (trimming and welding of the tube ends before the collector gets welded). The CDs create a precise parallel fit for the incoming runners which will result in an easier build of the actual exhaust header while offering also improved flow characteristics and a more solidly welded exhaust header.

The icengineworks® Collector Dummies include a hose clamp per Collector Dummy to hold the exhaust runner tube ends together during the welding stage, more on this below.

2. How the icengineworks® Collector Dummies Work



The icengineworks® Collector Dummies are designed to quickly and temporarily create a precise and solid receiving point around the engine bay for the incoming exhaust runners as if they were being slipped in the actual exhaust collector, but without the challenge of effectively securing it firmly. When this location is found, it will also confirm if the space available behind the icengineworks® Collector Dummy is enough for the body of the exhaust collector (and the rest of the exhaust system connected to it) to clear chassis frame, firewall, etc. This makes the CDs especially useful when designing and fabricating tight tubular manifolds for turbocharged engines.

The icengineworks® Collector Dummies can be secured to the chassis, frame or other temporary support utilizing angle or flats to create a simple non-intrusive structure that can be clamped on, spot welded or bolted down using the extended flats and/or holes (1/4-inch bolt size) provided on the CD top plate.

The icengineworks® Collector Dummies feature a set of 3 precision cut stainless steel plates, separated by spacers that represent the receiving end of an actual merged or formed exhaust collector (incoming exhaust runner tubes touching each other). Utilizing longer bolts and spacers (not included, 1/4-inch ID tubing recommended) the CDs can be very useful when designing long tube headers as well.

The back plate serves as the landing and stopping point for the icengineworks® modeling blocks when used to design the exhaust header of specific length. It also offers a positive stop when trimming the actual metal sections of the runners during fabrication. Additionally it offers access to spot weld the tube ends before installing the exhaust collector.



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The actual design of the icengineworks® modeling blocks and the information and procedures described on the website and in this manual are subject to change without notice.



The top and middle plates separated by spacers serve as solid guides to create incoming tube runner designs that are parallel on their last inch of length for an easy header assembly and fabrication, and streamlined exhaust flow.

Once the CD is firmly mounted or anchored in its position, the designing of the exhaust header becomes a matter of connecting exhaust ports to openings in the CD using the icengineworks® modeling blocks. It becomes possible to study and consider in a short amount of time various potential scenarios such as equal length in each exhaust runner, or having the exhaust runners going into the collector in a revolving manner following the engine's firing order, etc. Different exhaust runners "clocking" layouts around the CD can also be investigated very quickly.

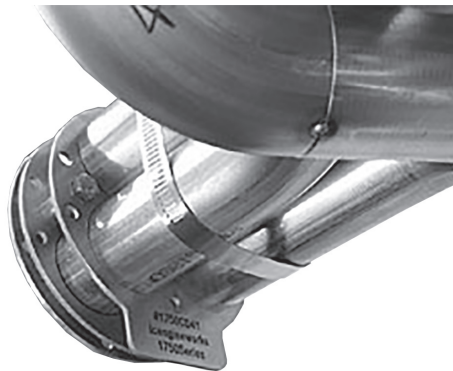


If the icengineworks® design and fabrication methods are being followed, once the design has been confirmed and the equivalent sections of the exhaust runners have been cut in metal, the CDs will offer the stable and precise support for the critical fabrication and welding stages.

As the partial sections in the plastic model get replaced with their metal counterparts, the CDs will simplify the task of creating the exhaust runner assemblies that actually fit easily when the exhaust collector is finally added and welded on.

Any necessary tube trimming, touch up or adjustment will become evident at this point.

The picture shows the use of the icengineworks® tack welding clamps.



When all the exhaust runners have been tacked and their location on the header flange has also been set, the entire assembly can be pulled out of the engine for further completion.

The supplied hose clamp is meant to maintain the tubes close together and parallel to maintain the assembly's integrity. This will guarantee that the assembly doesn't break apart if the CD accidentally slips off.



After all the exhaust runners have been completely welded and the exhaust header assembly is ready to receive the exhaust collector, the CD will provide the support for the exhaust runner tubes (held tight with the hose clamp) to be welded together. The CD provides full access to the tube ends to be tacked together. Further sealing of the center void is also possible by welding a star or building a pyramid or bullet.

The CD can then be slipped out and the actual exhaust collector can be welded in place.