

ITEM	SIZE RANGE		SCH/RTG	ENDS	DESCRIPTION	NOTES	P/D CODE	See complete listing of Lokring™ class notes on the following page.
	DN	NPS						
Valves								
Gate	20 - 80	¾ - 4	—	—	Per Specified GEMS Material Class	—	—	
Check	20 - 80	¾ - 4	—	—	Per Specified GEMS Material Class	—	—	
Globe	20 - 80	¾ - 4	—	—	Per Specified GEMS Material Class	—	—	
Ball	20 - 80	¾ - 4	—	—	Per Specified GEMS Material Class	—	—	
Flanges								
Lokring™	20 - 80	¾ - 4	150	RF/Spec.	Forged Carbon Steel, Schedule 80 Bore	All	CPA01	
	20 - 80	¾ - 4	150	RF	Other Flanges as Required, Per Specified GEMS Material Class	—	—	
Fittings								
Lokring™	20 - 80	¾ - 4	3000	Special	Forged Carbon Steel, Schedule 80	All	CPA02	
	20 - 80	¾ - 4	—	—	Other Fittings as Required, Per Specified GEMS Material Class	—	—	
Integrally Reinforced Outlet Connections								
	20 - 80	¾ - 4	—	—	Per Specified GEMS Material Class	—	—	
Nipples								
	20 - 50	¾ - 4	—	—	Per Specified GEMS Material Class, Except as Limited by Notes (#6 & d)	—	—	
Gaskets								
	All	All	150	—	Per Specified GEMS Material Class	—	—	
Bolting								
Stud	All	All	—	—	Per Specified GEMS Material Class	—	—	
Pipe								
	20 - 80	¾ - 4	—	—	Per Specified GEMS Material Class, Except as Limited by Notes (#6 & d)	—	—	

See complete listing of Lokring™ class notes on the following page.

<div>ExxonMobil</div> <div>CHEMICALS / REFINING AND SUPPLY</div>	Material Class:	G1A-50	Carbon Steel - Lokring™ (#1) (Special)	Nominal Corrosion Allowance: 0.063" (0.050" min.) (#4) 1.6 mm (1.3 mm min.)	GEMS 3-23-1.50	
	Approved Services:	Steam, steam condensate, nitrogen, air (process, instrument, industrial, & breathing), water (cooling, fire, and industrial), hydraulic fluid, gas (natural & blend), and any other services approved by Owner's Engineer. (#5)			REV. 7	November 2020
	Nominal Rating:	ASME B16.5 CLASS 150, M.G. 1.1			Page 1 of 2	
Press./Temp. Limits:	285 PSIG at -20°F through 125 PSIG at 650°F (#1) 19.7 Bars at -28.9°C through 8.6 Bars at 343°C (#1)					

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General Notes for Lokring™ Installations (Meeting the requirements of GEMS 3-46-1.0):

- (#1) This material class is only to be used as an addendum to other General ExxonMobil Material Specification classes as specified, where there is an economic advantage for using Lokring™ components or when there is a need to make small piping connections in operating areas where welding is not feasible or desirable. In some instances, pressure and temperature limits of the normally specified GEMS material class for service, may be restricted by use of this material class.
- (#2) When use of this class is necessary, the line(s) may be designated by the normally required General ExxonMobil Material Class designation for service, followed by an "L" designating the use of Lokring™ components as required for field fabrication and installation. Typical examples of this requirement are as follows: G1U-4L, G1A-1L, G1A-23L, etc.
- (#3) Permanent drawings used for the installation and documentation of Lokring components shall show the applicable pipe class as described in Note #2 as necessary to meet Management of Change documentation requirements.
- (#4) Corrosion allowance for any service application that makes use of carbon steel Lokring™ components is limited to 0.063" (1.6 mm). Exception: For any piping system with a specified corrosion allowance greater than 0.063" (1.6 mm): If it can be determined that the actual corrosion allowance required is 0.063" (1.6 mm) or less, carbon steel Lokring™ components may be specified, subject to the guidance for review/approval within GEMS 3-46-1.0 Paragraph 5.6.1.d.
- (#5) For process services not listed, consult GEMS 3-46-1.0 for specific restrictions and limitations on the use of Lokring™ components.
- (#6) Pipe schedules to be used, may be constrained by the Lokring™ installation limits as well as by the specific GEMS used.

Lokring™ Component Notes:

- (a) Carbon steel Lokring™ components may be used with carbon steel pipe to ASTM A106, ASTM A53, ASTM A587 or API 5L specifications.
- (b) Do not use Lokring™ components on coated pipe. See GEMS 3-46-1.0 Section 5.5 for exceptions.
- (c) Lokring™ components must be installed per "Lokring Installation Procedure LP-105" by crews trained in the procedure.
- (d) Installation of carbon steel Lokring™ components is limited by NPS and pipe schedule per the following table:

Permitted Pipe Sizes and Schedules	
Nominal Pipe Size (DN)	Allowable Pipe Schedules for Attachment
3/4" (20)	Schedules 40 thru 160
1" (25)	Schedules 40 thru 160
1 1/2" (40)	Schedules 40 and 80
2" (50)	Schedules 40 and 80
3" (80)	Schedules 40 and 80
4" (100)	Schedules 40 and 80

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