



The World of Worthington



... IN 90 COUNTRIES.



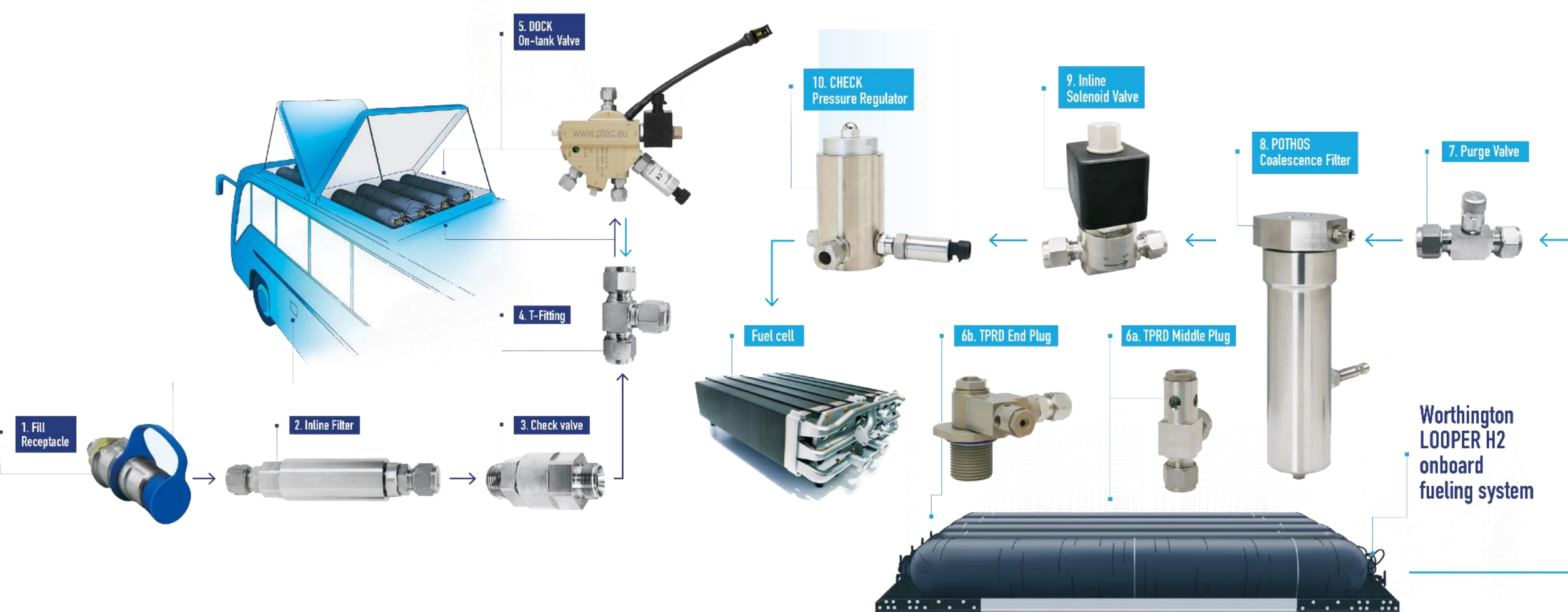
WORTHINGTON EUROPE





WORTHINGTON INDUSTRIES GERMANY

H2 GAS STREET COMPONENTS FOR BUSES



MAKERS OF BETTER



WORTHINGTON INDUSTRIES POLAND



Composite Cylinder facility



Worthington Industries

POLAND

Producing composite cylinder systems for alternative-fuel commercial vehicles and the virtual pipeline





WORTHINGTON INDUSTRIES AUSTRIA

Each year 400 employees in Kienberg process 27,000 tons of steel, the equivalent of 2.5 Eiffel Towers, for revenue of € 100 Million.

TYPE IV

COMPOSITES PLANT



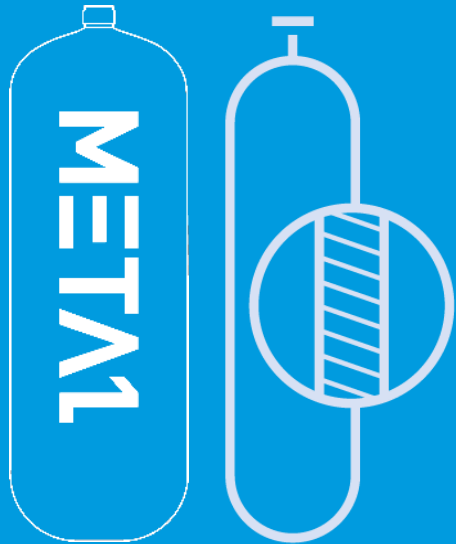
FOURTIS

T4 – 350 L 300 BAR





TYPE I



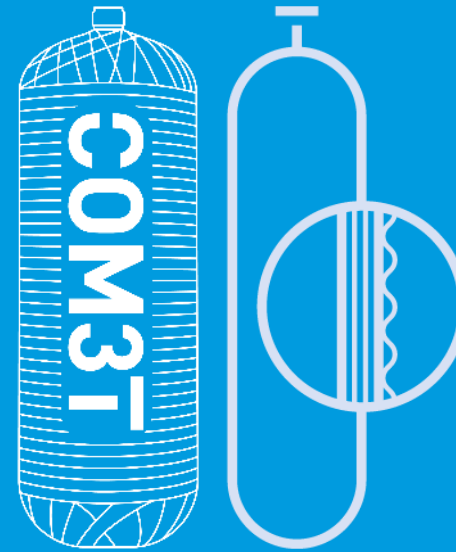
Metallic Cylinder

TYPE II



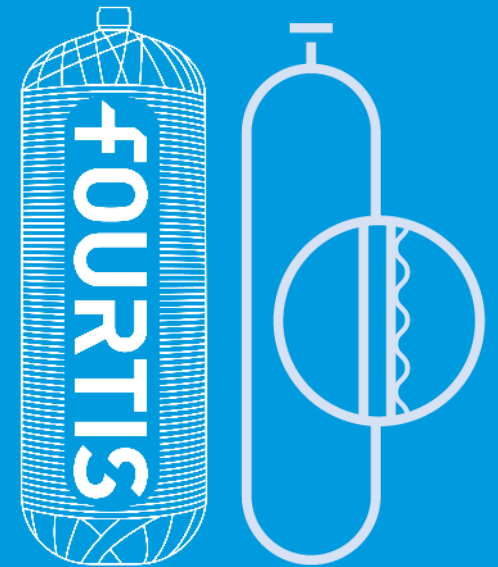
Hoop-wrapped
carbon fiber
Metallic Cylinder

TYPE III



Polar-wrapped fiber
Metallic Cylinder

TYPE IV



Polar-wrapped fiber
Plastic Liner

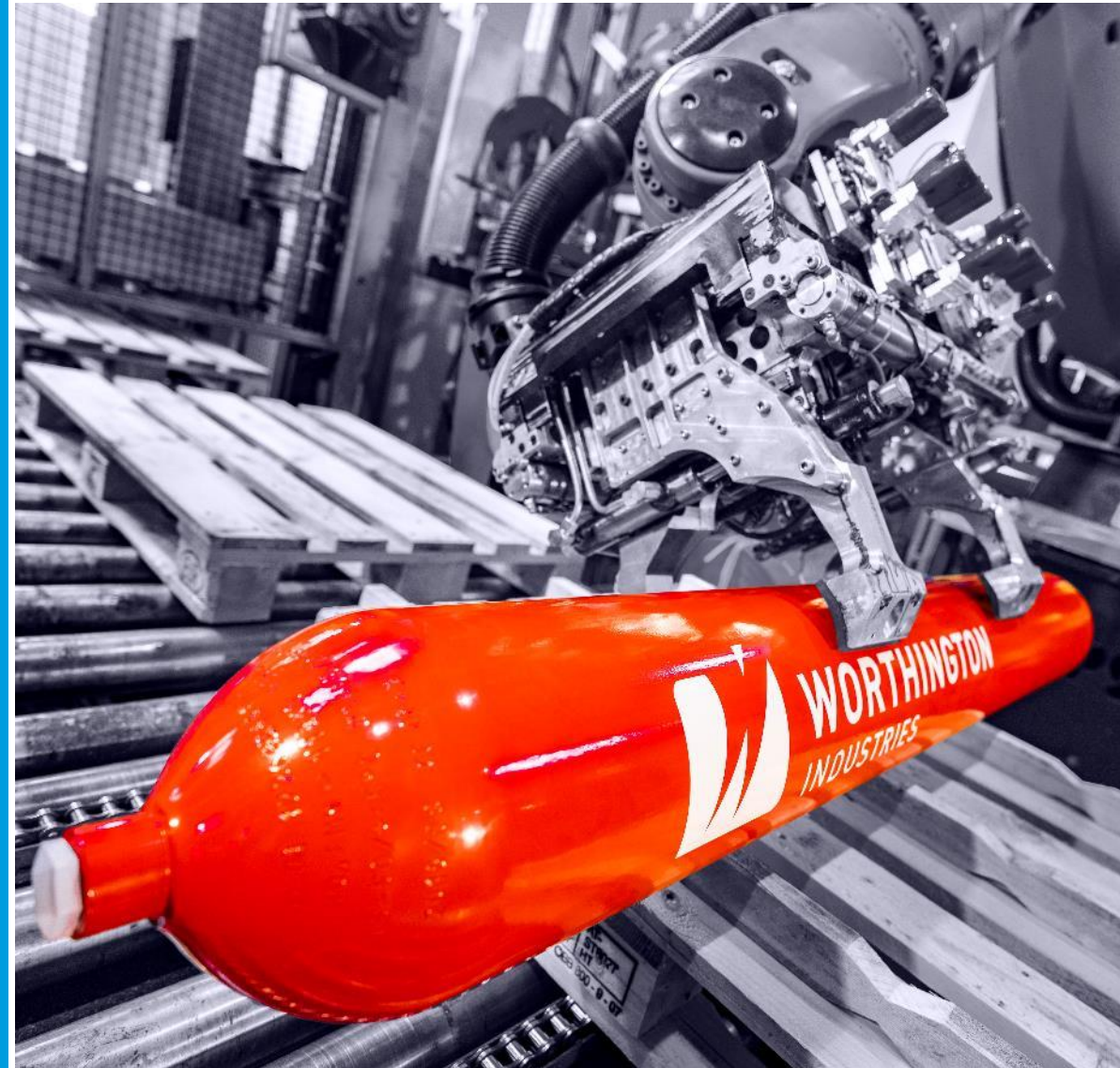


**THE BEST GAS
PACKAGING FOR THE
BEST PERFORMANCE**



Product Features and Services:

- Focus on light weight steel cylinders
- Benchmark in paint-finish
- Benchmark in internal cleanliness
- Quick response times
- Large standing circle
- Excellent on-time delivery performance
- Reliability – we keep what we promise





Responding to your feedback MAX9 delivers:

- Increased capacity* Industry recognized footprint*
- Improved operational efficiency
- Enhanced user experience
- Ergonomic design
- Complete solution (One-stop shop)
- Maximum space optimization
- Compatible with all inert gases, O₂ & H₂
- Digitally enabled variant available

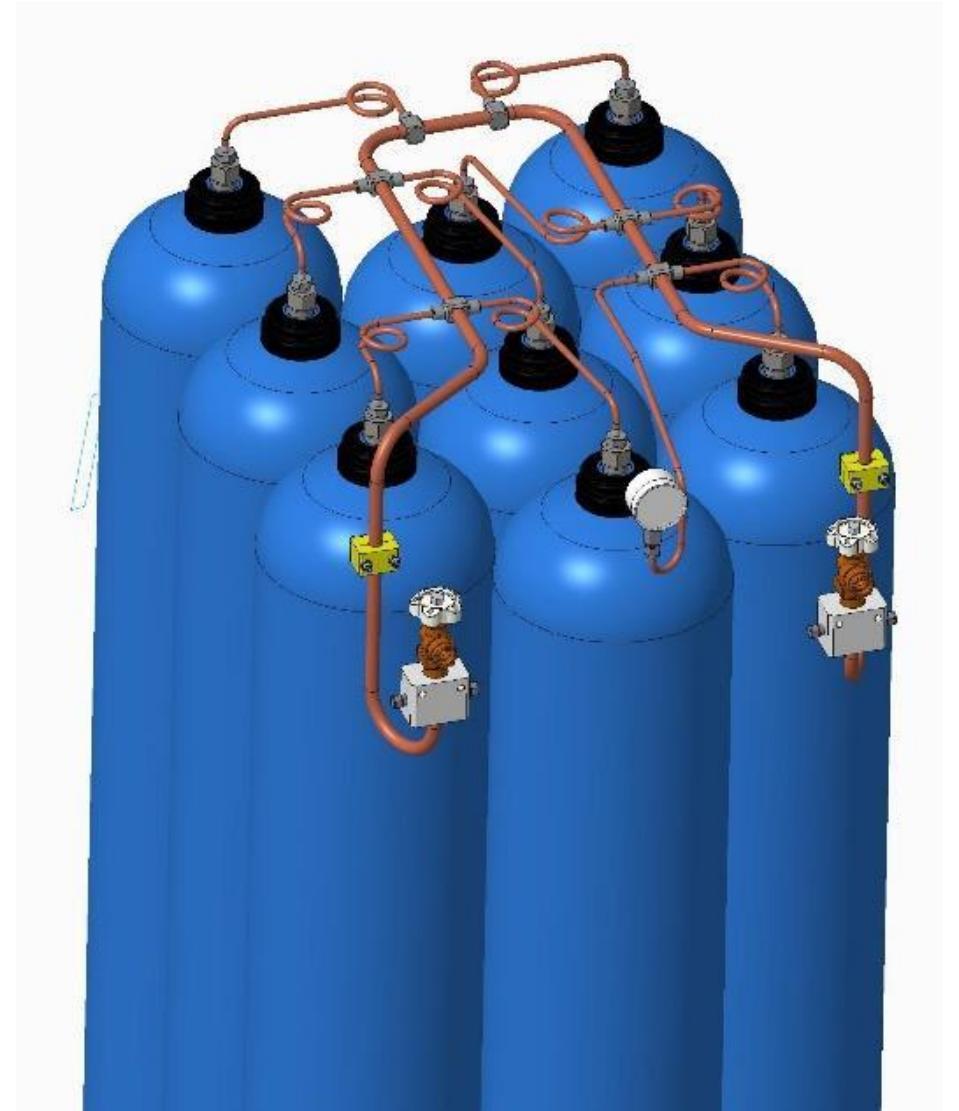
*compared with standard 12 x 50L offerings





MAX9 Bundle

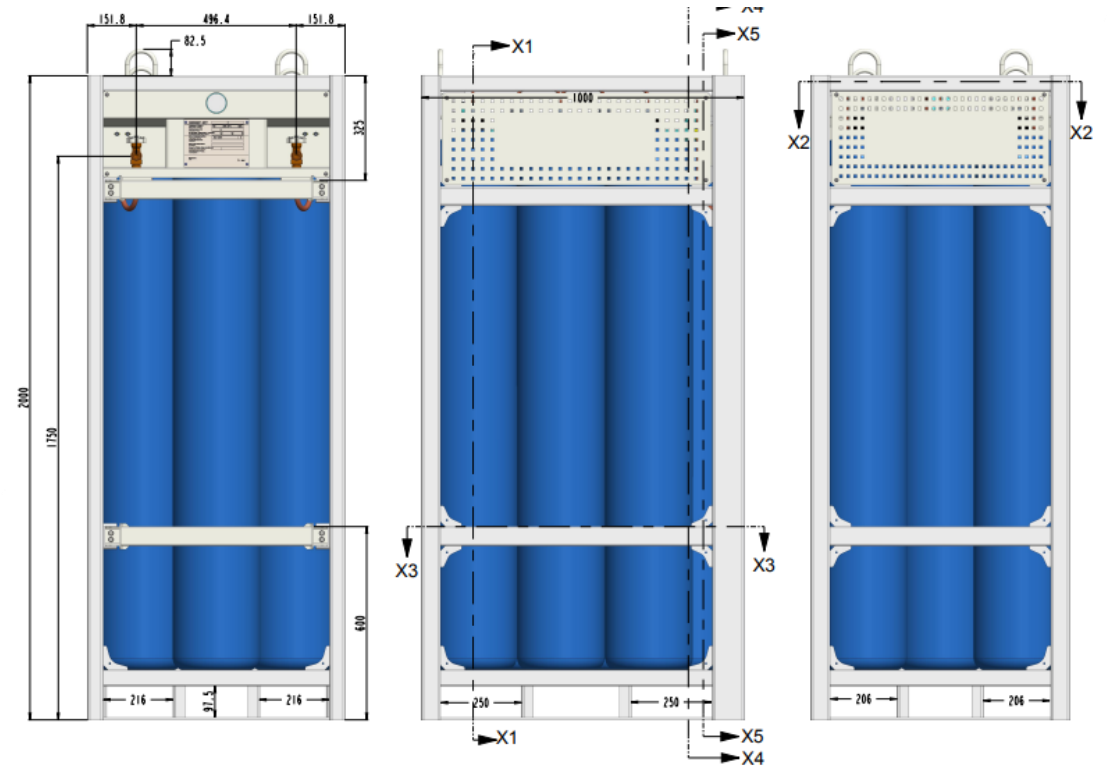
The 9 x 82 L cylinder configuration, gives you 25% more capacity on average compared with the standard 12 x 50 L offering.



MAX9

Technical specifications

Configuration:	9 x 82 L
Total water capacity (litre):	738 L
Working Pressure:	300 bar
Test Pressure:	450 bar
Standards/Specification:	EN ISO 10961
Approval:	TPED
Width (mm):	800
Length (mm):	1000
Height (mm):	2000
Tare weight (kg):	1150
Gross weight (kg):	1500 (Ar)
Outlets:	Dual 25E
Gas(es):	Inert, O ₂ , H ₂



MAX9 Variants

Cylinder	Working pressure	Gas type	More capacity	Standard bundle
9 x 82 L	300 bar	Inert & O2	+ 23%	12 x 50 L 300 bar
9 x 85 L	200 bar	Inert & O2	+ 27,5%	12 x 50 L 200 bar
9 x 84 L	200 bar	Hydrogen	+ 26%	12 x 50 L 200 bar
9 x 84 L	250 bar	CNG	+ 12 %	12 x 50 L 250 bar



MAKERS OF BETTER

MAX12 Variants

Cylinder	Working pressure	Gas type	More capacity	Standard bundle
9 x 82 L	300 bar	Inert & O2	+ 23%	16 x 50 L 300 bar
9 x 85 L	200 bar	Inert & O2	+ 27,5%	16 x 50 L 200 bar

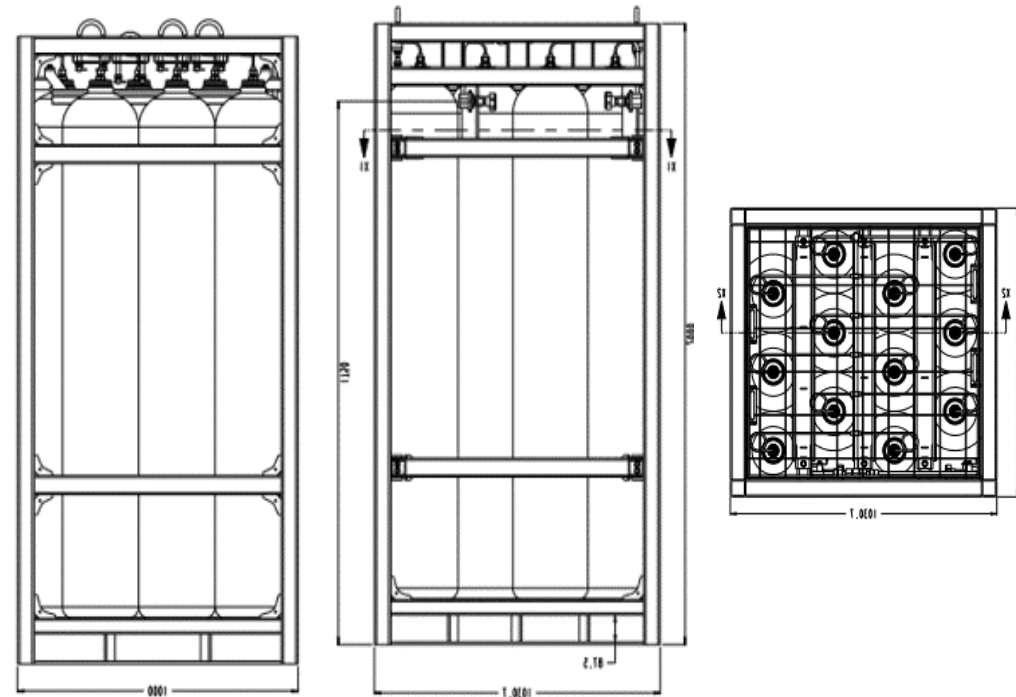


MAKERS OF BETTER

MAX12

Technical specifications

Configuration:	9 x 82 L
Total water capacity (litre):	984 L
Working Pressure:	300 bar
Test Pressure:	450 bar
Standards/Specification:	EN ISO 10961
Approval:	TPED
Width (mm):	1030
Length (mm):	1030
Height (mm):	2000
Tare weight (kg):	1500
Gross weight (kg):	2000 (Ar)
Outlets:	Dual 25E
Gas(es):	Inert, O ₂ , H ₂



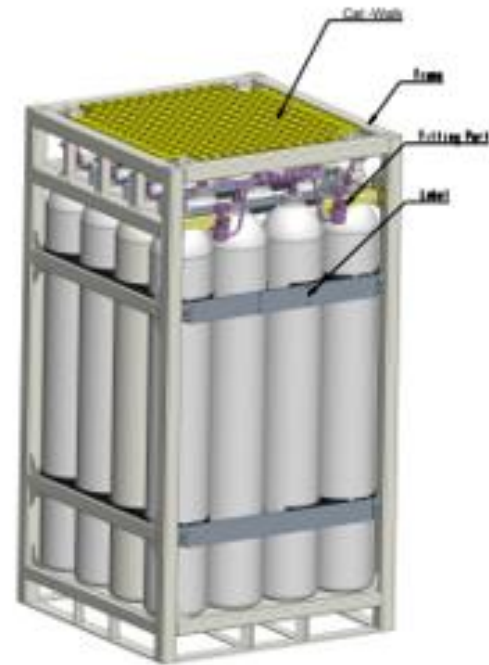
MAKERS OF BETTER



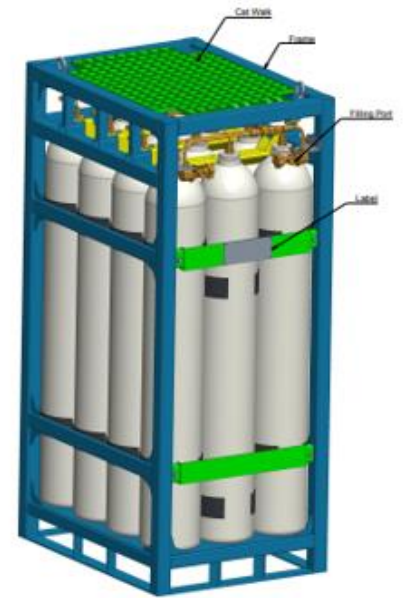
MAX9



MAX12



SATURN16



SATURN12



VERTICAL-DESIGN

28 x 50 L 229 mm =
1400 L

Layout for Stationary &
Mobile (ISO 10961)

Features:

- Grounding point on all sides
- Add-ons for stack solution
- Ground fixation (earthquake)





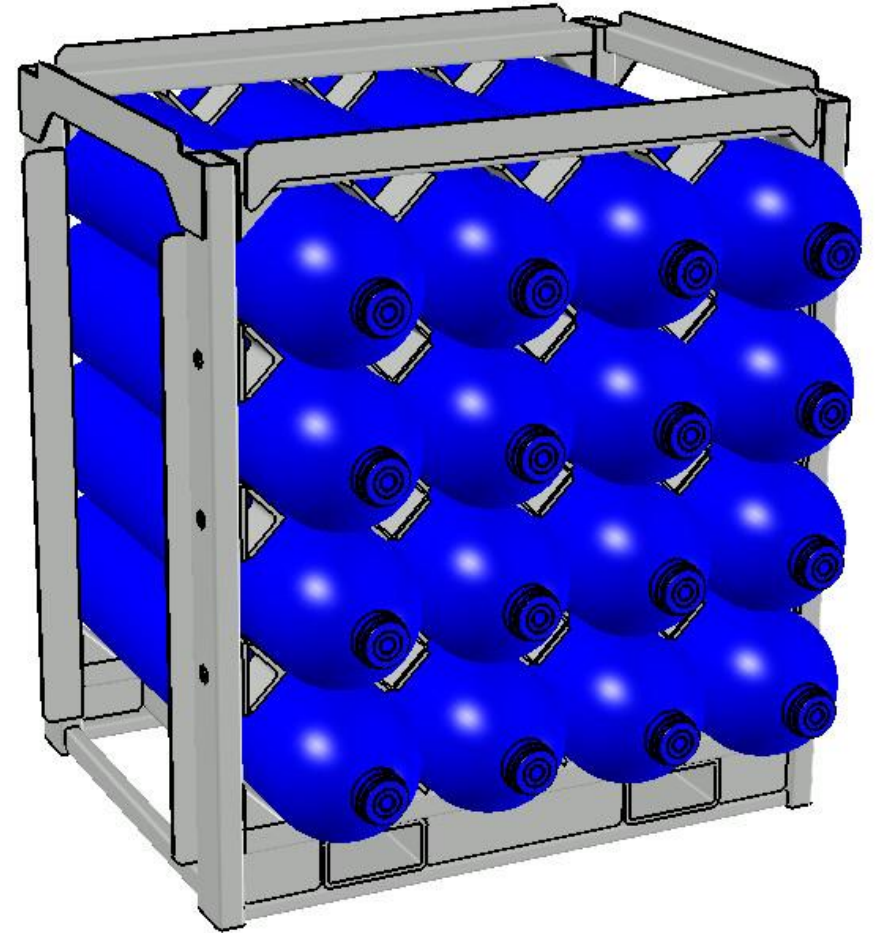
HORIZONTAL-DESIGN

16 x 50 L

267 mm ϕ

= 800 L

Stationary





4 x 20 ft.

**Containers with
Type 3 Cylinders
produced before
take over by
Worthington.**





Produced in
Poland / India

32 x 282 L 250
BAR
(9.024 L) 10 ft.

Type 3 Cylinders





MEGC

10 ft.

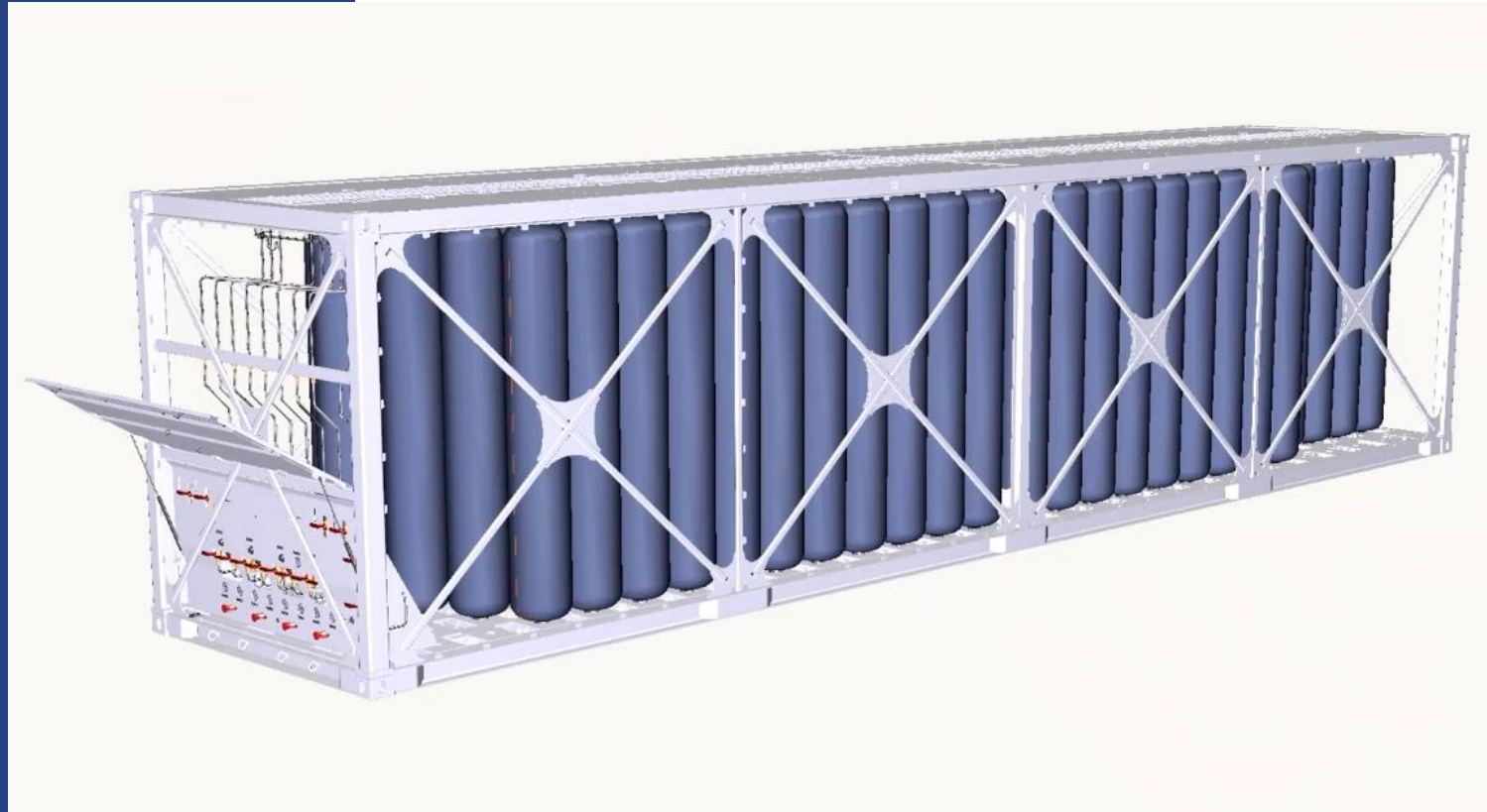
20 ft.

40 ft.

Batterie vehicles

1.100 kg H₂

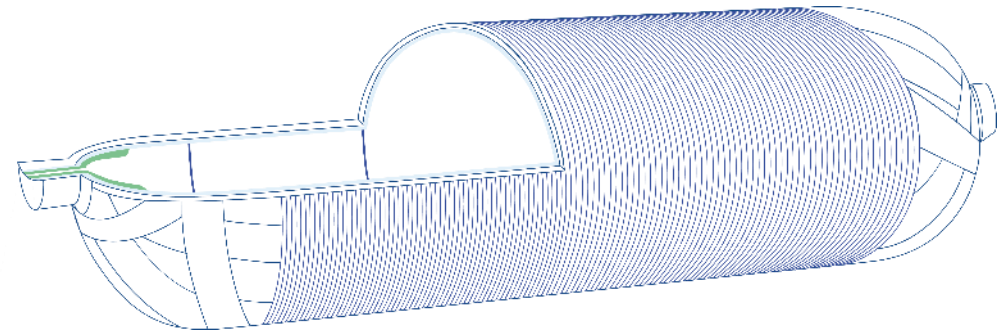
@300 BAR



T4 MEGC: 10 ft., 20 ft., 30 ft., 40 ft.

Hydrogen Gas Transport	Approval Standard	Container Size [ft]	Dimensions [mm]			Working Pressure [bar]	Amount of cylinders	Capacity [l]	*Hydrogen Gas Capacity [kg] 15 °C	Empty Weight [kg]
			H	W	L					
T4	EN 12245	40	2 591	2 438	12 192	300	113	39 550	848	20 547
	EN 12245	30	2 591	2 438	9 125	300	75	26 250	536	14 225
	EN 12245	20	2 591	2 438	6 058	300	53	18 550	398	10 007
	EN 12245	10	2 591	2 438	2 991	300	25	8 750	187	5 275
T4	EN 17339	40	2 591	2 438	12 192	380	113	39 550	1 034	20 547
	EN 17339	30	2 591	2 438	9 125	380	75	26 250	686	14 225
	EN 17339	20	2 591	2 438	6 058	380	53	18 550	485	10 007
	EN 17339	10	2 591	2 438	2 991	380	25	8 750	228	5 275

MAKERS OF BETTER



M-X Trailer

With a modular setup following advantaged can be achieved:

- Partial exchange of modules are possible
- Option of exchange while periodic examination
- Reduction of production costs
- Better handling

