

STATE OF MISSOURI



PERMIT BOOK

DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 082008-002 Project Number: 2008-05-069

Parent Company: Modine Manufacturing Company

Parent Company Address: 1500 DeKoven Avenue, Racine, WI 53403-2552

Installation Name: Modine Manufacturing Company

Installation Address: 3300 West 7th Street, Joplin, MO 64801

Location Information: Jasper County, S27, T8, R33W

Application for Authority to Construct was made for:
Expansion of the current Exhaust Gas Recirculation (EGR) cooler manufacturing capacity. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.



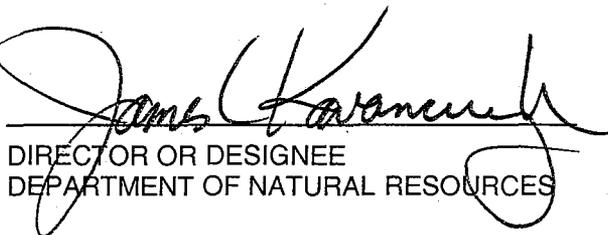
Standard Conditions (on reverse) are applicable to this permit.



Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

AUG - 4 2008

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

STATE OF MISSOURI



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REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2008-05-069
Installation ID Number: 097-0065
Permit Number:

Modine Manufacturing Company
3300 West 7th Street
Joplin, MO 64801

Complete: May 19, 2008

Parent Company:
Modine Manufacturing Company
1500 DeKoven Avenue
Racine, WI 53403-2552

Jasper County, S27, T8, R33W

REVIEW SUMMARY

- Modine Manufacturing Company has applied for authority to expand the current Exhaust Gas Recirculation (EGR) cooler manufacturing capacity.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment in small quantities. The HAPs of most concern from the new processes are chromium, nickel and manganese compounds.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Smoke eaters are being used to control the PM₁₀ emissions from the equipment in this permit. The use of the smoke eaters was not taken into account in the potential emission calculations.
- The potential emissions of the application do not exceed the de minimis level for any air pollutant. Therefore, this review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.
- This installation is located in Jasper County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is not required for the source.
- A revision to your Intermediate Operating Permit is required for this installation within 90 days of equipment startup.
- Approval of this permit is recommended without special conditions.

INSTALLATION DESCRIPTION

Modine plans to expand its current Exhaust Gas Recirculation (EGR) cooler manufacturing capacity at Joplin. After this project is completed, the Joplin facility will manufacture EGR coolers exclusively. All other product lines currently made at Joplin will be transferred out of the facility to make room for the installation of the new EGR manufacturing equipment.

The existing installation is considered to be a minor source for New Source Review and an intermediate source for Operating Permits purposes. The installation was issued a Basic State Operating Permit on September 27, 2001 and submitted an Intermediate Operating Permit application on January 30, 2002 and Intermediate Operating Permit renewal on January 10, 2007 after the issuance of a New Source Review permit in September 2001. This Intermediate Operating Permit renewal is still in technical review.

Table 1: New Source Review permits Issued to Modine Manufacturing Company

Permit Number	Description
102004-004	A Section (5) permit issued to allow six new welding stations.
022003-009	A Section (5) permit issued 3 new welding machines, 2 new fin machines and 1 new fin assembly machine to manufacture a new cooler product.
092001-009	A Section (5) permit issued to allow for the use of several different additional coatings in an existing paint booth.
1097-013	A Section (5) permit issued for the modification of APCP Permit 0893-025 to allow the usage of a spray with a higher VOC binding material.
1193-017	A Section (5) permit issued for the addition of an 80 horsepower boiler to replace a larger, less efficient boiler.
1193-005	A Section (5) permit issued for the addition of a parts washer.
0893-025	A Section (5) permit issued for the replacement of a binder material used in a spray coating process.
0793-009	A Section (5) permit issued to allow the replacement of the type of flushing oils used in 5 oil flush machines permitted by APCP Permit Number 0690-006.
0892-007	A Section (5) permit issued for the addition of 4 ovens, 2 welding stations, 1 hand blazing operation and 4 cleaning line tank operations.
0790-010	A Section (5) permit issued for 3 new welding exhaust systems.
0690-006	A Section (5) permit issued for the addition of a tube bundle oil cooler, core washer and 5 oil flushing machines.
0388-009	A Section (5) permit issued for the addition of a new binder application spray booth and an infrared oven.
0184-053	A Section (3) permit issued for the temporary operation of an experimental flushing

PROJECT DESCRIPTION

The following EGR manufacturing equipment will be added to the Joplin facility.

A hydroforming cell with cleaning line (EP-79 & 80) and laser trimming system (EP-81):
Following the application of a non VOC-containing drawing lubricant, EGR shell casings will be formed by the Hydroform Press. The lubricant is dried-off using an electric heater, leaving a dry film on the casings. After the forming operation, a washing system will be used to remove the dry film lubricant from the casings. The washing fluid will be heated with natural gas burners (EP-79 & 80). The maximum design rate for all of the burners is 1.27 million British thermal units per hour (MMBtu/hr). Following cleaning, the casings are placed into a laser trim machine to trim the casing ends and create some holes in the casings. The fumes from the laser trimming operation will be filtered using a local filtration unit (EP-81) and the cleaned air returned back into the factory.

A tube mill (EP-82) with two laser tube cut-off systems (EP-54 & 55) and tube cleaning system (EP-77 & 78):

Flat sheet stock is rolled-up into the shape of a "flat" tube and the seam is tungsten inert gas (TIG) welded by the Tube Mill (EP-82). Minimal emissions are expected from the TIG welding. The Laser Tube Cut-Off systems (2 total) are used to cut tubes to specified lengths. The fumes from the laser cutting operation will be filtered using local filtration units (EP-54 & 55) and the cleaned air returned back into the factory. The tubes are then cleaned in the cleaning line system. The cleaning line fluid is heated by natural gas burners (EP-77 & 78). The maximum design rate for all of the burners is 3.8 MMBtu/hr.

Two fin machines (EP-66 & 67):

Flat sheet stock is run through the fin machines to produce the fin component of the EGR coolers. A VOC-containing lubricant is applied to enable proper metal cutting and piercing. The maximum usage of the lubricant will be less than 0.20 gallons per hour.

Four tube assembly cells (EP-69 to 72):

The tube assembly cells will assemble the tubes with fins. A VOC-contained lubricant is applied in the process to enable the proper assembly of the two components together. The maximum usage will be less than 0.1 gallons per hour.

Screen print operation with dry-off oven (EP-68):

EGR header and baffle component parts are "printed" with a braze paste (applied selectively to a localized area). The braze paste contains a binder component that has a small amount of VOC. The VOC component is evaporated by an electric dry-off oven (EP-68). The maximum usage of braze paste will be less than 1.25 pounds per hour.

Fabrication cell (EP-53):

EGR side sheets, flow dividers and flow blocker component parts are fabricated out of flat sheet stock in this stamping machine. A VOC-containing lubricant is applied in this process to enable proper metal stamping. The maximum usage of the lubricant will be

less than 0.05 gallons per hour.

Water fin press (EP-76):

EGR water fin components are stamped out of flat sheet stock in this machine with the aid of a VOC-containing lubricant. The maximum lubricant usage will be less than 0.1 gallons per hour.

Five core assembly cells (EP-48 to 52):

EGR core components are assembled in these cells prior to the brazing operations. Some areas of the component parts receive an application of braze paste, which has a small VOC component. The application rate of braze paste is 1.25 pound per hour.

Three vacuum braze furnaces (EP-73 to 75):

Core assemblies are placed in the vacuum braze furnaces where the EGR metal components are bonded (brazed under a vacuum) together to produce leak-free metal to metal bonding. These units are identical to the six vacuum braze furnaces already permitted at the facility. Vacuum braze furnaces have insignificant emissions during start-up and none during the actual brazing cycle. Each unit consists of a single batch-type chamber that has an electrically heated vacuum furnace with an inert gas quench systems for the vacuum heat treating of EGR coolers. The furnace is water-cooled.

Five robotic welding cells (EP-56 to 60) and five manual welding cells (EP-61 to 65):

After brazing, additional parts fittings and tanks are welded onto the units. Also, EGR coolers that have leaks will be repaired in the manual welding cells. The maximum usage of weld wire will be less than 35 pounds of weld wire per hour. All welding fume will be captured by a central exhaust system (EP-38) which is currently used to capture the existing EGR welding cells. The results from a stack test performed on existing EGR welding cells were used to estimate the potential emissions from the new welding cells.

EMISSIONS/CONTROLS EVALUATION

Hydroforming (EP-79, -80 and -81): The emissions associated with natural gas burners were derived from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.4 Natural Gas Combustion (July 1998) for PM₁₀ and CO and EPA document Factor Information Retrieval (FIRE) V6.24, *Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants* (SCC # 3-09-900-03) for NO_x, SO_x and VOC. The emissions for laser trimming were derived from AP-42, Section 12, *Metallurgical Industry* under Related Documents (March 2004).

A tube mill (EP-82) with two laser tube cut-off systems (EP-54 & 55) and tube cleaning system (EP-77 & 78):

TIG welding occurs by the tube mill (EP-82). This type of welding uses a nonconsumable electrode which minimizes particulate emissions. In addition, there is a smoke eater with a HEPA filter to control any fugitive emissions within the factory. Therefore, any emissions associated with TIG welding (EP-82) are assumed to be

minimal.

The laser cutting emissions were estimated based on AP-42, Section 12, *Metallurgical Industry* under Related Documents (March 2004).

The emissions associated with the burner for the cleaning system were derived from the AP-42, Section 1.4 *Natural Gas Combustion* (July 1998) for PM₁₀ and CO and EPA document FIRE V6.24, *Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants* (SCC # 3-09-900-03) for NO_x, SO_x and VOC.

Two fin machines (EP-66 & 67):

The only emissions associated with this emission point are due to VOC emissions from roller application of lubricant. A material balance taking into account VOC content of the lubricant as stated in the Material Safety Data Sheet (MSDS) was conducted. 100% of the VOCs were assumed to be evaporated.

Four tube assembly cells (EP-69 to 72):

The only emissions associated with this emission point are due to VOC emissions from roller and topical application of lubricant. A material balance taking into account VOC content of the lubricant as stated in the Material Safety Data Sheet (MSDS) was conducted. 100% of the VOCs were assumed to be evaporated.

Screen print operation with dry-off oven (EP-68):

The only emissions associated with the screen print operation are due to VOC emissions from topical (screen print) application of braze paste. A material balance taking into account VOC content of the braze paste as stated in the MSDS was conducted. 100% of the VOCs were assumed to be evaporated.

Fabrication cell (EP-53):

The only emissions associated with this emission point are due to VOC emissions from application of lubricant. A material balance taking into account VOC content of the lubricant as stated in the MSDS was conducted. 100% of the VOCs were assumed to be evaporated.

Water fin press (EP-76):

The only emissions associated with this emission point are due to VOC emissions from roller and brush application of lubricant. A material balance taking into account VOC content of the lubricant as stated in the MSDS was conducted. 100% of the VOCs were assumed to be evaporated.

Five core assembly cells (EP-48 to 52):

The only emissions associated with the core assembly cells are due to VOC emissions from topical brush application of braze paste. A material balance taking into account VOC content of the braze paste as stated in the MSDS was conducted. 100% of the VOCs were assumed to be evaporated.

Five robotic welding cells (EP-56 to 60) and five manual welding cells (EP-61 to 65):

The PM₁₀ emission factor for the welding cells (EP-56 to 65) were derived from stack testing conducted at the Modine facility in Joplin. The testing was conducted in October

of 2005 by Custom Stack Analysis, LLC.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Permit No. 102004-004. Existing actual emissions were taken from the 2007 Emission Inventory Questionnaire (EIQ). Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels*	Existing Potential Emissions**	Existing Actual Emissions (2007 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	26.84	0.92	1.5	N/A
SO _x	40.0	2.70	N/D	0.01	N/A
NO _x	40.0	9.20	0.84	3.02	N/A
VOC	40.0	129.1	6.73	13.90	N/A
CO	100.0	2.30	0.19	1.81	N/A
Combined HAPs	25.0	40.76	0.53	0.075	N/A
Chromium Compounds	5 / 10	N/D	N/D	0.045	N/A
Manganese Compounds	0.8 / 10	N/D	N/D	0.018	N/A
Nickel Compounds	1 / 10	N/D	N/D	0.012	N/A

N/A = Not Applicable; N/D = Not Determined

*The first number listed for each individual HAP represents the Screen Modeling Action Level (SMAL) and the second number represents the regulatory de minimis level. All emission levels of the individual HAPs are below the de minimis level for individual HAPs and their respective SMALs.

**Some equipment will be removed to make room for the new equipment contained in this permit. The removal of equipment has not been accounted for in the existing potential emission totals.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Modine Manufacturing Company shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information, 10 CSR 10-6.110*
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *Operating Permits, 10 CSR 10-6.065*
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin, 10 CSR 10-6.170*
- *Restriction of Emission of Visible Air Contaminants, 10 CSR 10-6.220*
- *Restriction of Emission of Odors, 10 CSR 10-3.090*

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes, 10 CSR 10-6.400*
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-3.060*

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Susan Heckenkamp
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 9, 2008, received May 19, 2008, designating Modine Manufacturing Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southwest Regional Office Site Survey, dated June 4, 2008.

Mr. Stephen Evans
Environmental Engineer
Modine Manufacturing Company
3300 West 7th Street
Joplin, MO 64801

RE: New Source Review Permit - Project Number: 2008-05-069

Dear Mr. Evans:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your revised operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Susan Heckenkamp, at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:cwyl

Enclosures

c: Southwest Regional Office
PAMS File: 2008-05-069

Permit Number: