



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: **122006-010** Project Number: 2006-10-033

Parent Company: Modine Manufacturing Company

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

Installation Name: Modine Manufacturing Company

Installation Address: 1502 South Country Club Drive, Jefferson City, MO 65109

Location Information: Cole County, S18, T44, R12

Application for Authority to Construct was made for:
Installation of a bolted radiator plate fin product line. 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.

DEC 12 2006

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 department's 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 with 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.

Page No.	3
Permit No.	
Project No.	2006-10-033

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

1. Control Devices

The fabric filter in the hand operated paint booth (EP #98) must be in use at all times when the paint booth is in operation. The filter shall be operated and maintained in accordance with the manufacturer's specifications.

2. Solvent Management

Modine Manufacturing Company shall keep solvents and cleaning solutions in sealed containers whenever the materials are not in use. Modine Manufacturing Company shall provide and maintain suitable, easily read, permanent markings on all solvent and cleaning solution containers used with this equipment.

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

Project Number: 2006-10-033
Installation ID Number: 051-0032
Permit Number:

Modine Manufacturing Company
1502 South Country Club Drive
Jefferson City, MO 65109

Complete: October 5, 2006
Reviewed: November 28, 2006

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

Cole County, S18, T44, R12

REVIEW SUMMARY

- Modine Manufacturing Company has applied for authority to install a bolted radiator plate fin product line.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment including lead and lead 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.
- A fabric filter is being used to control the PM₁₀ emissions from the hand operated paint booth (EP #98) in this permit.
- 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.
- This installation is located in Cole 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 equipment.
- A revision to the Intermediate Operating Permit is required within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Modine Manufacturing Company develops, manufactures and markets heat-transfer equipment and systems to serve vehicular, industrial, commercial, and building (heating, ventilating, air-conditioning) markets. The Jefferson City plant manufactures heat transfer equipment, primarily radiators. The Jefferson City plant has paint booths, annealing and bake ovens, dip pots, boilers, solder/braze booths, hard tube mills and miscellaneous welding processes.

This installation is classified as an existing major source of volatile organic compounds (VOCs). A Part 70 Operating Permit (OP2000-079) was issued in August of 2000 and an amendment approved (OP2000-079A) on August 11, 2004. An amendment request to terminate the Part 70 Operating Permit for an Intermediate Operating Permit and an application for an Intermediate Operating Permit are currently under technical review. Both were received February 14, 2005.

The following permits have been issued to Modine Manufacturing Company (Jefferson City Plant) from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
0979-003..022	Construction of radiator manufacturing installation
0184-044..046	Installation of folded core operations including a bake oven and cleaning line
0986-011	Construction of a hard tube mill
0587-002	Construction of an electrodeposition (ED) paint system
0189-003	Modification of existing header-dip operation by the addition of another set of dip pots
0189-008	Installation of a welded tube mill
1289-001	Modification of ED paint system
0692-010	Construction of an additional hard tube mill
0193-006	Construction of an additional hard tube mill
0295-007	Construction of an automatic solder pour machine
0396-023	Installation of a welded tube mill
0697-026	Construction of a new ED painting system
0997-042	Installation of welding, soldering and brazing booths; seaming, laser, sawing, grinding and press operations; fin machines

0398-021	Installation of a new square wave fin machine
0598-004	Construction of a new beta welder
0598-011	Construction of a weld around TIG and two (2) new backsoldering stands
1098-010	Oil fogging operation
1198-001	Re-installation of an old spray paint system
1298-001	Construction of four (4) TIG welding systems and two (2) MIG welders
0199-019	Construction of one (1) robot welder, elimination of an electrostatic precipitator, and change to a high VOC content lubricant for a fin machine
0799-024	Installation of a Radiator fin machine
1099-013	Installation of backsolder stands
120001-015	Installation of a backsolder machine
072003-008	Installation of a core bake oven, an aqueous cleaning line, a solder pour machine, a robotic welder, two seaming stations, a fin machine and two beta welders (emission points 88-94)

PROJECT DESCRIPTION

Modine Manufacturing Company is seeking authority to add a bolted radiator plate fin product line at their Jefferson City facility. This equipment is being transferred from Modine's plant in Pemberville, Ohio. The new equipment will consist of the following emission points.

Table 2: New Equipment

Emission Point	Description	Maximum Hourly Design Rate
# 96	Header Dip Pot	6 Units produced per hour, 0.5 MMBtu per hour
#97	Dry-off Oven	2 MMBtu per hour
#98	Hand Paint Booth	1.8 gallons of paint per hour
#99	Voss Fin Press	0.84 pounds of lube per hour
#100	Wire Feed Welder	6.54 pounds of wire per hour

The header dip pot equipment (EP #96) is used to solder brass radiator tube components to header components. The solder pot is natural gas fired and estimated to have a maximum hourly design rate of 500,000 Btu per hour. Emissions from the soldering process and combustion products are exhausted outside the building.

The natural gas fired dry-off oven (EP #97) is used to dry radiators that have undergone

underwater leak testing. Emissions are natural gas combustion products and water vapor and are vented outside the building.

The bolted radiator product will be painted in a manual hand spray paint booth (EP #98). Emissions are vented through a woven disposable filter media prior to being vented outside the building. The maximum hourly design rate is based on maximum historical usage from the same piece of equipment when used at the Pemberville, Ohio plant divided by the number of hours in operation.

The voss fin press (EP #99) is used to form fin material out of copper coil stock. Forming operations utilize vanishing lubricant oil containing a high flash petroleum solvent fraction. This oil is emitted during forming operations and is emitted into the production area without dedicated ventilation (no stack). Lubricant usage was determined to be approximately 0.42 pounds per hour during an August 2002 study on a comparable round roll fin machine. Maximum design lubricant usage is set at twice the actual usage rate (0.84 pounds per hour).

The welder (EP #100) is used to bond various subassembly components together. Emissions will be vented outside the building utilizing a stack. Wire usage was determined to be 3.27 pounds of wire per hour during an April 2002 study conducted on a comparable wire feed welder. Maximum design wire usage is set at twice the actual usage rate (6.54 pounds per hour).

EMISSIONS/CONTROLS EVALUATION

The PM₁₀ and lead emission factors for the header dip pot equipment (EP #96) are based on testing performed in October of 1991 on identical equipment at the Modine facility located in LaPorte, Indiana.

Emission factors for the solder pot natural gas fired burner (EP #96) and the dry-off oven (EP #97) were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.4, Natural Gas Combustion (07/1998).

A mass balance approach using information obtained from the Material Safety Data Sheets and maximum paint usage was used to determine emissions from the hand paint booth (EP #98). 100% of the VOCs contained in the paint are assumed to be emitted into the atmosphere. PM₁₀ emissions for the spray booth were evaluated based on the solids content of the paint and transfer efficiency from the spray gun (40%). The solids content of the material was estimated by taking the density of the paint and subtracting the VOC and water content and assuming the remainder to be all PM₁₀. PM₁₀ emissions are controlled through the use of a high efficiency fabric filter having a minimum control efficiency of 99%

The potential emissions for the voss fin press (EP #99) is based on a mass balance approach. 100% of the VOCs contained in the oil lubricant are assumed to be emitted.

Emission factors for the wire feed welder (EP #100) were obtained from AP-42, Section 12.19, Electric Arc Welding (01/1995). The electrode type is an E70 series. The highest emission factor in AP-42 for the E70 series was used.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Permit Number 072003-0098. Existing actual emissions were taken from the installation's 2005 Emission Inventory Questionnaire (EIQ). Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table : Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2005 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	97.4	4.00	0.97	N/A
SO _x	40.0	66.1	0.02	0.01	N/A
NO _x	40.0	33.5	2.78	1.04	N/A
VOC	40.0	252.1	23.5	12.45	N/A
CO	100.0	11.2	2.27	0.88	N/A
HAPs	10.0/25.0	204.1	N/D	0.01	N/A
Lead	0.6	N/D	0.10	0.01	N/A

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

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 April 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 10/02/2006, received 10/05/2006, 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.
- Northeast Regional Office Site Survey, dated October 17, 2006
- MSDS provided by the applicant
- Results from the October 1991 Air Emissions Tests on Two Sources at the Modine Manufacturing Plant in Laporte, Indiana, prepared by Interpoll Laboratories, Inc., Report Number 1-3446.

Mr. Edward Besaw
Environmental Engineer
Modine Manufacturing Company
1502 South Country Club Drive
Jefferson City, MO 65109

RE: New Source Review Permit - Project Number: 2006-10-033

Dear Mr. Besaw:

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, please contact me at (573) 751-4817, or write the Department of Natural Resources' Air Pollution Control Program, PO Box 176, Jefferson City, MO 65102.

Thank you,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH: shk

Enclosures

c: Northeast Regional Office
PAMS File 2006-10-033

Permit Number: