

Accessories – Extension nipples for flush accessories

Description

In case of the use of flush ring between process connection and diaphragm seal the extension, nipples are widely used as an alternative to extend the flush ring connection outside flange circumference. From this point it is possible to build further with needle or ball valves. As these extension nipples are pressurized and wetted parts it is important to make sure the materials are compatible with the process media and the pressure rating. Therefore, a selection of most common materials are listed below with some of the key characteristics.

Material of construction

The extension nipples are manufactured from certified bar material. The AISI 316(L) material is made from tube.

General name	UNS	Wst.
AISI 316L	S31600	1.4404
AISI 321	S32100	1.4550
AISI 247	S34700	1.4541
Duplex 2205	S32205	1.4462
Alloy C-276	N10276	2.4810
Alloy 625	N06625	2.4856
Alloy 400	N04400	2.4375
Super Duplex 2507	S32760	1.4501
Titanium Gr. 2	R50400	3.7035

Pressure rating

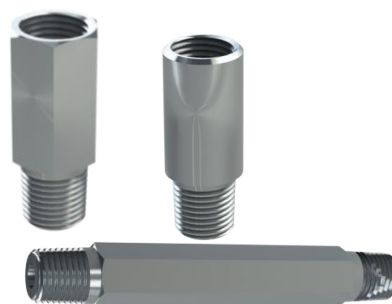
The mentioned pressure rating of threaded extended tubing are based on the ASME Code for pressure piping ASME B31.3 at ambient temperature. To determine the pressure rating in according with the ASME B31.1 the values should be multiplied by 0.94. The wall thickness, thread type and allowable stress values are taken into account when determining the pressure rating. Pressure ratings are indicative and subject for further engineering. Variables such as fitting tape/paste and torque may have effect on the pressure rating when fitted on a flush ring and valve.

Marking

The extension nipples are marked with relevant information such as the heat number and material of construction.

Special service

The extension nipples can be used in special service. The parts are cleaned for oil and grease and a special lubrication is applied on the thread. A Krytox® grease and will be applied and tested in a controlled environment to prevent contamination with oil and grease.



Dimensions

The extension nipples can be made in several lengths.

Length (mm)	NPS	Inside diameter	
		Tube (AISI 316)	Bar stock
50	1/4	7.66	7
80	3/8	10.70	9
100	1/2	11.74	10
150			
200			

Standards used

Design Standards

Standard	Description
ASME B31.3 - 2020	Process Piping
ANSI B1.20.1	Pipe threads, general purpose
ISO 7-1	Pipe threads, general purpose, tapered
ISO 228-1	Pipe threads, general purpose, straight
ASME B36.10	Welded and seamless wrought pipe

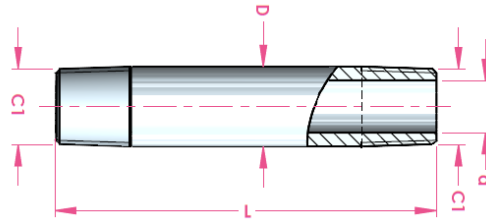
Material Standards

Standard	Description
NACE MR0175/MR0103 ISO 15156 - 2020	use in H ₂ S-containing environments in oil and gas production
NORSOK M-630 - 2010	specification for use in pipelines
ASTM standards	Material specific standards

Certification Standards

Standard	Description
EN 10204 - 2017	Inspection documents

Dimension table: Extension Tube



NPS	Material	UNS number	C1	D	d	L	Design pressure (bar)				
							38°C	100°C	200°C	300°C	400°C
1/4" / DN 8	TP 316	S31600	1/4" NPT-m	13.7	7.66 ^{*1}	80	330		320	284	265
	AISI 347	S34700			439		436	391	317	300	
	AISI 321	S32100			439		410	404	379		
	Duplex 1803	S31803			563		525	509	-		
	Super Duplex 2507	S32750			725		722	662	646	-	
	Alloy 400	N04400			366		316	290	287	283	
	Alloy C276	N10276			598		563	515			
	Titanium Gr.2	R50400			314		266	195	149	-	
	Alloy 625	N06625			585		538	493	464	445	

*1: Based on ASME B36.10M Schedule 80 welded tube specification
 Design pressure is based on ASME 31.3 calculation equation 35b. Values are purely indicative.

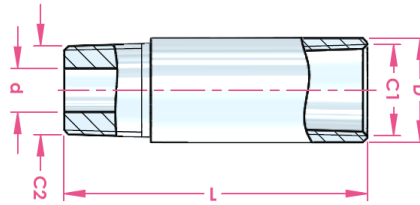
NPS	Material	UNS number	C1	D	d	L	Design pressure (bar)				
							38°C	100°C	200°C	300°C	400°C
3/8" / DN 10	TP 316	S31600	3/8" NPT-m	17.1	10.70 ^{*1}	80	288		280	248	232
	AISI 347	S34700			504		501	450	365	345	
	AISI 321	S32100			505		472	464	435		
	Duplex 1803	S31803			647		603	585	-		
	Super Duplex 2507	S32750			834		830	761	742	-	
	Alloy 400	N04400			421		363	333	330	325	
	Alloy C276	N10276			687		647	592			
	Titanium Gr.2	R50400			361		305	225	171	-	
	Alloy 625	N06625			673		618	567	534	512	

*1: Based on ASME B36.10M Schedule 80 welded tube specification
 Design pressure is based on ASME 31.3 calculation equation 35b. Values are purely indicative.

NPS	Material	UNS number	C1	D	d	L	Design pressure (bar)				
							38°C	100°C	200°C	300°C	400°C
1/2" / DN 15	TP 316	S31600	1/2" NPT-m	21.3	11.74 ^{*1}	80	463		449	399	372
	AISI 347	S34700			665		661	593	481	455	
	AISI 321	S32100			665		662	612	574		
	Duplex 1803	S31803			853		796	771	-		
	Super Duplex 2507	S32750			1099		1095	1003	979	-	
	Alloy 400	N04400			555		479	439	435	429	
	Alloy C276	N10276			906		742	781			
	Titanium Gr.2	R50400			378		320	236	179	-	
	Alloy 625	N06625			887		815	747	704	675	

*1: Based on ASME B36.10M Schedule 160 welded tube specification
 Design pressure is based on ASME 31.3 calculation equation 35b. Values are purely indicative.

Dimension table: Extension Tube



NPS	Material	UNS number	C1	C2	D	d	L	Design pressure (bar)				
								38°C	100°C	200°C	300°C	400°C
1/4" / DN 8	AISI 316	S31600	1/4" NPT-f	1/4" NPT-m	19.0	7	80	444		431	383	357
	AISI 347	S34700						444	441	396	321	304
	AISI 321	S32100						444		415	409	383
	Duplex 1803	S31803						570		531	515	-
	Super Duplex 2507	S32750						734	730	669	653	-
	Alloy 400	N04400						370	320	393	291	286
	Alloy C276	N10276						605		570	521	
	Titanium Gr.2	R50400						317	269	198	150	-
	Alloy 625	N06625						592	544	499	470	450

Design pressure is based on ASME 31.3 calculation equation 35b. Values are purely indicative. Minimum wall thickness acc. ASME B16.34 is kept for calculation.

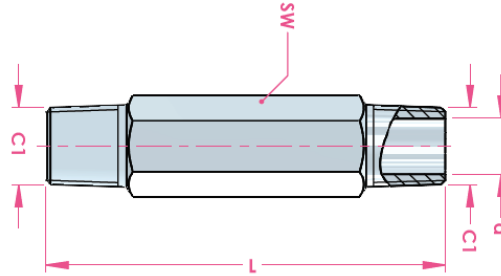
NPS	Material	UNS number	C1	C2	D	d	L	Design pressure (bar)				
								38°C	100°C	200°C	300°C	400°C
3/8" / DN 10	AISI 316	S31600	3/8" NPT-f	3/8" NPT-m	22.0	9	80	354		344	305	285
	AISI 347	S34700						354	351	315	256	242
	AISI 321	S32100						354		331	326	305
	Duplex 1803	S31803						454		423	410	-
	Super Duplex 2507	S32750						585	582	534	521	-
	Alloy 400	N04400						295	55	234	232	228
	Alloy C276	N10276						482		454	416	
	Titanium Gr.2	R50400						253	214	157	120	-
	Alloy 625	N06625						472	433	398	374	359

Design pressure is based on ASME 31.3 calculation equation 35b. Values are purely indicative. Minimum wall thickness acc. ASME B16.34 is kept for calculation.

NPS	Material	UNS number	C1	C2	D	d	L	Design pressure (bar)				
								38°C	100°C	200°C	300°C	400°C
1/2" / DN 15	AISI 316	S31600	1/2" NPT-f	1/2" NPT-m	27.0	10	80	322		313	278	259
	AISI 347	S34700						322	320	287	233	220
	AISI 321	S32100						322		301	296	278
	Duplex 1803	S31803						413		385	373	-
	Super Duplex 2507	S32750						532	530	486	474	-
	Alloy 400	N04400						269	232	213	211	208
	Alloy C276	N10276						439		413	378	
	Titanium Gr.2	R50400						230	195	143	109	-
	Alloy 625	N06625						429	394	362	341	327

Design pressure is based on ASME 31.3 calculation equation 35b. Values are purely indicative. Minimum wall thickness acc. ASME B16.34 is kept for calculation.

Dimension table: Hexagon Extension Tube



NPS	Material	UNS number	C1	SW	d	L	Design pressure (bar)				
							38°C	100°C	200°C	300°C	400°C
1/4" / DN 8	AISI 316	S31600	1/4" NPT-m	19	7	80	444	431	383	357	
3/8" / DN 10			3/8" NPT-m	22	9		354	344	305	285	
1/2" / DN 15			1/2" NPT-m	27	10		322	313	278	259	

Design pressure is based on ASME 31.3 calculation equation 35b. Values are purely indicative. Minimum wall thickness acc. ASME B16.34 is kept for calculation

Product code instrument needle valve

Code		AEN	N12M	N12F	C	S316
Example code:						
Type						
Extension nipple		AEN				
Inlet (process connection)						
G 1/4 A (male) ISO 1179-4	G14M					
G 3/8 A (male) ISO 1179-4	G138M					
G 1/2 A (male) ISO 1179-4	G12M					
1/4" NPT (male)	N14M					
3/8" NPT (male)	N38M					
1/2" NPT (male) ◀	N12M					
1/2" Socket Weld male	S12M					
3/4" Socket Weld male	S34M					
1/2" Butt Weld	B12M					
3/4" Butt Weld	B34M					
Outlet (Instrument connection)						
G 1/4 A (male) ISO 1179-4	G14M					
G 3/8 A (male) ISO 1179-4	G138M					
G 1/2 A (male) ISO 1179-4	G12M					
1/4" NPT (male)	N14M					
3/8" NPT (male)	N38M					
1/2" NPT (male) ◀	N12M					
G 1/4 A (female) ISO 1179-1	G14F					
G 3/8 A (female) ISO 1179-1	G38F					
G 1/2 A (female) ISO 1179-1	G12F					
1/4" NPT (female)	N14F					
3/8" NPT (female)	N38F					
1/2" NPT (female) ◀	N12F					
1/2" Socket Weld male	S12M					
3/4" Socket Weld male	S34M					
1/2" Butt Weld	B12M					
3/4" Butt Weld	B34M					
Length (L)						
50mm	L50					
80mm	L80					
100mm	L100					
150mm	L150					
200mm	L200					
Material						
AISI 316(L) ◀	S316					
Alloy C276	A276					
AISI 321	S321					
Alloy 400	A400					
Alloy 625	A625					
AISI 347	A347					
Duplex 1803	1803					
Super Duplex 2507	2507					
Titanium Grade 2	Ti02					

Table 2: Options

Option (start options with X_)	code
AISI 316 from bar Hexagon	_HEX
Flat sides* ¹	_SW
Cleaned for Oxygen use	_CFO
NACE ISO 15156 (MR 01 75)	_N75
3.1 material certificate	_IC31
2.2 Positive Material Identification	_PMI
Bracket set distance mounting	_BRD

*1: This option leads to increase of diameter of the extension nipple

ACC - 22nd of November 2021

Holland – Romania – India – Thailand – Dubai – USA

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