

TurboDraft™

F I R E E D U C T O R



- Gain access to remote water supplies
- Generate usable fire flows up to 670 GPM
- Extend the suction lift of standing dry hydrants
- Ideal for dewatering in flood emergencies
- Setup is quick and easy
- Technology proven for over 50 years
- Virtually maintenance free
- Lightweight and compact



NO HYDRANT—NO PROBLEM

TurboDraft™

WATER EDUCTOR FOR FIRE FIGHTING

TAP WATER SOURCES IN REMOTE LOCATIONS

Rural fire companies need creative solutions to utilize water sources that are not accessible using typical drafting techniques. Schutte & Koerting's TurboDraft Fire Eductor allows fire companies to tap into water supplies like ponds, streams, and swimming pools up to 250' away and can generate flows up to 670 GPM.

The 5" unit weighs 52 lbs.

TURBODRAFT SETUP

TurboDraft setup is quick and simple. TurboDraft is placed in a convenient water source remote from the fire truck with a 2.5" discharge and a 5" or 6" supply hose connected to the unit. (See Figure 1)

TURBODRAFT OPERATION

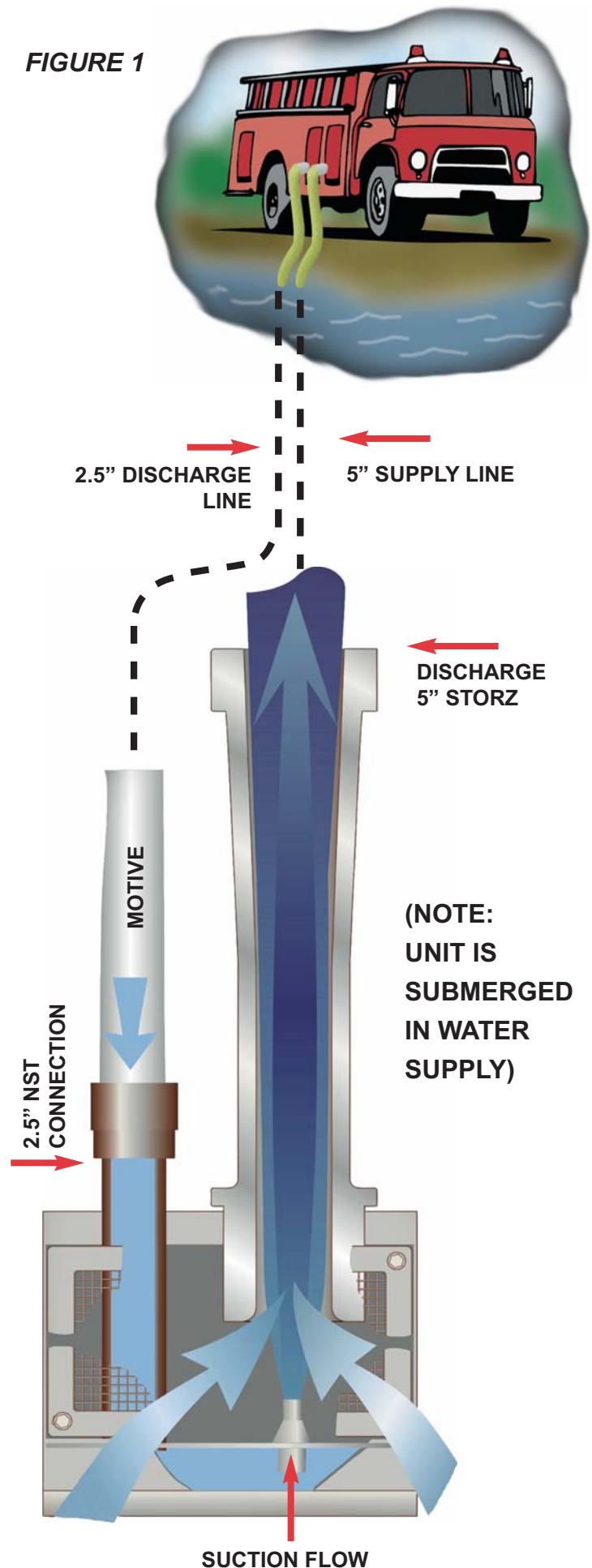
Once the TurboDraft Fire Eductor has been set up it can be quickly placed into service. The steamer suction valve is left closed and its air bleeder is opened. The 2.5" line is charged to approximately 175 psig. The force of the flow combined with TurboDraft eductor technology creates a suction which draws water from the standing water supply. As this happens, the return line is charged back to the fire truck. Once the air is bled from the supply line the bleeder is closed and the steamer valve is opened. At this point the water supply has been established. 200 GPM is re-circulated through the truck to maintain a continuous flow and 670 GPM is available to supply tanker trucks or fill portable tanks. Usable fire flow will vary based on elevation and hose friction loss. (See Table 1)

Table 1

Distant Water Source Situation ^{1,2,3} for 5" Unit			
Length of 5" Hose	Lift	Pump Discharge Pressure	Max. Avail. Fire Flow ^{1,2}
50'	10'	175 psig	670 GPM
	20'	175 psig	470 GPM
100'	10'	180 psig	570 GPM
	20'	180 psig	400 GPM
150'	10'	185 psig	480 GPM
	20'	185 psig	325 GPM
200'	10'	190 psig	440 GPM
	20'	190 psig	280 GPM

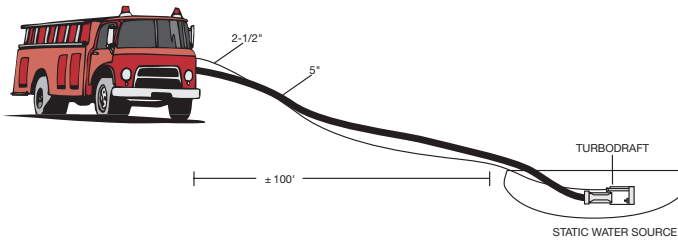
NOTE: Using 6" supply line can increase unit output by decreasing line friction losses.

FIGURE 1



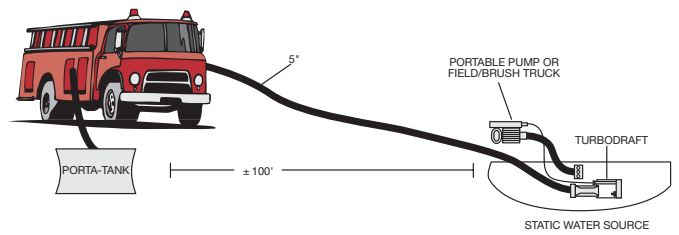
FIRE FIGHTING APPLICATION CHALLENGES

1. Access to a water source is more than 30 feet and typical drafting techniques cannot be implemented



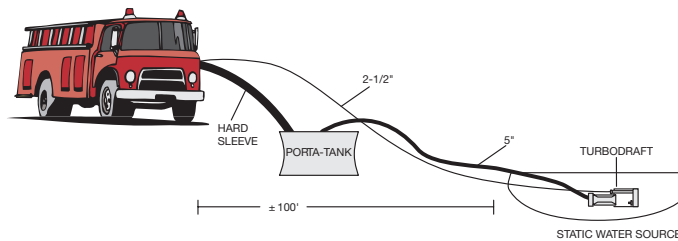
Solution A

By stretching a 2 1/2" supply line and a 5" or 6" return line, usable water supply of 600 GPM or more can be achieved at a distance of over 100 feet. Actual usable water supply will be determined by discharge line loss and elevation differences between water source and pump suction.



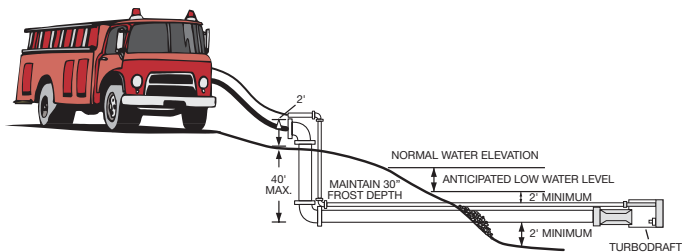
Solution B

Utilize a portable pump or truck mount pump (minimum rating of 200 gpm @ 150 psi) to supply the TurboDraft Fire Eductor. Achieve usable fire flows of 800 GPM or more.



Solution C

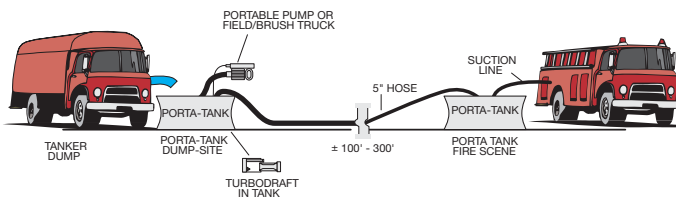
One or more TurboDraft units operating to fill a portable tank allowing pumper to have access with hard sleeve hose. TurboDraft lines are directed into tank while pumper drafts to supply the units as well as the fire ground or to fill tankers.



Solution D

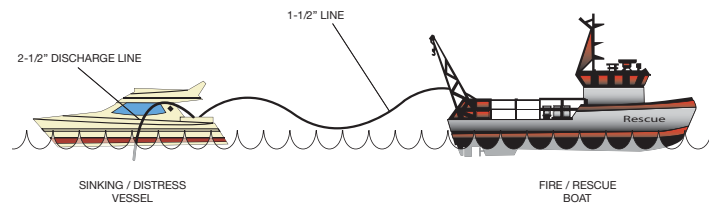
Permanently install TurboDraft at the base of a dry hydrant to overcome friction and elevation losses to increase dry hydrant output. Fire flows at elevations up to 40' can be achieved.

2. Due to congestion at the fire scene, portable tanks for tanker delivery need to be set up at remote location



TurboDraft can be used in conjunction with a portable pump to provide constant flow between remote tanks and fire scene supply tank. Flow from the remote tanks can be controlled by a gate valve in the 5" supply line. If discharge line is blocked, supply line flow is discharged into portable tank and recycled.

4. Marine dewatering



2 1/2" TurboDraft unit can be utilized to dewater marine units during emergency situations. The unit is submerged into the lowest possible point on the vessel in distress. A 1 1/2" line is pumped from the rescue boat (60 gpm @ 150 psi) to the TurboDraft and a 2 1/2" line is discharged from the TurboDraft over the gunnels of the distressed vessel.

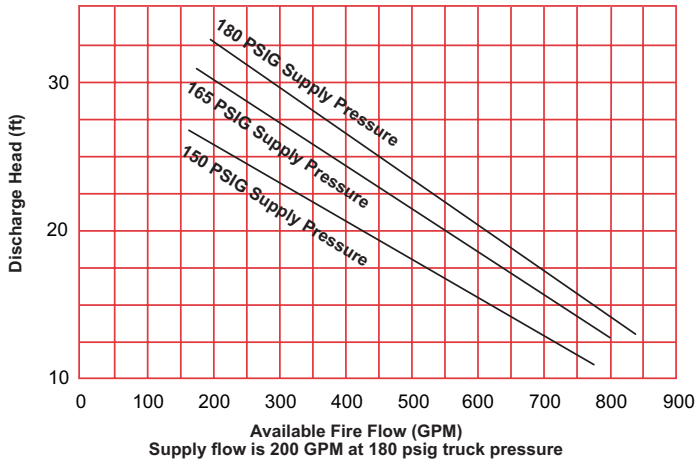
3. Flood mitigation and water transfer

TurboDraft can also be employed in emergency flood situations. TurboDraft's ability to transfer large volumes of water in a short amount of time makes it a critical piece of equipment for dewatering basements and other low-lying areas where water collects.

Homeland Security-Municipal Emergencies

Although the TurboDraft was designed with the rural fire department in mind, large municipal departments can also utilize the TurboDraft eductor technology. The majority of city-based departments are generally not equipped for non-hydrant water supply operations. During natural or man-made emergencies municipal water supply systems can be rendered useless. The TurboDraft allows departments with basic hose lines and minimal training to access static sources for fire suppression as well as flood mitigation operations.

TurboDraft Performance for 5" Unit *Graph 1*



¹ Theoretical, based on test curves of 9/21/99 and hose friction loss per NFPA® Fire Protection Handbook, 15th Edition, Table 17-7H, actual friction losses may vary depending upon hose and coupling design/manufacture.

² All flows achievable with 1,000 GPM rated pumper based on NFPA recommended pump curves. Use larger pumper where maintenance/performance is questionable.

³ Minimum available flow from a water source recognized by ISO for grading purposes is 250 GPM. ISO does not recognize drafting sources requiring a lift in excess of 18' (This is not a drafting device as it operates under pressure.)

TurboDraft™

WATER EDUCTOR FOR FIRE FIGHTING

PROVEN TECHNOLOGY

Schutte & Koerting eductors have been used in thousands of industrial applications for more than a century. They employ the venturi principle to create flow and increase pressure. Eductors use the kinetic energy of one liquid to create motion in a second liquid. With no moving parts to break, eductors are one of the most reliable technologies ever invented.

S&K water eductors for fire fighting have been standard equipment on every U.S. Navy ship since WWII. The same eductor technology has also been used in fire fighting for more than thirty years in foam eductor systems.

For more information about the S&K Fire Eductor, contact Schutte & Koerting today.

Patent Pending
TurboDraft™ is a trademark of Schutte & Koerting.



2 1/2 INCH TURBODRAFT FIRE EDUCTOR

The 2 1/2" TurboDraft uses the same Venturi technology as our standard 5" unit. The unit was designed with the Wildland Firefighter in mind—allowing firefighters to gain access to swimming pools, water holes, and portable tanks. The unit's light weight and compact size allows for easy storage on smaller brush fire rigs, and can be easily deployed by one firefighter.



The removable suction strainer allows the unit to be easily adapted to low level strainers or hard sleeve suction hose. The unit can also be connected directly to above ground cisterns to increase the delivery rate.

The 2 1/2" unit uses a 1 1/2" supply line and a 2 1/2" discharge line and weighs 22 lbs.

Distant Water Source Situation ¹ for 2 1/2" Unit			
Length of 2 1/2" Hose	Lift	Pump Discharge Pressure	Max. Avail. Fire Flow
50'	10'	175 psig	264 GPM
	20'	175 psig	185 GPM
100'	10'	180 psig	224 GPM
	20'	180 psig	157 GPM
150'	10'	185 psig	189 GPM
	20'	185 psig	128 GPM
200'	10'	190 psig	173 GPM
	20'	190 psig	110 GPM



2510 Metropolitan Drive
Trevose, PA 19053
tel: (215) 639-0900
fax: (215) 639-1597
email: turbodraft@s-k.com

www.turbodraft.net

