

BAUER GRU®

**BAUER Solutions for Vapor and Gas Recovery
in Oil Production Facilities**





THE CASE FOR METHANE GAS RECOVERY

METHANE
EMISSIONS
25x

MORE DAMAGING TO THE ATMOSPHERE
THAN CARBON DIOXIDE

METHANE

CO₂

THE PROBLEM:

Every day, billions of cubic feet of the world's natural gas are flared or vented into the atmosphere. Not only does natural gas have a detrimental effect on the environment, but its overproduction poses a risk to companies' reputation and adherence to government restrictions.

› DETRIMENTAL ENVIRONMENT EFFECTS:

Methane (CH₄), the major component of natural gas, is 80x more dangerous than carbon dioxide (CO₂) for the first 20 years after it reaches Earth's atmosphere. Over time, methane remains 25x more dangerous than CO₂, because it traps far more heat and releases more energy. Flaring and venting methane gas contributes to an increase in greenhouse gases, which studies have linked to climate change and the disruption of weather cycles.

› REGULATORY FINES:

Regardless of shifts in the political climate, it is a matter of time before greenhouse emissions become more tightly regulated by both federal and state governmental agencies. Environmental compliance is already enforced by many private landowners. In many cases, local authorities have become increasingly vigilant in forcing reduced greenhouse emissions through tough regulations and fines.

› STAINED CORPORATE REPUTATION:

Many public and private companies face enormous pressure from the public, as well as investors and shareholders, to reduce greenhouse emissions. More and more, operators in the energy sector are worried about their corporate image due to increasing pressure from citizens and environmental groups. This could have a large negative impact on attracting additional investment, thus severely hampering future growth potential. To remain viable in the long term, capturing greenhouse gases is a must for all hydrocarbon producers.

› LOST PROFITS:

The practice of venting and flaring methane is nothing short of wasting a valuable source of energy. Technology has evolved which makes capturing and utilizing methane gas more economically viable. Many parts of the world where methane gas is being wasted suffer from a severe shortage of electrical power. The current trend to move away from diesel power - which is used in drilling and fracking - towards electric power will only accentuate these electricity shortages.

THE BAUER SOLUTION:

Flaring and venting methane can be significantly reduced by compressing methane to feed miniature natural gas liquid (NGL) plants to capture valuable hydrocarbons, feed miniature power plants to generate local electricity on-site, or feed a sales pipeline. This can also result in significant additional revenue for the operator.

13 MILLION METRIC TONS*

OF METHANE EMISSIONS DISCHARGED INTO THE ATMOSPHERE EQUALS:

69^{**}
MILLION
VEHICLE
EMISSIONS
FOR 1 YEAR



37^{**}
BILLION
GALLONS
OF GAS



355^{**}
TRILLION
POUNDS OF
COAL BURNED



752^{**}
MILLION
BARRELS OF OIL
CONSUMED



57^{**}
MILLION
HOMES
ENERGY USE
FOR 1 YEAR



*Study published in The Journal Science based on 2015 methane emissions in the United States

**EPA Greenhouse Gas Equivalences Calculator – www.epa.gov



**DON'T
LET YOUR
POTENTIAL
PROFIT
GO UP IN
FLAMES**

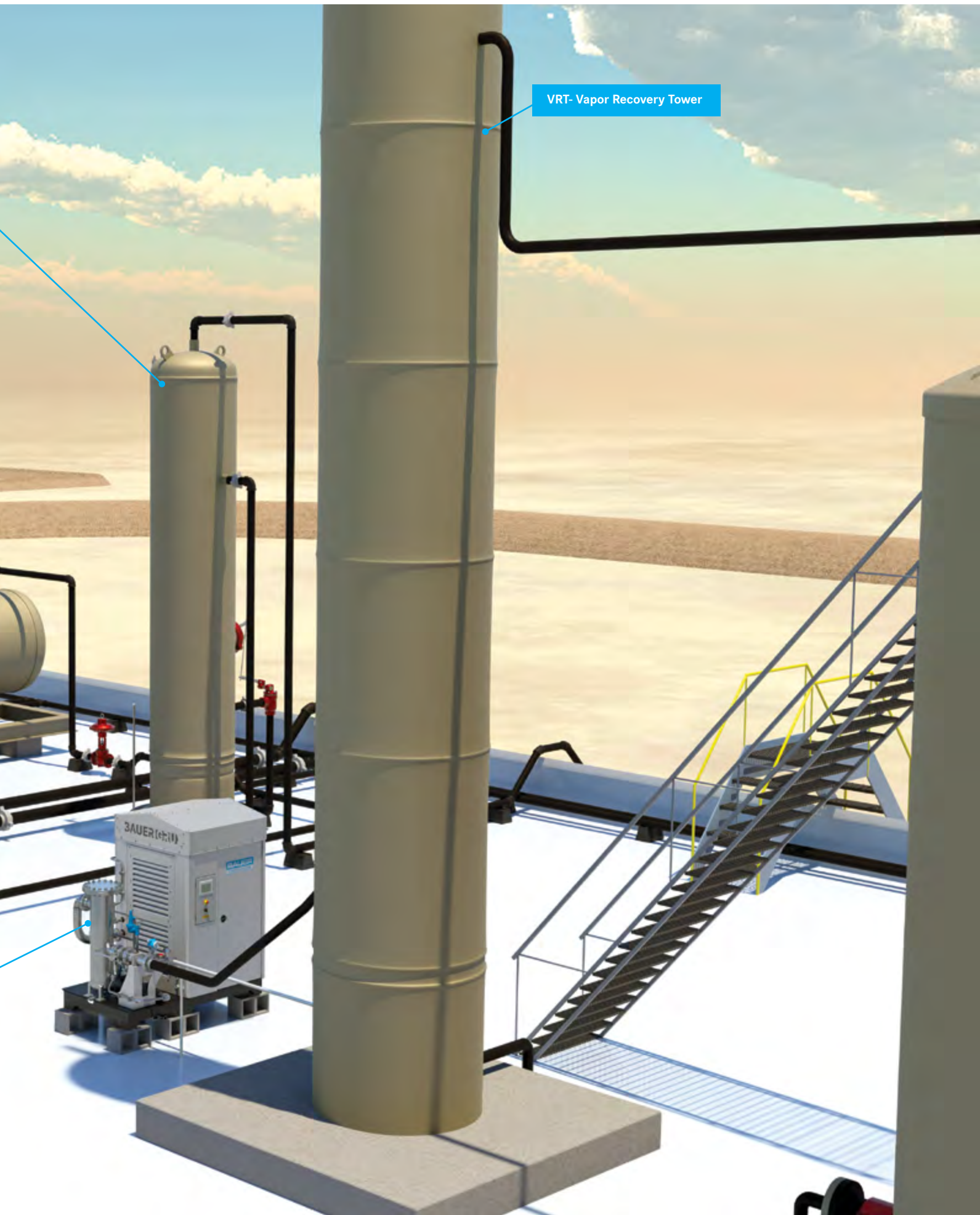
BAUER - COMPLETE SOLUTIONS PROVIDER

For On-Site Methane Gas Recovery
and Utilization

**BAUER offers total solutions for on-site gas
recovery and processing:**

- › Vapor recovery units for flash gas recovery
- › Large-volume units for well gas recovery
- › Booster compressor systems for high-pressure pipeline injection
- › On-site electric power generation

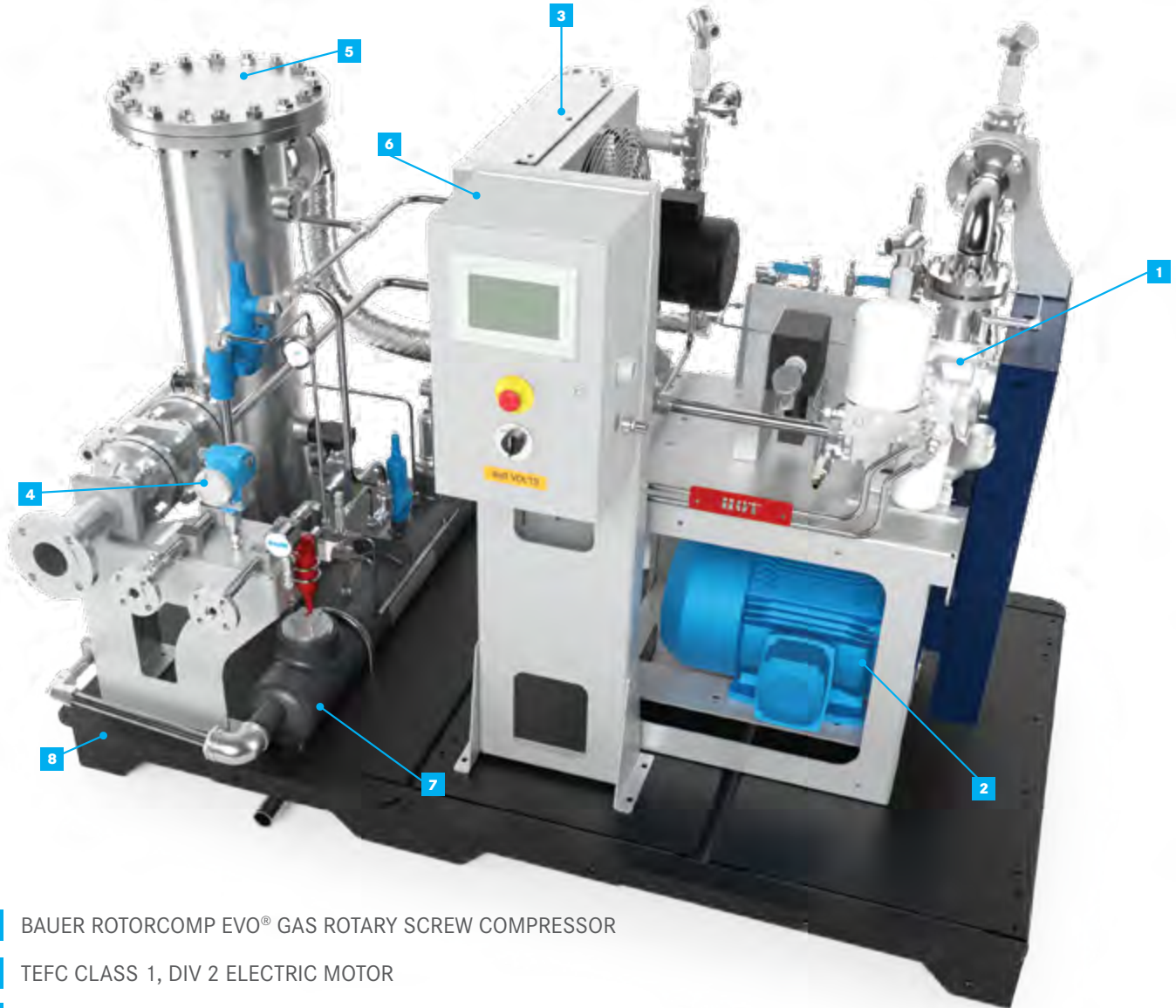




VRT- Vapor Recovery Tower

BAUER GRU® VAPOR RECOVERY SYSTEMS

The BAUER GRU® Vapor Recovery system range has been specifically designed for gas vapor recovery in oil and gas production facilities. BAUER offers a complete size range from 10 HP to 75 HP. Larger systems (125-500 HP) are available under the GRU® XL line. At the heart of every BAUER GRU® vapor recovery system is the legendary BAUER Rotorcomp® rotary screw compressor, world-renowned for exceptional durability and reliability. The sophisticated control system within the GRU® senses pressure upstream of the unit, and automatically adjusts compressor speed to modulate compressor output based on the availability of gas. If there is an insufficient amount of gas available for compression, the system automatically goes into standby mode, for instantaneous compression when upstream gas pressure suddenly increases. This significantly reduces the “need” to vent gas into the atmosphere, because the compressor is ready to operate instantaneously (compared to ramping up through normal start-up sequences after being completely shut down).



- 1** BAUER ROTORCOMP EVO® GAS ROTARY SCREW COMPRESSOR
- 2** TEFC CLASS 1, DIV 2 ELECTRIC MOTOR
- 3** COMBINATION OIL/GAS AFTERCOOLER
- 4** HIGH ACCURACY/HIGH GRADIENT PRESSURE TRANSDUCER
- 5** INLET GAS COALESSER WITH INTEGRATED MIST REMOVAL FILTER (ALSO AVAILABLE IN STAINLESS STEEL)
- 6** NEMA 4 PLC/ HMI ELECTRICAL CABINET (NOTE: VARIABLE FREQUENCY MOTOR DRIVE IS LOCATED REMOTE IN NON-HAZARDOUS ZONE)
- 7** CONDENSATE SKID-DUMP SYSTEM
- 8** HEAVY DUTY SKID WITH INTEGRATED FORKLIFT POCKETS AND LIFTING RINGS

STANDARD SCOPE OF SUPPLY

- › Engineered to operate reliably under continuous duty in harsh conditions
- › Designed in accordance with NFPA Class 1, Div 2 standards
- › Variable speed drive for precise flow control
- › Highly accurate pressure transducer at low inlet pressures
- › Stainless steel piping and hardware
- › 24 month full warranty, plus lifetime support
- › BAUER CONNECT® Remote Telemetry & IoT

› BAUER GRU® 3-15 VAPOR RECOVERY SYSTEM with optional enclosure



TECHNICAL DATA - BAUER GRU® VAPOR RECOVERY SYSTEM (FLASH GAS RECOVERY AT LOW SUCTION PRESSURES)

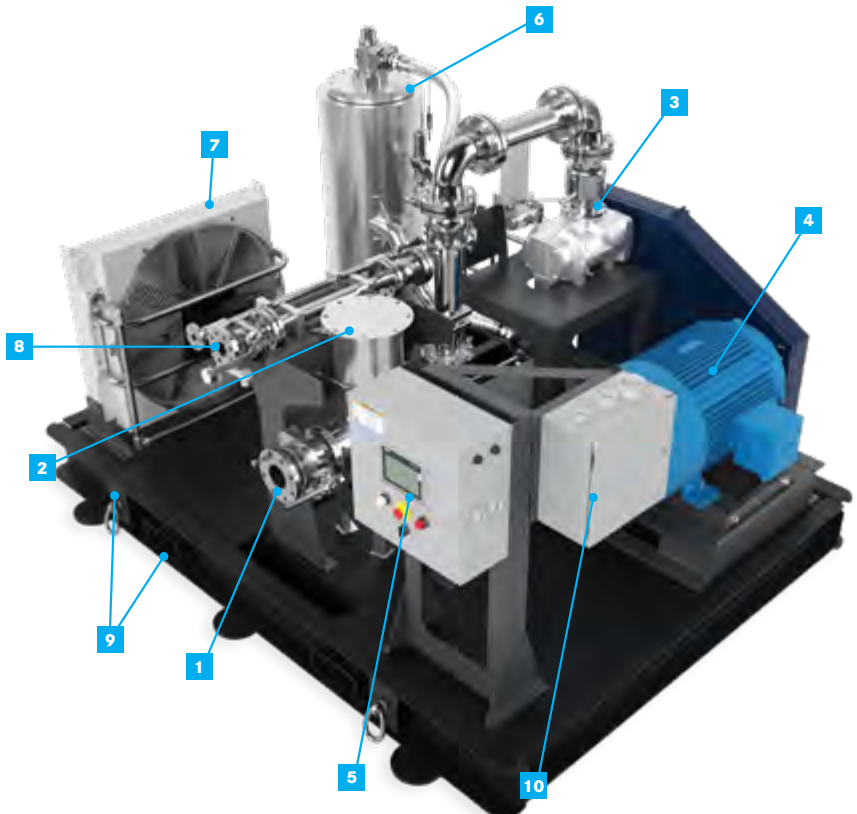
FOR VAPOR RECOVERY APPLICATIONS - AT SUCTION PRESSURE OF 0.25 PSIG (0.017 BAR)														
Model	Motor		Suction Pressure		Final Pressure		At Min RPM				At Max RPM			
							RPM	SCFM	MCFD	M³/day (1,000's)	RPM	SCFM	MCFD	M³/day (1,000's)
	HP	KW	PSIG	BAR	PSIG	BAR								
GRU 2-10	10	7.5	0.25	0.017	210	14.5	3000	12	18	0.5	5091	27	38	1.1
GRU 3-15	15	12	0.25	0.017	210	14.5	3500	28	40	1.1	4321	36	52	1.5
GRU 3-25	25	19	0.25	0.017	210	14.5	4000	32	47	1.3	6988	60	86	2.4
GRU 6-30	30	23	0.25	0.017	210	14.5	1800	65	94	2.7	1913	71	102	2.9
GRU 6-40	40	30	0.25	0.017	210	14.5	3500	74	106	3	4408	98	141	4
GRU 6-50	50	38	0.25	0.017	210	14.5	3500	74	106	3	5393	124	179	5.1
GRU 9-60	60	45	0.25	0.017	210	14.5	2000	75	108	3.1	3851	166	240	6.8
GRU 9-75	75	56	0.25	0.017	210	14.5	3900	169	244	6.9	4671	208	299	8.5

NOTES: **1)** All performance data for compressed gas inlet (suction conditions) is stated at Standard Conditions: Suction Pressure as Indicated, Gas Temperature of 68° F (20°C) and RH of 0%
2) All performance data for compressed gas outlet is stated at ISO 1217 Reference Conditions: Absolute Pressure at 364 ft (111m) elevation = 14.5 PSIG (1 Bar), Gas Temperature of 68° F (20°C) and RH of 0% **3)** All performance data are based on a typical well gas composition based on the following Mol percentages: Methane 85.4%, Ethane 8%, Propane 2.9%, Butane 1%, Nitrogen 0.7%, Carbon Dioxide 2% **4)** BAUER offers a two-stage rotary screw compressor booster option for higher inlet suction pressures and high flow.
 All BAUER GRU® systems are built to Class 1, Div2 NFPA standard

BAUER GRU® XL GAS RECOVERY SYSTEMS

The BAUER GRU® (Gas Recovery Unit) XL product range has been specifically designed for high-flow well gas recovery in oil production facilities. At the heart of every GRU® system is the legendary BAUER ROTORCOMP® rotary screw compressor which is world-renowned for exceptional durability and reliability. All BAUER GRU® XL Well Gas Recovery Units are equipped with variable frequency speed control which allows the compressor to automatically adjust to the incoming flow of gas. BAUER offers a complete size range from 100 HP to 750 HP.

- 1 GAS INLET CONNECTION (FLANGED)
- 2 OPTIONAL INLET PARTICULATE FILTER
- 3 BAUER EVO® GAS ROTARY SCREW COMPRESSOR
- 4 TEFC ELECTRIC MOTOR
- 5 HMI/PCC CONTROL PANEL (NEMA4)
- 6 OIL/GAS SEPARATOR
- 7 OIL COOLER
- 8 GAS OUTLET CONNECTION (FLANGED)
- 9 HEAVY DUTY SKID WITH INTEGRATED FORKLIFT POCKETS AND LIFTING RINGS
- 10 ELECTRIC JUNCTION BOX TO ENABLE CONNECTION TO REMOTE MOUNTED VARIABLE FREQUENCY MOTOR CONTROLLER



► **BAUER GRU® 28-200 GAS RECOVERY SYSTEM**
Available with optional enclosure

TECHNICAL DATA - BAUER GRU® GAS RECOVERY SYSTEM (HIGH-FLOW WITH ELEVATED SUCTION PRESSURES)

FOR GAS RECOVERY APPLICATIONS AT MAX SUCTION PRESSURE FOR SINGLE STAGE GRU® ROTARY SCREW COMPRESSOR SYSTEM										
Model	Motor		At Stated Max RPM							
			Suction Pressure		Final Pressure		RPM	SCFM	MMCFD	M³/day (1,000's)
	HP	KW	PSIG	BAR	PSIG	BAR				
GRU15-100	100	75	35	2.4	210	14.5	2458	716	1.0	29.2
GRU15-125	125	90	35	2.4	210	14.5	4200	873	1.25	35.6
GRU 28-175	175	131	35	2.4	210	14.5	1838	1279	1.84	52.2
GRU 28-200	200	150	35	2.4	210	14.5	2103	1475	2.14	60.1
GRU 42-375	375	280	35	2.4	210	14.5	1780	2490	3.58	101.5
GRU15 Duplex	250	180	35	2.4	210	14.5	4200	1746	2.5	71.2
GRU 28 Duplex	400	300	35	2.4	210	14.5	2103	2950	4.28	120.2

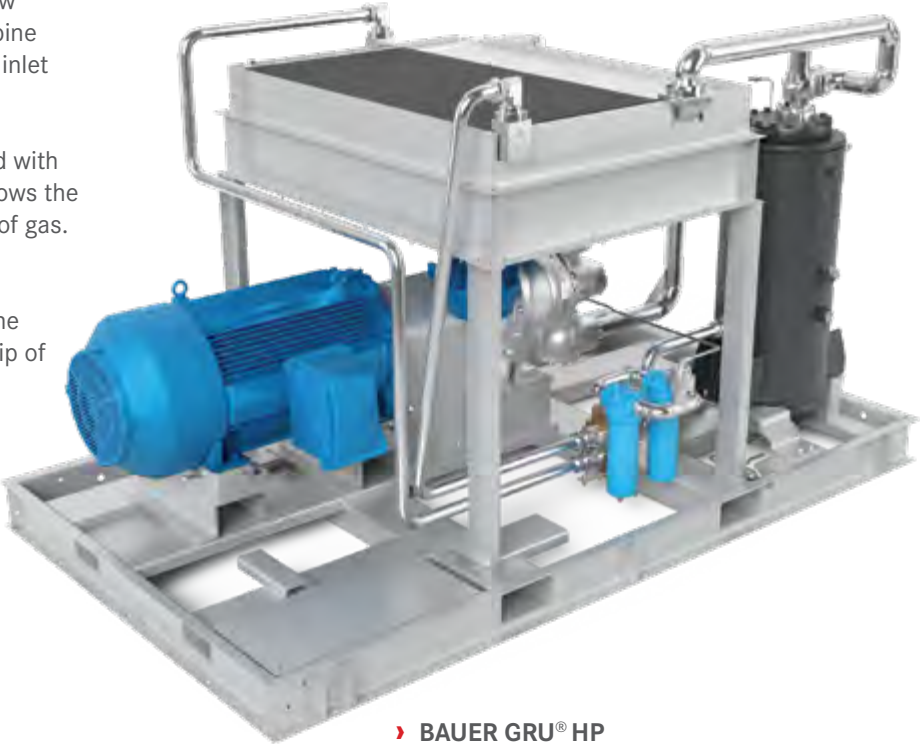
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2) All performance data for compressed gas outlet is stated at ISO 1217 Reference Conditions: Absolute Pressure at 364 ft (111m) elevation = 14.5 PSIG (1 Bar), Gas Temperature of 68° F (20°C) and RH of 0% 3) All performance data are based on a typical well gas composition based on the following Mol percentages: Methane 85.4%, Ethane 8%, Propane 2.9%, Butane 1%, Nitrogen 0.7%, Carbon Dioxide 2% 4) BAUER offers a two-stage rotary screw compressor booster option for higher inlet suction pressures and high flow.
All BAUER GRU® systems are built to Class 1, Div2 NFPA standard

BAUER GRU® HP ROTARY SCREW GAS BOOSTER COMPRESSOR

For Pipeline Injection and High Pressure Gas Turbine Applications

The BAUER GRU® Gas Booster rotary screw compressor has been specifically designed for well gas injection into the pipeline grid, for applications which require higher pressures (up to 600 PSIG) are required. The BAUER GRU® rotary screw booster is also suitable for specific gas turbine power generators which require higher gas inlet injection pressures.

All BAUER GRU® booster units are equipped with variable frequency speed control, which allows the compressor to adjust to the incoming flow of gas. Utilizing a rotary screw compressor for this application is advantageous over reciprocating piston compressors, due to the higher reliability and lower cost of ownership of rotary screw compressors, especially in continuous duty applications.



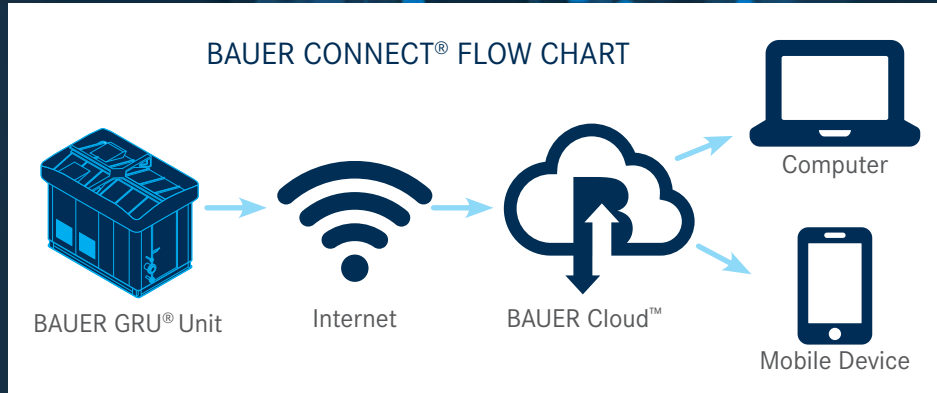
➤ **BAUER GRU® HP
ROTARY SCREW BOOSTER COMPRESSOR**

TECHNICAL DATA

FOR GAS BOOSTING APPLICATIONS AT ELEVATED SUCTION PRESSURE AND FINAL PRESSURES UP TO 600 PSIG (TWO-STAGE ROTARY SCREW COMPRESSOR BOOSTER)												
Model	Motor		Compressor Model	Suction Pressure		Max Final Pressure		At Stated Max RPM				
								Motor RPM	Compressor RPM	SCFM	MMCFD	M³/day (1,000's)
	HP	KW		PSIG	BAR	PSIG	BAR					
GRU12-350	350	260	SP-12	100	6.9	500	34.5	1790	6800	1763	2.5	70.6
GRU12-350	350	260	SP-12	100	6.9	600	41.3	1790	6800	1350	1.9	55.0
GRU12-350	350	260	SP-12	200	13.8	500	34.5	1790	6800	3300	4.8	134.5
GRU12-350	350	260	SP-12	200	13.8	600	41.3	1790	6800	2800	4.0	113.0

Note: 1) All performance data for compressed gas inlet (suction conditions) is stated at Standard Conditions: Suction Pressure as Indicated, Gas Temperature of 68° F (20°C) and RH of 0% 2) All performance data for compressed gas outlet is stated at ISO 1217 Reference Conditions: Absolute Pressure at 364 ft (111m) elevation = 14.5 PSIG (1 Bar), Gas Temperature of 68° F (20°C) and RH of 0% 3) All performance data are based on a typical well gas composition based on the following Mol percentages: Methane 97%, Nitrogen 1.0%, Carbon Dioxide 2%
All BAUER GRU® systems are built to Class1, Div2 NFPA standard

BAUER CONNECT® FLOW CHART



BAUER CONNECT®
REMOTE TELEMETRY

BAUER CONNECT® REMOTE TELEMETRY AND CONTROL VIA MOBILE APP

BAUER CONNECT® is an app-based IoT solution which allows BAUER customers to remotely monitor and control all of their BAUER products through their cell phone or computer, anytime, anywhere. Our solution allows customers to increase efficiency and productivity, save time, do more with fewer resources, enjoy lower operational costs, and have total flexibility with a solution tailored specifically for them. BAUER CONNECT® – Connection that matters.



BAUER REMOTE HMI

The BAUER Remote HMI function allows factory-trained technical personnel to remotely control the BAUER system via the BAUER CONNECT® app with the same functionality as if they were standing in front of the actual unit.

- › Live connection and control of all units no matter the location(s)
- › Save time and money with remote monitoring
- › Secure log-ins - only approved members can access and control your compressor system



BAUER REPORTS

The BAUER Reports feature is a function that generates custom reports, tailored to the specific needs of the customer. Customers can have access to historical data via a multitude of standard and customized reports.



PUSH NOTIFICATIONS

The BAUER CONNECT® mobile app will send push notifications if certain pre-determined parameters fall outside of normal operating range, as well as when triggered by an overall system alert. This ensures that all essential personnel are notified immediately, allowing for proactive intervention in emergencies.



MOBILE DASHBOARDS

The BAUER CONNECT® app will also display a real-time graphical display of the entire system (SCADA view). This mobile dashboard provides easy access to information such as the compressor system status, error logs, critical pressures and temperatures, volume of air dispensed in the storage units, and more.

- › Quick reference of all of your units at your fingertips
- › Does not require password validation every time app is used
- › Beneficial tool that allows for monitoring without the ability to control the unit(s)
- › Dashboards can be customized to specific customer needs



BAUER PREDICTIVE ANALYTICS

The BAUER CONNECT® predictive analysis technology perpetually maintains our customers' compressor systems at peak conditions while minimizing downtime. BAUER's proprietary algorithm uses artificial intelligence to analyze the collected system information on the BAUER Cloud to predict upcoming maintenance requirements and preventative actions to avoid unplanned shutdowns.



Available on



To sign up and register go to Signup.Bauer-Connect.com

GLOBAL SERVICE



GLOBAL SERVICE REACH



FACTORY TRAINED TECHS



BAUER Germany & BAUER Norfolk



BAUER Branches



BAUER Service Centers/Distributors



SERVICE AND SUPPORT

Our compressors are designed with you in mind. Easy to use manuals guide you through clear, mechanically accessible repairs. Our worldwide distribution network was developed to assist in after-sales support, along with product and maintenance parts assistance.

FROM THE SOURCE

BAUER COMPRESSORS INC., is certified with **ISO 9001:2015** quality processes providing you with confidence that cannot be duplicated by sub-standard after-market parts and service.

BAUER HELPDESK



24/7 PHONE TECH SUPPORT



LIFECYCLE PERFORMANCE

MECHANICAL & ELECTRICAL

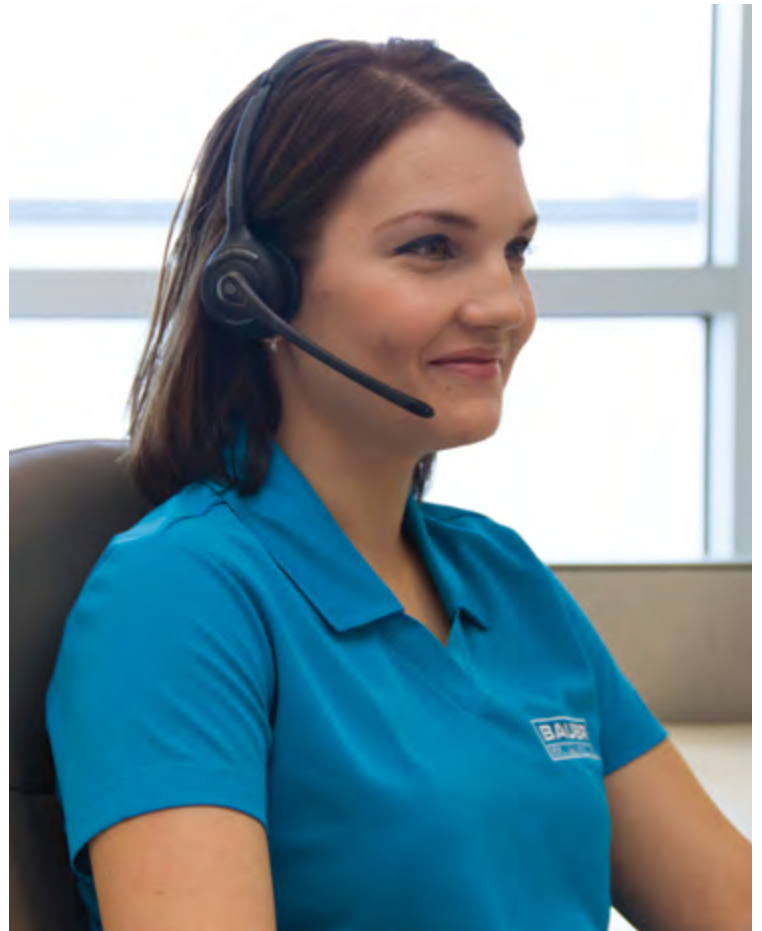
Total customer satisfaction is our top priority. BAUER provides 24/7 phone tech and troubleshooting support at our BAUER helpdesk. Our support continues throughout our warranty period and beyond.

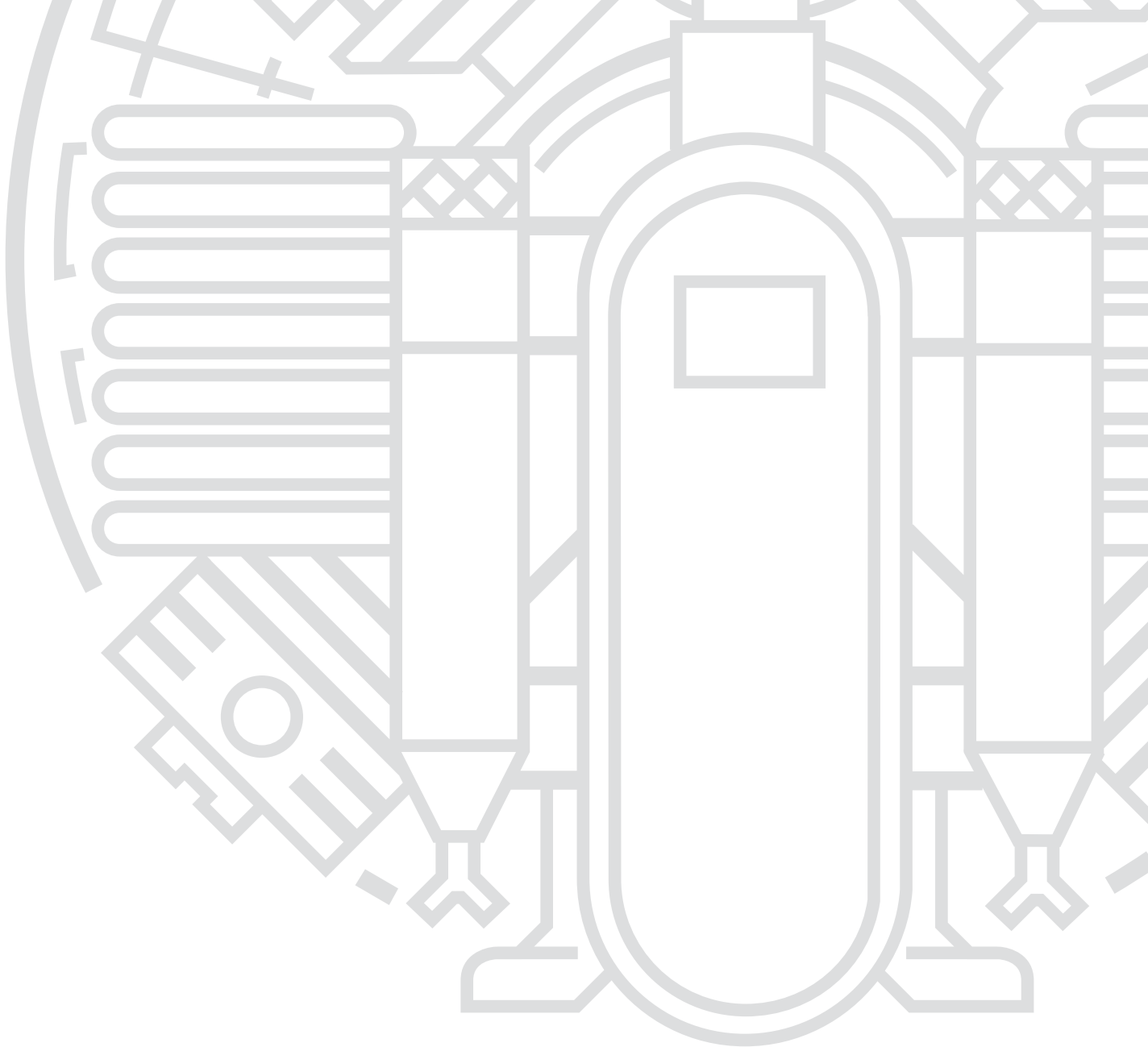
»»» For BAUER helpdesk please email:

CustomerService@BauerComp.com

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Subject to technical changes