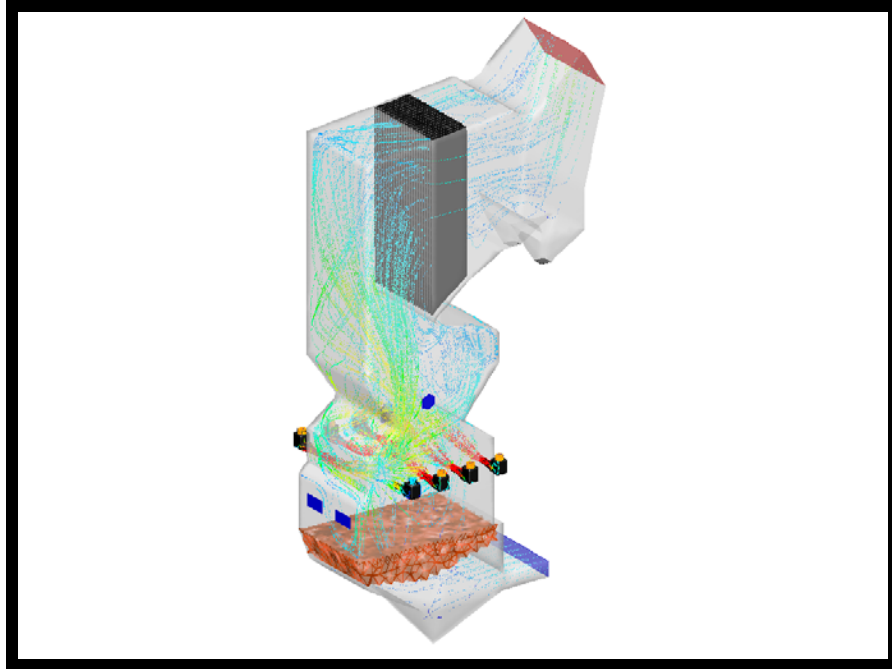


PROJECT CAPABILITIES

COMPUTATIONAL FLUID DYNAMICS (CFD) MODELING

- **Chemical Recovery Boilers**
- **Biomass Boilers**
- **Waste-to-Energy Boilers (MSW & RDF)**



JANSEN uses Computational Fluid Dynamics (CFD) modeling software to analyze fluid flow patterns, fuel combustion processes, fuel capacity, emissions performance, and heat transfer profiles in various boiler-related equipment. The scope of services typically includes boiler data collection, set-up of a model to evaluate current performance, and the use of this model to evaluate conceptual improvements. CFD modeling by JANSEN is conducted in-house by JANSEN engineers.

Applications

Typical areas where JANSEN applies CFD modeling to predict, evaluate, and/or optimize performance of boiler equipment include:

- Modifications to the combustion air delivery system.
- Evaluation of temperature and oxygen distribution in combustion furnaces.
- Optimization of the liquor distribution in recovery boilers.
- Heat transfer analysis in superheaters, generating banks, and economizers.
- Analysis of flow pattern and particulate distribution in inlet ducting to precipitators.
- Evaluation of combustion conditions in waste fuel- and fossil fuel-fired boilers.
- Evaluation of boiler emissions performance (TRS, CO, VOC, SO₂, NO_x, particulates).
- Spray cooler, scrubber, and cascade/cyclone evaporator performance predictions.
- Evaluation of HVLC and LVHC NCG incineration.

Selected References (see next page)



Selected References

Alabama River Pulp Company - Perdue Hill, AL
Appleton Papers - Roaring Spring, PA
APRIL Group - Rizhao, China
AssiDomän Sepap - Štetí, Czech Republic
Boise Cascade Corp. – Int'l Falls, MN (2 units)
Boise - DeRidder, LA (2 units)
Boise - Wallula, WA
Bukocel - Hencovce, Slovakia
Confidential Customer – Canada
Corn Products International - Winston-Salem, NC (2 units)
Covanta Energy - Hartford, CT
Daishowa America - Pt. Angeles, WA
Daishowa Marubeni - Peace River, AB
Domtar Industries - Ashdown, AR
Domtar Inc. - Rothschild, WI
Domtar Papers - Cornwall, ON
Eurocan Pulp & Paper - Kitimat, BC
Georgia-Pacific Corporation - Brunswick, GA
Georgia-Pacific Corporation - Camas, WA (2 units)
Georgia-Pacific Corporation - Clatskanie, OR
Georgia-Pacific Corporation - Crossett, AR
Georgia-Pacific Corporation - Monticello, MS
Georgia-Pacific Corporation - New Augusta, MS
Georgia-Pacific Corporation - Old Town, ME
Georgia-Pacific Corporation - Palatka, FL (2 units)
Georgia-Pacific Corporation - Port Hudson, LA
Graphic Packaging International - West Monroe, LA
Harmac Pacific Inc. - Nanaimo, BC
Inland Paperboard and Packaging - Orange, TX
International Paper Company - Augusta, GA
International Paper Company - Bastrop, LA
International Paper Company - Cantonment, FL
International Paper Company - Corrigan, TX
International Paper Company - Courtland, AL
International Paper Company - Franklin, VA
International Paper Company - Georgetown, SC (2 units)
International Paper Company - Jay, ME
International Paper Company - Mansfield, LA (2 units)
International Paper Company - Pine Bluff, AR
International Paper Company - Pineville, LA
International Paper Company - Prattville, AL
International Paper Company - Saillat, France
International Paper Company - Selma, AL
International Paper Company - Texarkana, TX
International Paper Company - Ticonderoga, NY
International Paper Company - Vicksburg, MS
KapStone Papers - Charleston, SC
Ketchikan Pulp Company - Ketchikan, AK
Kimberly-Clark Corporation - Everett, WA
Koch Cellulose - Brunswick, GA (2 units)
Kruger-Wayagamack, Inc. - Trois Rivieres, QC
Longview Fibre - Longview, WA (2 units)
Maine Energy - Biddeford, ME
Mead Paper - Chillicothe, OH
Mead Paper - Escanaba, MI
Mead Paper - Stevenson, AL
MeadWestvaco - Covington, VA (2 units)
MeadWestvaco - Phenix City, AL (2 units)
Minnesota Power - Duluth, MN (2 units)
Neucel Specialty Cellulose - Port Alice, BC (2 units)
NewPage Corporation - Escanaba, MI (2 units)
NewPage Corporation - Wickliffe, KY (2 units)
Packaging Corporation of America - Counce, TN
Packaging Corporation of America - Tomahawk, WI
Packaging Corporation of America - Valdosta, GA (2 units)
Plum Creek - Columbia Falls, MT
Process Equipment/Barron Industries - Pelham, AL
Rayonier, Inc. - Jesup, GA (2 units)
Riverside Forest Products - Armstrong, BC
Rock-Tenn Company - Demopolis, AL (2 units)
SAPPI North America - Muskegon, MI (2 units)
SAPPI North America - Skowhegan, ME (3 units)
Simpson Tacoma Kraft Co. - Tacoma, WA (2 units)
Smurfit-Stone - Brewton, AL (2 units)
Smurfit-Stone - Hodge, LA
Smurfit-Stone - Missoula, MT
SP Newsprint - Newberg, OR
Stora Enso North America - Biron, WI
Thilmany Paper - Kaukauna, WI
Veolia Dade County - Miami, FL
Veolia Waste-to-Energy - Burnaby, BC
Visy Pulp and Paper - Tumut, Australia
Westvaco Corporation - Silsbee, TX
Westvaco Corporation - Wickliffe, KY
Weyerhaeuser Canada Ltd. - Prince Albert, SK
Weyerhaeuser Company - Columbus, MS
Weyerhaeuser Company - Kamloops, BC
Weyerhaeuser Company - Longview, WA
Weyerhaeuser Company - Springfield, OR
Weyerhaeuser Company - Valliant, OK
Wheelabrator Energy - Baltimore, MD
Wheelabrator Inc. - Spokane, WA
Willamette Industries - Bennettsville, SC
Willamette Industries - Campti, LA