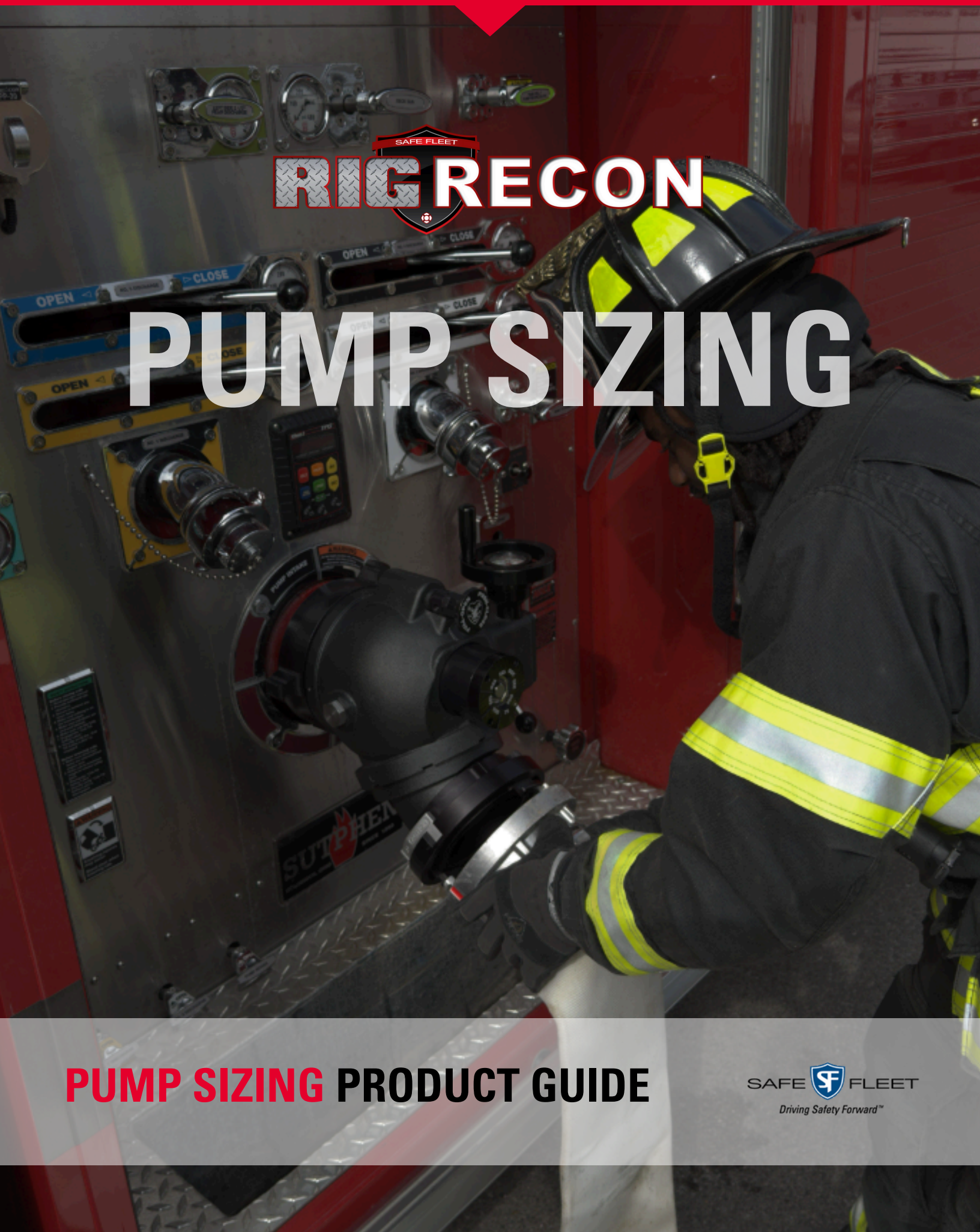


PUMP SIZING

PUMP SIZING PRODUCT GUIDE

SAFE FLEET
Driving Safety Forward™

PUMP SIZING

WATER ON THE FIRE...HOW DOES IT GET THERE?

There is a well known saying in the fire service, “200 years of tradition unimpeded by progress.” The number of years might change depending on the age of your department, but the theory is that in many ways the fire service is held back by their traditions. This can be true in some ways we operate, but the equipment we operate on and with has certainly changed greatly over time. Another old adage, not specifically attributed to firefighters is, “Keeping up with the Joneses.” This saying comes into play quite often when specifying the fire pump size on a new apparatus. All too often the goal is to be bigger than the last one, without truly considering the functionality.

One of the most important things to consider and understand when sizing a fire pump is that the ratings published by pump manufacturers are based on drafting operations. If a specific fire pump is rated at 1,500 gallons per minute (GPM), that rating is determined based on its ability to draft water from a static source with lift involved. From a pressurized source, that 1,500 GPM rated pump can deliver a much higher flow, well over 2,000 GPM with the limiting factors being the number of discharges and the pressurized source feeding the pump.

For example, let’s assume you have a target goal of flowing 2,250 GPM from an apparatus through a deck gun, a portable monitor, and a few handlines. You line up three apparatus with identical discharges and feed each with an ample pressurized water source. Rig (A) is equipped with a 1,250 GPM pump, Rig (B) with a 1,500 GPM pump, and Rig (C) with a 2,000 GPM pump. You may be surprised to find that all three of those apparatus would be capable of delivering the 2,250 GPM flow, and even more if the pressurized feed coming into the apparatus was sufficient.

The important thing to consider when sizing a pump is the operating environment, including the water sources in your primary response district, and if you do require drafting, how much lift will be required to reach the water source, this will impact flow capabilities.

SAFE FLEET RIG RECON™

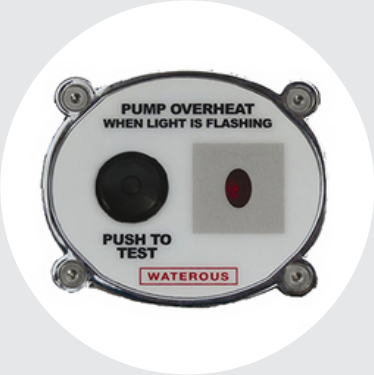
PUMP OPERATION

PROTECTION

EFFICIENT

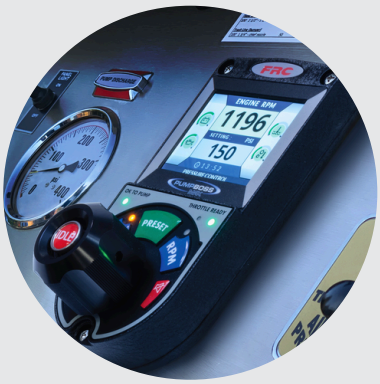
FRC
A Safe Fleet Brand

THE HEART OF THE APPARATUS



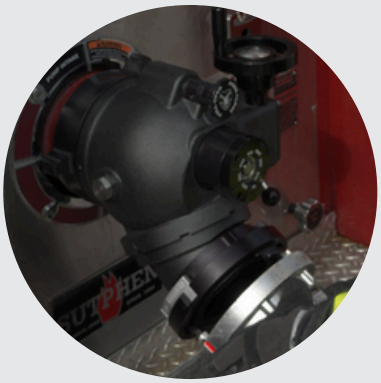
THERMAL PROTECTION

When water is not moving water through the pump and out of a discharge the water can heat up which can be detrimental to the life of the pump. A thermal protection system should be specified on all apparatus, some systems only provide an indication that the temperature is high and rely on the operator to correct the issue, while advanced systems will open a small discharge to move water through and out of the pump.



PRESSURE GOVERNOR

A fireground is a chaotic scene and the pump operator may have their attention drawn in many directions. Equipping the apparatus with an advanced pressure governor like the FRC Pump Boss Max provides protection not only to your crew but also to the pump system.



INTAKE VALVE

In order to deliver water to the fire scene it must first get into the pump. Intake devices are designed to bleed off air and provide protection, its important to make sure your intake appliance does not restrict flow. The Elkhart XD Intake provides unrestricted flow with only 2 psi of pressure loss at 2,000 gpm on the low profile configuration, and a large push/pull pressure-balanced bleeder valve for efficient operation.