



Process Industry Practices
Piping

**PIP PN01CS2S01
Piping Material Specification 1CS2S01
Class 150, Carbon Steel, Socket Weld,
0.125" C.A. Process**

Sample Not For Commercial Use

PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determinations concerning fitness for purpose and particular matters or application of the Practice to particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by the Practice.

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PRINTING HISTORY

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SERVICE:	Process	MATERIAL:	Carbon Steel
RATING CLASS:	150, ASME B16.5a-1998	DESIGN CODE:	ASME B31.3-2004
TEMPERATURE LIMIT:	-20F to 800F (Note 09)	STRESS RELIEF:	Per ASME B31.3
NOMINAL CORROSION ALLOWANCE:	0.125 in. (0.10 in. MIN)	EXAMINATION:	Per ASME B31.3

PRESSURE - TEMPERATURE RATINGS

TEMP F	-20 to 100	200	300	400	500	600	700	800
TEMP C	-29 to 38	93	149	204	260	316	371	427

For NPS 1/2 through NPS 26 (Full flange ratings per ASME B16.5 and ASME B16.47, Tables 2-1.1.)

psig	285	260	230	200	170	140	110	80
kPag	1965	1795	1585	1380	1170	965	760	550

For NPS 28 through 48 (Note 01)

psig	Calc	Calc	Calc	Calc	Calc	Calc	Calc	Calc
kPag	Calc	Calc	Calc	Calc	Calc	Calc	Calc	Calc

ITEM	NOTES	NPS	SCH/RAT	ENDS	DESCRIPTION	USER CODE
PIPE	01, 19, 137	1/2 – 1-1/2	XS		CS, SMLS, ASTM A106-B or A53-B, type S or API 5L-B, PSL 1 (E _j =1.00)	
		2 – 24	STD		CS, ERW, ASTM A53-B, type E (E _j =0.85)	
		26	STD		CS, DSAW, API 5L-B, PSL 2, single straight seam (E _j =0.95)	
		59	28 – 48	Calc		CS, DSAW, API 5L-B, PSL 2, single straight seam (E _j =0.95)
NIPPLES	03, 19	1/2 – 1-1/2	XS		CS, SMLS, ASTM A106-B or A53-B, type S or API 5L-B (E _j =1.00)	
		1/2 – 1-1/2	XS		CS, ASTM A234-WPB-S, MSS SP-95	
		1/2 – 1-1/2	XS		CS, ASTM A234-WPB-S, MSS SP-95	
FITTINGS	02	1/2 – 1-1/2	Class 3000	Weld	CS, ASTM A105, MSS SP-97	
		1/2 – 2	Class 3000	Weld	CS, ASTM A105, MSS SP-97	
		1/2 – 1-1/2	Class 3000	Weld	CS, ASTM A105	
		1/2 – 2	Class 3000	Weld	CS, ASTM A105	
		1/2 – 1-1/2	Class 3000	Weld	CS, ASTM A105	
		1/2 – 2	Class 3000	Weld	CS, ASTM A105	
		1/2 – 1-1/2	Class 3000	SW	CS, ASTM A105, ASME B16.11	
		1/2 – 1-1/2	Class 3000	SW	CS, ASTM A105, ASME B16.11	
		1/2 – 1-1/2	Class 3000	SW	CS, ASTM A105, ASME B16.11	
		1/2 – 1-1/2	Class 3000	SW	CS, ASTM A105, ASME B16.11	
		1/2 – 2	THRD		CS, ASTM A105, round head, ASME B16.11	
		1/2 – 1-1/2	Class 3000	SW	CS, ASTM A105, ASME B16.11	
		1/2 – 1-1/2	Class 3000	SW	CS, ASTM A105, ASME B16.11	
		1/2 – 2	Class 3000	THRD	CS, ASTM A105, ASME B16.11	
		1/2 – 2	Class 3000	THRD	CS, ASTM A105, ASME B16.11	
		1/2 – 1-1/2	Class 3000	SW	CS, ASTM A105, ASME B16.11	
		1/2 – 2	Class 3000	THRD	CS, ASTM A105, ASME B16.11	
		1/2 – 1-1/2	Class 3000	SW	CS, ASTM A105, ASME B16.11	
		1/2 – 1-1/2	Class 3000	SW	CS, ASTM A105, integral seat, MSS SP-83	
		2 – 48		Weld	CS, ASTM A234-WPB-W, ASME B16.9	
		2 – 48		Weld	CS, ASTM A234-WPB-W, ASME B16.9	
		2 – 42		Weld	CS, ASTM A105, MSS SP-97	
		2 – 48		Weld	CS, ASTM A234-WPB-W, ASME B16.9	
		2 – 48		Weld	CS, ASTM A234-WPB-W, ASME B16.9	
		2 – 48		Weld	CS, ASTM A234-WPB-W, ASME B16.9	
		2 – 48		Weld	CS, ASTM A234-WPB-S, ASME B16.9	

ITEM	NOTES	NPS	SCH/RAT	ENDS	DESCRIPTION	USER CODE
VALVES						
Gate	15	1/2 – 2	Class 150	RF	CS body w/ 13 CR trim, HF ST	GA01CB500
Gate		1/2 – 2	Class 800	SW	CS body w/ 13 CR trim, HF ST	GA08CB300
Gate	06	1/2 – 2	Class 800	T/SW	CS body w/ 13 CR trim, HF ST	GA08CB200
Gate		3 – 24	Class 150	RF	CS body w/ 13 CR trim, HF ST, FP	GA01CB501
Gate		26 – 48	Class 150	RF	CS body w/ 13CR trim, HF ST, FP	GA01CB502
Globe		1/2 – 2	Class 800	SW	CS body w/ 13 CR trim, HF ST	GL08CB300
Globe		3 – 12	Class 150	RF	CS body w/ 13 CR trim, HF ST	GL01CB500
Lift Check	61	1/2 – 2	Class 800	SW	CS body w/ 13 CR trim, HF ST	CL08CB300
Swing Check	62	3 – 24	Class 150	RF	CS body w/ 13 CR trim, HF ST	CS01CB500
Swing Check	62	26 – 48	Class 150	RF	CS body w/ 13 CR trim, HF ST	CS01CB501
Wafer Dual PLT Check	07, 26, 63, 160	3 – 24	Class 150		CS body w/ 410 SS disc/ST	CD01CB700
Wafer Dual PLT Check	07, 26, 63, 160	26 – 48	Class 150		CS body w/ 410 SS disc/ST	CD01CB701
Ball	09	1/2 – 2	Class 300	SW	CS body w/ 316 SS trim, RTFE ST	BA03CB300
Ball	09	3 – 6	Class 150	RF	CS body w/ 316 SS trim, RTFE ST	BA01CB500
Ball	08, 09	3 – 6	Class 150	RF	CS body w/ 316 SS trim, RTFE ST, FP	BA01CB501
Ball	09	8 – 10	Class 150	RF	CS body w/ 316 SS trim, RTFE ST, GO	BA01CB505
Ball	09	12 – 24	Class 150	RF	CS body w/ 316 SS trim, RTFE ST, GO	BA01CB502
Ball	09	26 – 48	Class 150	RF	CS body w/ 316 SS trim, RTFE ST, GO	BA01CB506
Ball	08, 09	8 – 10	Class 150	RF	CS body w/ 316 SS trim, RTFE ST, GO, FP	BA01CB504
Ball	08, 09	12 – 24	Class 150	RF	CS body w/ 316 SS trim, RTFE ST, GO, FP	BA01CB503
Ball	08, 09	26 – 48	Class 150	RF	CS body w/ 316 SS trim, RTFE ST, GO, FP	BA01CB507
Lug Butterfly	09	3 – 4	Class 150		CS body w/ 316 SS trim, RTFE ST	BF01CB700
Lug Butterfly	09	6 – 24	Class 150		CS body w/ 316 SS trim, RTFE ST, GO	BF01CB701
Lug Butterfly	09	26 – 48	Class 150		CS body w/ 316 SS trim, RTFE ST, GO	BF01CB702
Plug	09	1/2 – 3	Class 150	RF	CS body w/ 316 SS trim, PTFE sleeve lined	PL01CB500
Plug	09	4 – 18	Class 150	RF	CS body w/ 316 SS trim, PTFE sleeve lined, GO	PL01CB501
FLANGES						
Socket Weld		1/2 – 1-1/2	Class 150	RF	CS, ASTM A105, ASME B16.5	
Socket Weld	11	1/2 – 1-1/2	Class 150	FF	CS, ASTM A105, ASME B16.5	
Socket Weld	12	1/2 – 1-1/2	Class 300	RF	CS, ASTM A105, ASME B16.5	
Blind		1/2 – 24	Class 150	RF	CS, ASTM A105, ASME B16.5	
Blind	12	1/2 – 24	Class 300	RF	CS, ASTM A105, ASME B16.5	
Blind		26 – 48	Class 150	RF	CS, ASTM A105, ASME B16.47 Series B	
Slip-On	12	2 – 24	Class 300	RF	CS, ASTM A105, ASME B16.5	
Slip-On		2 – 24	Class 150	RF	CS, ASTM A105, ASME B16.5	
Weld Neck	13	2 – 24	Class 150	RF	CS, ASTM A105, ASME B16.5	
Weld Neck	11, 13	2 – 24	Class 150	FF	CS, ASTM A105, ASME B16.5	
Weld Neck	12, 13	2 – 24	Class 300	RF	CS, ASTM A105, ASME B16.5	
Weld Neck		26 – 48	Class 150	RF	CS, ASTM A105, ASME B16.47, Series B	
Pair WN Orifice		2 – 24	Class 300	RF	CS, ASTM A105, ASME B16.36, SW taps	
GASKETS						
	14	1/2 – 24	Class 150		1/16" thick flexible graphite w/ 304 or 316 SS corrugated insert, ASME B16.21	
		26 – 48	Class 150		Spiral wound type 304 SS, w/ flexible graphite filler, ASME B16.20, ASME B16.47 Series B dimensions	
		1/2 – 24	Class 300		1/16" thick flexible graphite w/ 304 or 316 SS corrugated insert, ASME B16.21	
BOLTING						
Stud Bolts					ASTM A193, Gr B7 stud w/ 2 heavy hex nuts ASTM A194, Gr 2H	

REFERENCES:

Process Industry Practices (PIP)

- PIP PNF0200 - *Vents, Drains, and Instrument Connection Details*
- PIP PNSMV003 - *Carbon Steel Gate Valve Descriptions*
- PIP PNSMV004 - *Carbon Steel Globe Valve Descriptions*
- PIP PNSMV005 - *Carbon Steel Check Valve Descriptions*
- PIP PNSMV006 - *Carbon Steel Ball Valve Descriptions*
- PIP PNSMV007 - *Carbon Steel Butterfly Valve Descriptions*
- PIP PNSMV008 - *Carbon Steel Plug Valve Descriptions*

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