



# Gravimetric Blending System (GBS)

## Precise Blending of Fuels

At CFR Engines Inc. (CFR®), we understand the importance of precision and accuracy when it comes to fuel blending.

Our new Gravimetric Blending System (GBS) is engineered to provide the highest level of accuracy, ensuring that primary, secondary, and standard reference fuels, essential for the calibration and standardization of the CFR Engine, are blended with remarkable unmatched precision of  $\pm 0.2\%$ .

## Compliance

The GBS is compliant with all procedures of the current ASTM Methods:

D2699 – Research Octane Number  
D2700 – Motor Octane Number  
D613 – Cetane Number

## Reliability

A highly engineered system utilizes computer controlled electric pumps to minimize set-up requirements. This allows the user to meet blending tolerances consistently as per ASTM requirements.

## Efficiency

Boost your operational efficiency by blending your reference fuels quickly. Compared to single mixture competitive offerings, our innovative dispensing system allows blending of up to 3 different mixtures on-demand. Eliminate waste and reduce production costs with precision blending that gets it right time and time again.

## Accuracy

Precise blending of standardization fuels is critical to meeting the exactness that a documented and dependable Octane or Cetane Number test requires. Our proprietary closed-loop feedback system, operating seamlessly from scale to blend, monitors and adjusts to guarantee an accuracy of  $\pm 0.2\%$

The components are meticulously weighed and mixed in a controlled environment to ensure a linear blend.

## Connectivity

Two-way modbus over ethernet communication is established between the GBS and XCP for traceability and efficiency.

## Safety & Security

Provisions for remote filling from 55 gallon drums, and level sensors for overflow protection.

Individual operator logins, additional logins for supervisors, maintenance, and CFR Service Support.

- Seamless integration with XCP TECHNOLOGY to enter desired fuel recipes, and to push / pull data
- Large HMI Panel for formulation selection (touch screen)
- The ability to store standard recipes and options for manual input
- Traceability database with ability to store specific blend operation data by operator (ISO 17025)
- Remote monitoring from XCP devices
- Robust fuel pumps and simple calibration through HMI
- 6 fuel tanks, each with a capacity of 10 liters, plus a fuel level indicator that provides notification of an empty tank
- Mobile wheeled cabinet with safety interlocks



## Trusted Design & Reliability

In the realm of internal combustion engine research and development, precise control over fuel composition is vital to understanding combustion behavior, emissions characteristics, and overall engine performance.

With a proven track record of delivering cutting-edge solutions worldwide, CFR is the trusted partner you need for octane and cetane testing precision blending. Our commitment to innovation and customer satisfaction sets us apart, and our Gravimetric Blending System (GBS) is no exception.

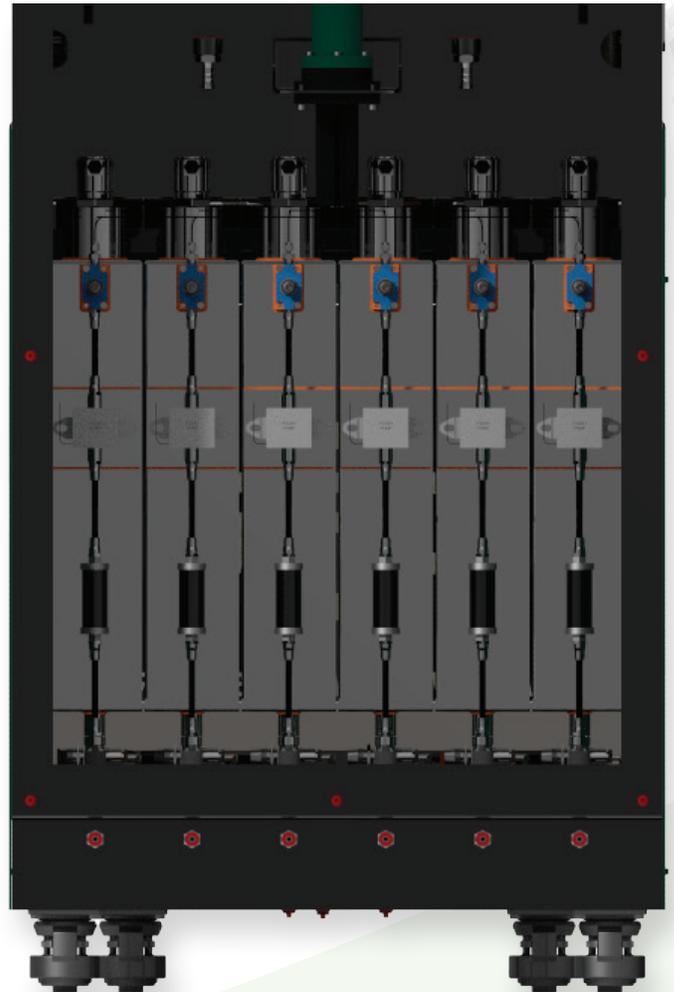
## Configurations

GBS:

p/n: A210700

## Specifications

- Approximate H x W x D:  
155 cm (61 in) x 67.3 cm (26.5 in) x 81.3 cm (32 in)
- 110-220 volt, 50-60 hz, single phase
- In-Line Filters
- $\pm 0.2\%$  Accuracy



Database
Tanks
Settings
Users

Stop

MON - PRF: 84.0

ISO Octane	130	130.0
80 Octane	520	520.0

MON - TSF: 85.2

Toluene	481	0.0
ISO Octane	32	32.5
nHeptane	136	36.0

MON - PRF: 86.0

ISO Octane	195	0.0
80 Octane	455	0.0

**674.7 g**

20.0.1f1

## Blend History

Blend ID	DateTime	User	Type	Value	Volume	Cannister
18	2023-09-22 10:12:26	Josh	MON - PRF	86.0	650.0	3
17	2023-09-22 10:10:54	Josh	MON - TSF	85.2	650.0	2
	Compound	Source Tank	Req. Volume	Act. Volume		
		4	481.0	481.0		
		2	32.5	32.5		
		1	136.5	136.45		
16	2023-09-22 10:09:31	Josh	MON - PRF	84.0	650.0	1
15	2023-09-21 13:50:18	Rob	MON - PRF	80.0	500.0	1
14	2023-09-21 13:44:51	Rob	User	0.0	500.0	2
13	2023-09-21 13:41:16	Rob	MON - PRF	86.0	500.0	1
12	2023-09-21 13:40:00	Rob	MON - TSF	85.2	500.0	2
11	2023-09-21 13:38:52	Rob	MON - PRF	84.0	500.0	1
10	2023-09-21 13:12:30	Josh	MON - PRF	80.0	600.0	1
9	2023-09-21 13:09:54	Josh	MON - PRF	80.0	650.0	1
8	2023-09-21 10:56:08	Josh	User	0.0	650.0	1
7	2023-09-21 10:52:17	Josh	RON - PRF	98.0	500.0	3
6	2023-09-21 10:51:01	Josh	RON - TSF	96.9	500.0	2
5	2023-09-21 10:49:53	Josh	RON - PRF	96.0	500.0	1
4	2023-09-20 21:38:08	Josh	MON - PRF	86.0	500.0	3
3	2023-09-20 21:36:51	Josh	MON - TSF	85.2	500.0	2
2	2023-09-20 21:35:44	Josh	MON - PRF	84.0	500.0	1

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Form C480, Revision A

