

## Neenah Foundry Company Facility and Equipment List – Plant 3

Melt and Metal Processing	Core Room	Molding	Casting Processing	Miscellaneous
<p><b>Iron Grades</b> (Ductile Iron As-Cast):</p> <ul style="list-style-type: none"> <li>• D63-41-15</li> <li>• D65-45-12</li> <li>• D80-55-06</li> <li>• D90-60-04</li> <li>• D100-70-03</li> <li>• Austempered Ductile Iron</li> </ul> <p><b>Melt:</b></p> <ul style="list-style-type: none"> <li>• One 66” refractory-lined, water-cooled Hot Blast cupola with O<sub>2</sub> injection</li> <li>• Continuous desulfurization with porous plug ladle (25 tons/hour)</li> </ul> <p><b>Duplex:</b></p> <ul style="list-style-type: none"> <li>• Two 60-ton Whiting vertical-channel furnaces</li> </ul> <p><b>Pour:</b></p> <ul style="list-style-type: none"> <li>• One 10-ton Junker horizontal-channel (pressurized) stopper-rod furnace with an MSI inoculator (and an Accurate back-up inoculator).</li> <li>• One 6-ton Junker horizontal-channel (pressurized) stopper-rod furnace with dual Accurate inoculators.</li> </ul>	<ul style="list-style-type: none"> <li>• Two CB-30 horizontal isocure core machines <ul style="list-style-type: none"> <li>- 34”x38”x17” box size</li> <li>- 350# maximum core weight</li> </ul> </li> <li>• Two 18-liter Peterle vertical isocure core machines <ul style="list-style-type: none"> <li>- 31.5”x23.8”x16” box size</li> <li>- 100# maximum core weight</li> </ul> </li> <li>• Two 12-liter Peterle vertical isocure core machines <ul style="list-style-type: none"> <li>- 27.5”x23.8”x8” box size</li> <li>- 70# max. core weight</li> </ul> </li> <li>• Two CB22 horizontal isocure machines <ul style="list-style-type: none"> <li>- 22”x24”x8” box size</li> <li>- 75# max. core weight</li> </ul> </li> <li>• One CB22 vertical isocure machine <ul style="list-style-type: none"> <li>- 23.5”x21.5”x12” box size</li> <li>- 75# max. core weight</li> </ul> </li> <li>• One U-180 shell machine <ul style="list-style-type: none"> <li>- 20”x29”x6” box size</li> <li>- 70# max. core weight</li> </ul> </li> <li>• Two Redford cold-box bench-blowers <ul style="list-style-type: none"> <li>- 7# max. core weight</li> </ul> </li> <li>• One cold-box bench station <ul style="list-style-type: none"> <li>- 40# max. core weight</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• One 2013 Mark 4 Disamatic molding machine <ul style="list-style-type: none"> <li>- Mold size is 21”x25.6” with mold thickness ranging from 5” to 13”</li> <li>- 100# maximum pour weight</li> </ul> </li> <li>• One 2070 Mark II Type B Disamatic molding machine <ul style="list-style-type: none"> <li>- Mold size is 31.5”x37.4” with mold thickness ranging from 10” to 25”</li> <li>- 275# maximum pour weight</li> </ul> </li> <li>• Pattern-changing system on both machines</li> <li>• Automatic core setting on both machines</li> <li>• PLC Control upgrade including ultrasonic position measuring on the 2013 machine</li> </ul>	<p style="text-align: center;"><b>Finishing</b></p> <p>(Industrial castings only)</p> <ul style="list-style-type: none"> <li>• Two shot-blasting units <ul style="list-style-type: none"> <li>- One BMD continuous blast</li> <li>- One 34GN Tumblast</li> </ul> </li> <li>• Four conventional stand-grind/finish stations in-line with the 34GN blast</li> <li>• Ten conventional chip/grind booths</li> <li>• One Fox automated round-casting grinder with in-line finishing</li> <li>• One Serf trim-press with a Clansman casting manipulator and in-line finishing</li> <li>• One robot-cell with two trim-presses, three Fanuc robots, and a two-station, three-axis milling machine.</li> </ul> <p style="text-align: center;"><b>Shipping</b></p> <p>(Industrial castings only)</p> <ul style="list-style-type: none"> <li>• Seven shipping docks</li> <li>• AIAG Shipping labels</li> <li>• Bar-coding capability</li> </ul> <p style="text-align: center;"><b>Machining</b></p> <ul style="list-style-type: none"> <li>• All industrial machining is outsourced</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Paint Line:</b> (Industrial castings only) <ul style="list-style-type: none"> <li>- High-volume</li> <li>- Black oxide primer</li> <li>- Rust preventative</li> <li>- Drying oven</li> </ul> </li> <li>• <b>Test Laboratory:</b> <ul style="list-style-type: none"> <li>- Two spectrometers</li> <li>- One Leco Carbon/Sulfur analyzer</li> <li>- Full sand-laboratory</li> <li>- One Metallograph with quantitative image analysis</li> <li>- One tensile tester</li> </ul> </li> <li>• <b>Dimensional Laboratory</b> <ul style="list-style-type: none"> <li>- Four Portage layout machines</li> <li>- One Brown &amp; Sharp validator (CMM with PC-DMIS software)</li> <li>- One Faro-arm layout machine</li> </ul> </li> <li>• <b>Nondestructive Testing</b> <ul style="list-style-type: none"> <li>- Magnetic particle</li> <li>- Ultrasonics</li> <li>- Other tests are outsourced (e.g., x-ray, liquid-penetrant)</li> </ul> </li> <li>• <b>Heat-treating</b> <ul style="list-style-type: none"> <li>- All heat-treating is subcontracted</li> </ul> </li> <li>• <b>Manufacturing Area:</b> <ul style="list-style-type: none"> <li>- 165,715 square feet</li> </ul> </li> </ul>

## Neenah Foundry Company Facility and Equipment List – Plant 2

Melt and Metal Processing	Core Room	Molding	Casting Processing	Miscellaneous
<p><b>Iron Grades</b> (Gray Iron):</p> <ul style="list-style-type: none"> <li>• Class 30</li> <li>• Class 35</li> </ul> <p><b>Melt:</b></p> <ul style="list-style-type: none"> <li>• Two 68” refractory-lined water-cooled Hot Blast cupolas with O<sub>2</sub> injection (35 tons per hour)</li> <li>• Two 15-ton horizontal receivers</li> </ul> <p><b>Duplex:</b></p> <ul style="list-style-type: none"> <li>• One 60-ton Inductotherm Vertical Channel furnace</li> </ul> <p><b>Pour:</b></p> <ul style="list-style-type: none"> <li>• Two 10-ton Junker Horizontal Channel (pressurized) stopper-rod automatic pouring furnaces with in-stream inoculation (Disa and BMD molding lines)</li> </ul>	<p><b>Construction Cores Only</b></p> <ul style="list-style-type: none"> <li>• One SCB - 10(9) Shalco Shell machine <ul style="list-style-type: none"> <li>- 15”x10”x6” (3" each half) box size</li> <li>- 10# max. core weight</li> </ul> </li> <li>• One International Rollover Machine <ul style="list-style-type: none"> <li>- 3 ft.x6 ft.x12" max. box size</li> <li>- 2000# max. core weight (approx.)</li> </ul> </li> </ul> <p><b>Construction &amp; Industrial</b></p> <ul style="list-style-type: none"> <li>• One Beardsly and Piper Shell machine <ul style="list-style-type: none"> <li>- 20# max. core weight</li> </ul> </li> </ul>	<p><b>Construction &amp; Industrial</b></p> <ul style="list-style-type: none"> <li>• One BMD air-impulse molding machine <ul style="list-style-type: none"> <li>- 44”x50” flasks with 10” cope and 16” drag heights</li> <li>- 500# maximum pour weight</li> </ul> </li> <li>• One 2070 Type B Disamatic molding machine <ul style="list-style-type: none"> <li>- Mold size is 31.5”x37.4” with mold thickness ranging from 10” to 25”</li> <li>- 275# maximum pour weight</li> <li>- automatic pattern changing system</li> <li>- automatic core setting</li> </ul> </li> </ul> <p><b>Construction Only</b></p> <ul style="list-style-type: none"> <li>• Two B/P Hdroslingers with Davenport Rollovers</li> <li>• Flask sizes: <ul style="list-style-type: none"> <li>- 42"x84" (6" over 20" and 15" over 20")</li> <li>- 52"x72" (6" over 20")</li> <li>- 36"x62" (6" over 13")</li> <li>- 52"x52" (6" over 17" and 12" over 17")</li> </ul> </li> </ul> <p>Maximum pouring weight is 600# on one machine and 700# on the other</p>	<p><b>Finishing</b></p> <ul style="list-style-type: none"> <li>• Five shot-blasting units <ul style="list-style-type: none"> <li>- One horizontal vibratory continuous</li> <li>- Two 34GN Tumblast</li> <li>- One BCP monorail spinner/hanger blast</li> <li>- One Pangborn continuous chain blast</li> </ul> </li> <li>• Four conventional stand-grind stations with in-line finishing</li> <li>• Ten conventional chip lines (2 w/standgrinders)</li> <li>• Four autogrinders (construction only)</li> <li>• One Fox standgrinder</li> <li>• Three in-line cleaning operations with standgrinders</li> </ul> <p><b>Shipping</b></p> <p>(Construction castings only)</p> <ul style="list-style-type: none"> <li>• Sixteen shipping docks</li> <li>• Four stretch-wrap machines</li> </ul> <p><b>Machining</b></p> <p>(Construction castings only)</p> <ul style="list-style-type: none"> <li>• Three drill presses</li> <li>• Six vertical turret-lathe boring mills - 36" - 64"</li> <li>• One lathe</li> <li>• One 30" cut-off saw</li> <li>• Three end-mills</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Test Laboratory (serves plant 2 and plant 3):</b> <ul style="list-style-type: none"> <li>- 2 Spectrometers</li> <li>- Leco Carbon/Sulfur analyzer</li> <li>- Full sand-laboratory</li> <li>- Metallograph with quantitative image analysis</li> <li>- Tensile Tester</li> </ul> </li> <li>• <b>Dimensional Laboratory (serves plant 2 and plant 3)</b> <ul style="list-style-type: none"> <li>- Four Portage layout machines</li> <li>- One Brown &amp; Sharp validator (CMM with PC-DMIS software)</li> <li>- One Faro-arm layout machine</li> </ul> </li> <li>• <b>Nondestructive Testing</b> <ul style="list-style-type: none"> <li>- Magnetic particle</li> <li>- Ultrasonics</li> <li>- Other tests are outsourced (e.g., x-ray, liquid-penetrant)</li> </ul> </li> <li>• <b>Manufacturing Area:</b> <ul style="list-style-type: none"> <li>- 181,125 square feet</li> </ul> </li> </ul>

## Neenah Foundry Company Facility and Equipment List – Other

Pattern Shops	Sales	Product Engineering	Technical Services	Quality Assurance
<ul style="list-style-type: none"> <li>• CAM (Mazak)</li> <li>• Four BOKO F-3 Vertical Milling Machines</li> <li>• One BOKO F-30 Vertical Milling Machine</li> <li>• One BOKO WF-2 Hydro Mill</li> <li>• One MAZAK AJV-60/80 CNC Vertical Machining Center</li> <li>• One MAZAK VTC-50/D Vertical Machining Center</li> <li>• Five Bridgeport Series II Vertical Milling Machines</li> </ul>	<ul style="list-style-type: none"> <li>• EDI</li> <li>• ASN</li> </ul>	<ul style="list-style-type: none"> <li>• CAD</li> <li>• Product design assistance</li> <li>• Pro-engineer</li> <li>• Novaflow and Novasolid</li> </ul>	<ul style="list-style-type: none"> <li>• Product Certification</li> <li>• Technical Seminars</li> </ul>	<ul style="list-style-type: none"> <li>• PPAP</li> </ul>