

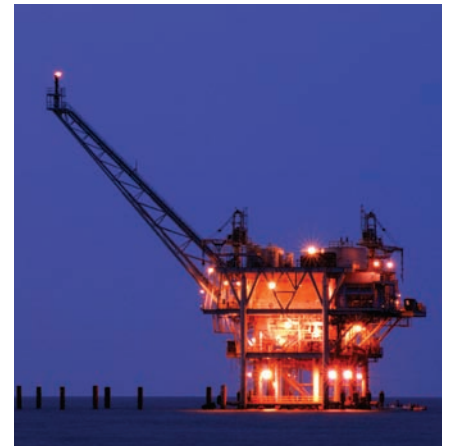


## **DRILLING PRODUCTS AND SERVICES**

Maximize uptime with Gates long-lasting, superior-performing products and experienced field service team.

**Today's deeper drilling depths, directional drilling and advanced technologies demand products that maximize performance, quality and longevity.**

Onshore or offshore, the search for energy is a 24/7/365 operation. Rig or support equipment component failure significantly affects production, personnel safety and can lead to catastrophic environmental consequences.



## DRILLING PRODUCTS + SERVICES



**Reduce lead times from weeks to days without sacrificing quality. Black Gold® hoses are manufactured in the United States to API standards and assembled locally.**



### **Black Gold® API 7K FSL1 Rotary Drilling/Vibrator Hose**

Gates Black Gold® rotary hoses handle working pressures as high as 7,500 psi while remaining flexible enough to move up and down with the top drive. The hose cover withstands gouging, harsh weather, oil and other corrosive fluids common at drilling sites. Stainless steel armor is available upon request.

Temperature Range: -4°F to 180°F [-20°C to 82°C]

Meets or Exceeds Standards: API 7K, ISO 14693, NV D-3352

Max Length of Hose: 90 ft

Nom ID (in)	Nom OD (in)	Working Pressure (psi)	Test Pressure (psi)	Minimum Burst (psi)	Min Bend Radius (in)	Wt Per Ft (lbs)	Swage Cplg Weight (each, lbs)
2-1/2	4.14	5,000	10,000 Grade D	12,500	36	9.8	33
3	4.61	5,000	10,000 Grade D	12,500	48	10.8	44.5
3-1/2	5.25	5,000	10,000 Grade D	12,500	54	12.8	47
4	5.59	5,000	10,000 Grade D	12,500	54	13.4	55
5	7.41	5,000	10,000 Grade D	12,500	60	30.7	160.5
2-1/2	5.16	7,500	15,000 Grade E	18,750	48	20.2	62
3	5.66	7,500	15,000 Grade E	18,750	48	22.6	70
3-1/2	6.04	7,500	15,000 Grade E	18,750	54	24.1	75
4	6.48	7,500	15,000 Grade E	18,750	60	25.8	90



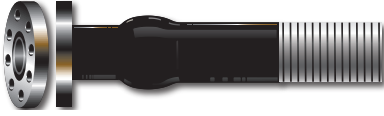
### **16 EFBOP Blow-Out Preventer Hose**

Gates Blow-Out Preventer (BOP) hose has been tested for 5,000 psi static pressure requirements. Insert must be sleeved and shielded for BOP applications in accordance with applicable specifications. Armor fire shield can be added to meet API 16D and Lloyd's Fire Test.

Temperature Range: -40°F to 250°F [-40°C to 121°C]

Nom ID (in)	Nom OD (in)	Working Pressure (psi)	Min Bend Radius (in)	Wt Per Ft (lbs)
1	1.53	5,000	12	1.49

## DRILLING PRODUCTS + SERVICES



### Black Gold® Choke & Kill Hose

Gates Black Gold® choke and kill hoses with stainless steel armor pass Lloyd's of London Flexible Hose Fire Tests OSG/1000/499 at 1,300°F [700°C] for 30 minutes at rated working pressure. Additionally they handle up to 20% hydrogen sulfide [H<sub>2</sub>S] gas for one hour at 200°F [93°C] at working pressure.

Temperature Range: -4°F to 200°F [-20°C to 93°C]

Max Length of Hose: 90 ft

Nom ID (in)	Nom OD (in)	Working Pressure (psi)	Test Pressure (psi)	Minimum Burst (psi)	Min Bend Radius (in)	Wt Per Ft (lbs)	Swage Cplg Weight (each, lbs)
2-1/2	4.15	5,000	10,000	15,000	36	10.1	33
3	4.61	5,000	10,000	15,000	48	11.1	44.5
3-1/2	5.25	5,000	10,000	15,000	54	13.2	47
4	6.40	5,000	10,000	15,000	60	26.4	90
2-1/2	5.14	10,000	15,000	22,500	48	20.6	60
3	5.64	10,000	15,000	22,500	48	23.0	70
3-1/2	6.05	10,000	15,000	22,500	54	24.6	75
2-1/2	5.66	15,000	22,500	33,750	60	29.4	130
3	6.16	15,000	22,500	33,750	60	33.2	130



### Black Gold® Sour Service Hose

Gates Black Gold® sour service hose is manufactured to handle up to 20% hydrogen sulfide [H<sub>2</sub>S] gas for 1 hour at 200°F [93°C] at rated working pressure.

Temperature Range: -4°F to 200°F [-20°C to 93°C]

Max Length of Hose: 90 ft

Nom ID (in)	Nom OD (in)	Working Pressure (psi)	Test Pressure (psi)	Minimum Burst (psi)	Min Bend Radius (in)	Wt Per Ft (lbs)	Swage Cplg Weight (each, lbs)
2-1/2	4.15	5,000	10,000	12,500	36	10.1	33
3	4.61	5,000	10,000	12,500	48	11.1	44.5
3-1/2	5.25	5,000	10,000	12,500	54	13.2	47
4	5.58	5,000	10,000	12,500	54	13.9	55
2-1/2	5.14	7,500	15,000	18,750	48	20.6	62
3	5.64	7,500	15,000	18,750	48	23.0	70
3-1/2	6.05	7,500	15,000	18,750	54	24.6	75
4	6.40	7,500	15,000	18,750	60	26.4	90



## DRILLING PRODUCTS + SERVICES



### Black Gold Motion Compensator Hose

Gates Black Gold® motion compensator hose compensates for the up and down movement of the rig, so that even pressure is kept on the drill string. It supplies either air or hydraulic fluid to the accumulator from a cylinder mounted on the derrick.

Temperature Range: -40°F to 180°F [-40°C to 82°C]

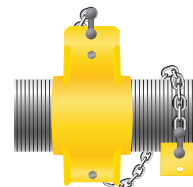
Nom ID (in)	Nom OD (in)	Working Pressure (psi)	Test Pressure (psi)	Minimum Burst (psi)	Min Bend Radius (in)	Wt Per Ft (lbs)	Swage Cplg Weight (each. lb)
2-1/2	4.14	5,000	10,000 Grade D	12,500	36	9.8	33
3	4.61	5,000	10,000 Grade D	12,500	48	10.8	44.5
3-1/2	5.25	5,000	10,000 Grade D	12,500	54	12.8	47
4	5.59	5,000	10,000 Grade D	12,500	54	13.4	55
5	7.41	5,000	10,000 Grade D	12,500	60	30.7	160.5

### Accessories Keep You (and the Hose) Safe



#### Safety Clamps

To protect nearby equipment and workers, safety clamps are attached to the hose assembly and bolted or welded to the rig derrick or support.



#### Intergrated Safety Clamps

For use only with armor covered Choke & Kill hoses, intergrated clamps provide the same function as standard safety clamps while maintaining fire rating.



#### Hose Lift Eyes and Collar Clamps

For ease of hose installation and to prevent hose damage use a collar clamp with lift eye.



#### Tuff Tags

Unique RFID tag provides location, hose type, size, length, end fittings, orientation, usage history and test certificates to Sentry™ ID. Available in 12 colors.

## DRILLING PRODUCTS + SERVICES



### Black Gold® Cementing Hose

Gates Black Gold® cementing hoses are specially engineered for handling abrasion and corrosion. Stainless steel armor is available upon request.

Temperature Range: -4°F to 180°F [-20°C to 82°C]

Meets or Exceeds Standards: API 7K, ISO 14693

Maximum Length of Hose: 90 ft except as noted [\* = 200 ft]

Nom ID (in)	Nom OD (in)	Working Pressure (psi)	Minimum Burst (psi)	Min Bend Radius (in)	Wt Per Ft (lbs)
1-1/2*	2.26	10,000	22,500	25	3.2
2*	2.80	5,000	12,500	36	4.6
2-1/2	4.14	5,000	12,500	36	9.8
3	4.61	5,000	12,500	48	10.8
3-1/2	5.25	5,000	12,500	54	12.8
4	5.61	5,000	12,500	54	13.4
2*	2.80	10,000	22,500	48	4.7
2-1/2	5.16	10,000	22,500	48	20.2
3	5.66	10,000	22,500	48	22.6
3-1/2	6.04	10,000	22,500	54	24.1
2-1/2	5.66	15,000	33,750	60	29.5
3	6.16	15,000	33,750	60	33.2

### End Terminations



#### Wide Range of End Terminations

Gates has an extensive range of end terminations including:

- > Hammer Union
- > API Hubs
- > API Flanges

## DRILLING PRODUCTS + SERVICES

### Hydraulic Hoses for Power Units and Top Drive Power Packs

Gates Black Gold® high-pressure hydraulic hoses withstand the rigors of Hydraulic Power Units (HPU) and top drive power packs.



#### Black Gold® Power Spiral Hose for Power Packs

Temperature Range: -40°F to +212°F [-40°C to +100°C]  
 Meets or Exceeds: Pressure Performance Requirements of SAE100R12 (3,000 WP), and SAE100R13 (5,000 WP),  
 Flame Resistance Acceptance Designation "MSHA 2G", DNV and ABS

Nom ID (in)	Nom OD (in)	Working Pressure (psi)	Minimum Burst (psi)	Min Bend Radius (in)	Wt Per Ft (lbs)
3/4	1.26	5,000	20,000	9.5	0.95
1	1.53	5,000	20,000	12.0	1.49
1-1/4	1.97	5,000	20,000	16.5	2.67
1-1/2	2.26	5,000	20,000	20.0	3.33
2	2.63	3,000	12,000	25.0	2.95
2	2.80	5,000	20,000	25.0	4.94



#### Black Gold® Powerbraid® Hose for HPUs

Temperature Range: -40°F to +212°F [-40°C to +100°C]  
 Meets or Exceeds: Pressure Performance Requirements of SAE100R2, Flame Resistance Acceptance Designation "MSHA 2G", DNV and ABS

Nom ID (in)	Nom OD (in)	Working Pressure (psi)	Minimum Burst (psi)	Min Bend Radius (in)	Wt Per Ft (lbs)
1/4	0.56	6,000	24,000	2.0	0.21
3/8	0.70	5,000	20,000	2.5	0.30
1/2	0.82	4,300	17,200	3.5	0.35
5/8	0.95	3,800	15,200	4.0	0.44
3/4	1.11	3,500	14,000	4.8	0.54
1	1.48	3,250	13,000	6.0	1.04
1-1/4	1.86	1,825	7,300	16.5	1.50
1-1/2	2.11	1,300	5,200	20.0	1.77
2	2.62	1,175	4,700	25.0	2.25



**ENGINEERING  
& SERVICES**

## **Gates Engineering & Services (E&S) specializes in mobile, on-site services designed to keep drilling rigs and service companies up and running to maximize uptime.**

---

Lost production can cost as much as \$1M per day. It only takes one hose-related incident on a rig to shut down your entire operation. Gates E&S is dedicated to providing world-class products and support services to minimize downtime.

---



### **Inspection, Maintenance & Recertification (IMR)**

Periodic inspection and testing of drilling hoses and fluid conveyance flexible connections is essential to limit unexpected downtime. Gates E&S follows revalidation procedures specified by the OEM or recommended best practices, while also following industry standards such as API and Lloyd's of London Flexible Hose Fire Test. IMR activities include:

- > Visual External Examination – checks all aspects of the hose and coupling integrity along with the condition of the end terminations
- > Endoscopic Examination – identifies tears, gouges, abrasions and cracks via digital video
- > Hydrostatic Testing – validates hose safety and durability per industry and manufacturers' test specifications



### **Sentry™ Services**

Flexible hose assemblies account for as much as 47% of all downtime on a drilling rig; hose management is key in maximizing production. Gates Sentry ID is an asset management system which tracks the location and type of each hose, records important information such as install date and test certificates, and schedules preventive maintenance activities.

Gates Engineering & Services  
134 44th Street  
Corpus Christi, TX 78405  
888-887-9807  
361-887-9807  
Gates.com/ES