

Purpose:

The purpose of this document is to show Case Brief by Xylem at Life Cycle Innovation Conference (2022) as part of one of sponsored virtual program at this conference by MIT SHINE . This program is titled as “Learn more about how to create Handprints and pursue NetPositive”. The content will also be posted on MIT SHINE Website as Xylem’s Case Brief.

Scope:

This document describes a product being addressed under MIT SHINE’s Handprint methodology, and is a generalized view on handprint methodology calculations and benefits of using MIT SHINE Handprint method.

What is the product being addressed?

Product: Sanitaire TurboMAX Turbo Blowers By Xylem Inc. <https://www.xylem.com/en-in/brands/sanitaire/sanitaire-products/turbomax-turbo-blower/>

Xylem’s municipal and industrial wastewater treatment customers use air from blowers to treat their wastewater streams. In a typical wastewater treatment plant, the blowers in an aeration system consume around 55% of the total energy used by a wastewater treatment plant, making it the single highest energy consumer. A turbo blower produces compressed air with an impeller rotating at high speed. It is used mainly in activated sludge plants; in both municipal and industrial wastewater. The Sanitaire TurboMAX turbo blower range covers 13 different blower sizes (8.8 - 736 kW) and flow rates of 300 to 41,000 m3/hour per blower, satisfying oxygen demands for plants of 5,000 Population Equivalent (PE) and above.



This wide range of models allow for more flexibility in designing a system to more accurately meet your needs without over or under-sizing the blowers. The TurboMAX series helps larger-sized wastewater treatment plants achieve their treatment goals while saving energy and operating costs.

TurboMAX is based on centrifugal blower technology, which eliminates low-frequency pulsating flow and ensures less noise emissions. The high-speed permanent magnet synchronous motor provides high efficiency at varying loads with no slip and no mechanical losses. Flow control is achieved by an integrated Variable Frequency Drive (VFD) which allows for a wide operating range on both pressure and flow. Also, the impeller is directly connected to the motor shaft resulting in zero transmission losses.

Installation of a blower is simple, and the blower is ready to use upon delivery with IP52 class protection, and IP 54 with outdoor enclosure on request. The unit does not require a concrete foundation and it has adjustable feet. TurboMAX is CE compliant and manufactured in accordance with ISO 9000 and 14000 standards.

How is a Handprint created?

Xylem launched their 2025 Sustainability Goals in 2019 including 4 Customer Sustainability Goals related to Xylem's innovative products and solutions. These goals are developed by considering customer needs and aimed at helping Xylem's customers to reduce their environmental footprints with the help of Xylem's innovative products and solutions and simultaneously increase Xylem's handprint.

While creating handprint for one of Xylem's Customer Sustainability Goal; "Reduce water's CO₂e footprint by over 2.8 million metric tons", Xylem gathered data from product owners/managers, and engineering team about products' technical specifications. Those technical, and commercial specifications include but are not limited to average power consumptions across product line, running hours, energy efficiency improvements, average product lifetime and sales volume. Energy efficiency improvement is calculated against energy efficiency of our old legacy product such as in this case traditional blowers.



Why is Xylem assessing Handprints?

Xylem is assessing handprints through MIT SHINE's handprint methodology, as it is aligned with ISO 14044, which uses 'lifetime impact' approach.

Leveraging MIT SHINE's handprint or lifetime impact method as per 'Sales Year Accounting' approach is better for record keeping, data gathering and reporting as this method allows us to report positive impact or handprint of our products for their full lifetime in the same year as when product is sold.

The MIT SHINE methodology helps large and complex organizations like us with thousands of products in our portfolio to improve data collection, calculations and reporting related to products which are included in handprint goals.



How Xylem used Handprint data at IFAT (World's largest trade fair on water related technologies) <https://info.xylem.com/en-countdown-to-zero.html>

Xylem presented handprint data for some of their products as "Product Sustainability Cards" at the exhibition. These cards were available in the form of a QR code at product booths at the exhibition and QR codes were made available to customers or visitors to scan. This would eventually take visitors to the landing page wherein they would be able to view saved emissions by using more efficient products.