NSCP® is NIPPON STEEL STAINLESS STEEL PIPE's clean pipe for semiconductor manufacturing.

NSCP®
NIPPON STEEL CLEAN PIPE

Brand Statement

NIPPON STEEL STAINLESS STEEL PIPE's clean pipe for semiconductor manufacturing has maintained a high market share for a long time due to its high reliability based on its high performance and high quality.
This clean pipe has been given a new name, "NSCP®" , to create new value.
The new brand logo design has been created to promote multi-faced approaches to further improve product recognition in overseas markets.

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NIPPON STEEL Group has supported global industrial development through its steel products.
By providing the highest quality NSCPs, we will support the semiconductor manufacturing industry, which has grown from being the "core of industry" to the "neurons of society" through the development of digitalization in society, and contribute to making a great leap forward in the future.

Logo design concept: Centering on the appearance of stainless steel (in a silver chrome color), the round shapes (in blue) in the characters express the high-precision internal surfaces of steel pipes. Two different color gradations emerge into a sophisticated logotype.

NIPPON STEEL STAINLESS STEEL PIPE Co.,Ltd.

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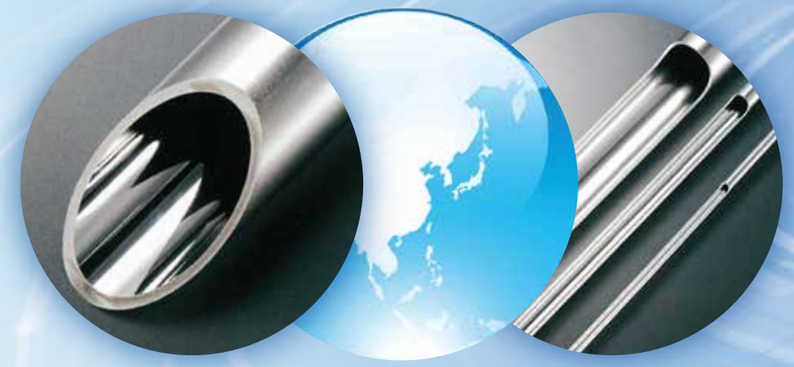
NIPPON STEEL

Clean Pipe for Semiconductor Manufacturing

NSCP®
NIPPON STEEL CLEAN PIPE

NIPPON STEEL STAINLESS STEEL PIPE Co.,Ltd.



NSCP®

NIPPON STEEL CLEAN PIPE

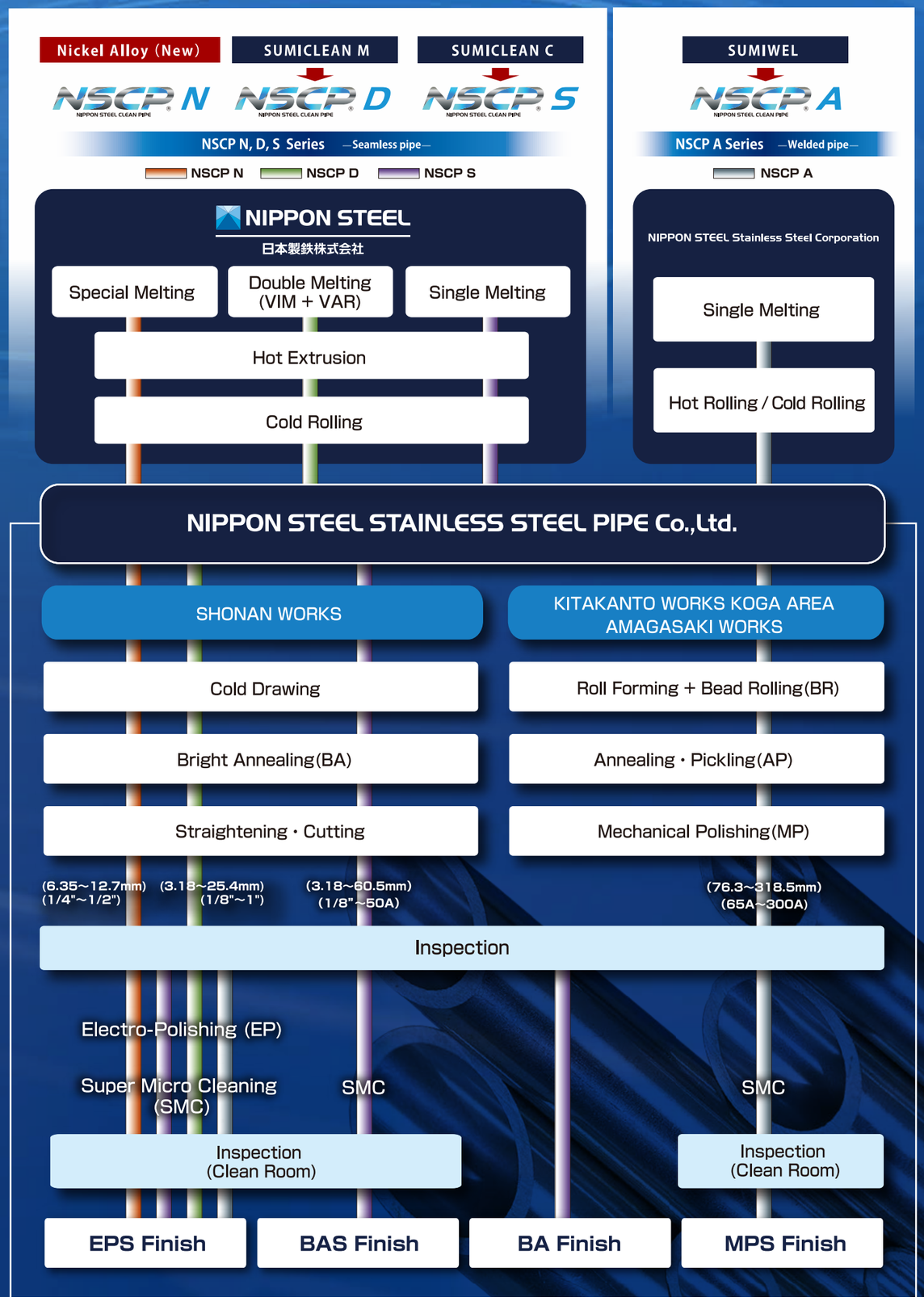
The clean pipe for semiconductor manufacturing, which has high cleanliness and superior inner-face smoothness, has been given the

new brand name as NSCP® to create new value

(Old) Sumitomo Metal Industries, Ltd. started manufacturing its high quality clean pipes for semiconductor manufacturing in 1993. Using high-cleanliness steel and its original internal processing technique allows the product to boast excellent weldability, inner-face smoothness and cleanliness, and this pipe has been highly evaluated by customers both inside and outside Japan.

We have supplied vast amounts of clean pipes for semiconductor manufacturing so far. These pipes have been given a new brand name, NSCP®, to restart them as clean pipes that supports the rapidly advancing semiconductor industry.

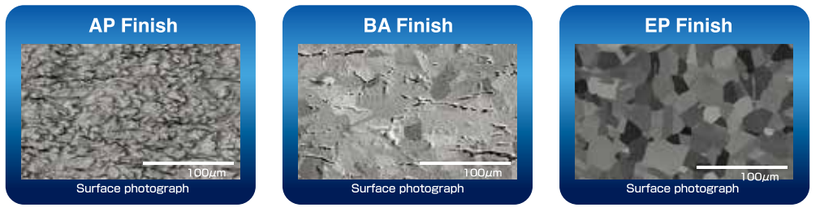
NEXT PHASE



Products Characteristics

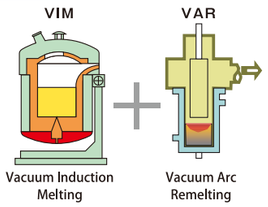
High Smoothness

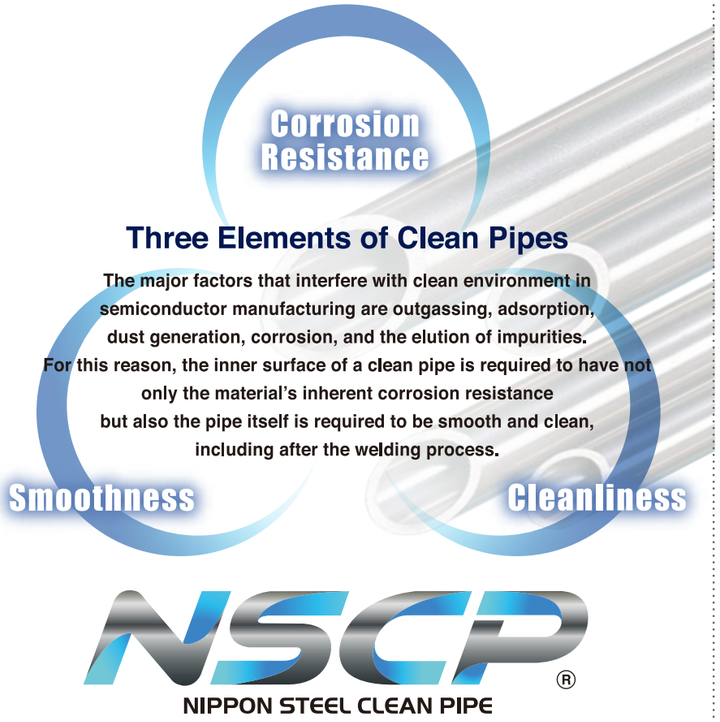
Inner surface smoothness is one of the characteristics that a clean pipe is required to have. Dust, moisture and other objects adhere to surface irregularities, contaminate the gasses used in semiconductor manufacturing and lead to a reduction in semiconductor product yield. The products NSCP N, D, and S are processed using our proprietary drawing technique that increases smoothness. After that, they go through one of three different grades of finishing processes that maintain the smoothness: (1) a bright annealing (BA) finish, (2) a BAS finish that removes fine particles and oil to the absolute maximum, and (3) an EPS finish that provides electro-polishing that boasts the highest smoothness in the industry. For NSCP A, our original inner surface bead smoothing technique, which we cultivated for medical piping, is applied at the time of the welding of the pipes, and after that, mechanical polishing (MPS) or additional electro-polishing (EPS) are used for finishing to achieve the high inner surface smoothness that is completely different from that of normal welded pipes.



High Corrosion Resistance / High Cleanliness

In the semiconductor manufacturing processes, where large volumes of corrosive gasses are used, the corrosion of welded parts directly causes a reduction in the service life of equipment and in the yield of semiconductor products. The NSCP Series offers three types of materials depending on the corrosive environments in question: the high corrosion-resistance Ni-based material (NSCP N), the double-melt high-cleanliness material (NSCP D), and the single-melt material (NSCP S). They are all manufactured under NIPPON STEEL Group's highly sophisticated integrated quality control system to achieve stable corrosion resistance and cleanliness.





NSCP Series

(Newly developed product)

NSCP N — NIPPON STEEL CLEAN PIPE

Using a highly corrosion-resistant Ni-based material achieves low contamination and long service lives for piping, even in a highly corrosive gaseous environment that may corrode the conventional 316L.

(Old SUMICLEAN M)

NSCP D — NIPPON STEEL CLEAN PIPE

By using a vacuum double-melt (VIM + VAR) material with impurity elements and non-metal inclusion being reduced as much as possible, high performance is maintained not only for the base material's properties but also for the weldability of processed pipes.

(Old SUMICLEAN C)

NSCP S — NIPPON STEEL CLEAN PIPE

Although it uses a single-melt material, this pipe has lower impurity elements, many variations in steel types and finishing processes, and is applicable to a wide variety of members and uses.

(Old SUMIWEL)

NSCP A — NIPPON STEEL CLEAN PIPE

Bead Rolling on the inner surface of a pipe at the time of making a welded pipe and subsequent mechanical polishing or additional electro-polishing are applied to secure the inner surface smoothness.

Product name and characteristics

Method	Old series name	New series name / Product name		Pipe type (UNS No.)	Product characteristics	
		Series name	Product name		Corrosion resistance	Cleanliness
Seamless pipe	–	NSCP N	NSCP N22	(N06022)	★★★★	★★★☆
	SUMICLEAN M	NSCP D	NSCP D316L	SUS316LTP	★★★☆	★★★★ ✻
	SUMICLEAN C	NSCP S	NSCP S316L	SUS316LTP	★★★☆	★★☆☆ ✻
			NSCP S316	SUS316TP	★★☆☆	★★☆☆
			NSCP S304	SUS304TP	★☆☆☆	★★☆☆
Welded pipe	SUMIWEL	NSCP A	NSCP A316L	SUS316LTP	★★★☆	★☆☆☆ ✻

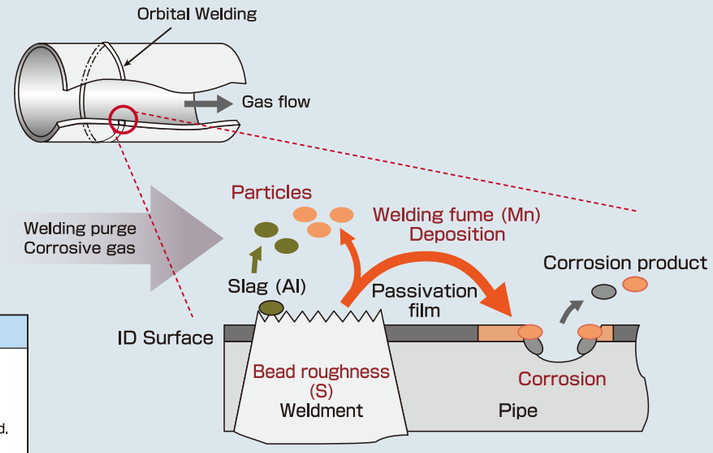
Surface finish and inner surface roughness

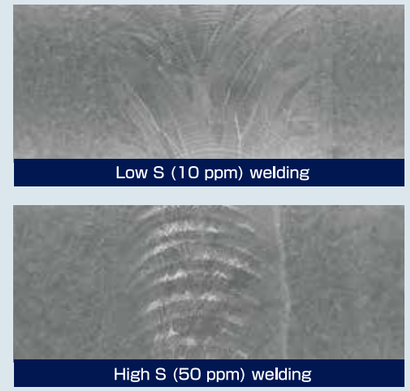
Method	NSCP Series	Surface finish		Inner surface roughness (maximum height)	
			Finishing process*	1/8" ≦OD≦1" (3.18 mm to 20 A)	1"<OD≦12" (25 A to 300 A)
Seamless pipe	NSCP N	EPS	BA+EP+SMC	≦0.7μm (aim)	–
	NSCP D			≦0.7μm	–
	NSCP S	EPS	BA+EP+SMC	≦0.7μm	
		BAS	BA+SMC	≦3.0μm	≦4.5μm
		BA	BA		
Welded pipe	NSCP A	EPS	MP+EP+SMC	–	≦0.7μm
		MPS	MP+SMC	–	≦4.5μm

*BA: Bright Annealing, EP: Electro-Polishing, SMC: Super Micro Cleaning, MP: Mechanical Polishing

✻Trace components and cleanliness of SUS316LTP

Main components 18Cr-12Ni-2Mo		JIS G3459	NSCP D	NSCP S	NSCP A
Trace components	C	≦ 0.030%	Extremely low	Low	As per Std.
	S	≦ 0.030%	Low	Low	
	Mn	≦ 2.00%	Extremely low	Low	
	Al	–	Low	Low	
	Gas components	–	Extremely low	–	
Welding contamination	Mn fume	Base	Extremely low	Low	Base
	Slag	Base	Low	Low	Base





Lower S improves welding bead roughness

NSCP D316L uses NIPPON STEEL's strictly controlled high-cleanliness steel, which features excellent weldability and low welding contamination.

Manufacturing Process

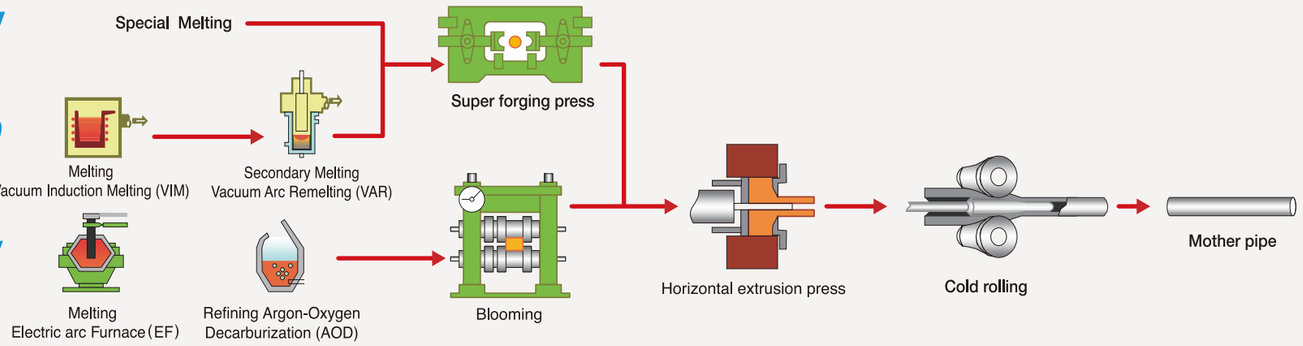
NIPPON STEEL CLEAN PIPE

Seamless pipe manufacturing process (NIPPON STEEL)

NSCP® N NIPPON STEEL CLEAN PIPE

NSCP® D NIPPON STEEL CLEAN PIPE

NSCP® S NIPPON STEEL CLEAN PIPE



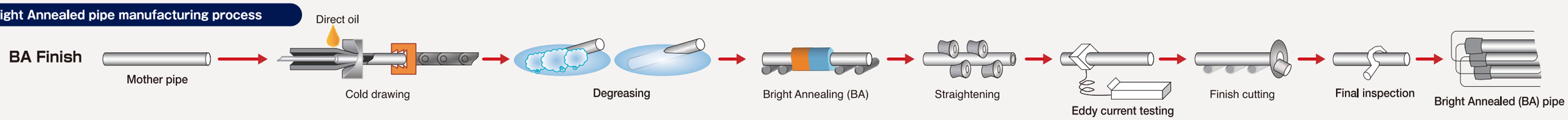
Dimensions

Series	Outside Diameter			Wall Thickness		
	(in.)	JIS	(mm)	(in.)	JIS	(mm)
NSCP N NSCP D NSCP S	1/8	—	3.18	0.028	—	0.72
	1/4	—	6.35	0.035 0.039	—	0.89 1.00
	3/8	—	9.53	0.035 0.039	—	0.89 1.00
	1/2	—	12.7	0.039 0.049	—	1.00 1.24
	3/4	—	19.05	0.049	—	1.24
	1	—	25.4	0.065	—	1.65

NSCP N : Please contact us for sizes other than 1/4 (in), 3/8 (in), and 1/2 (in).

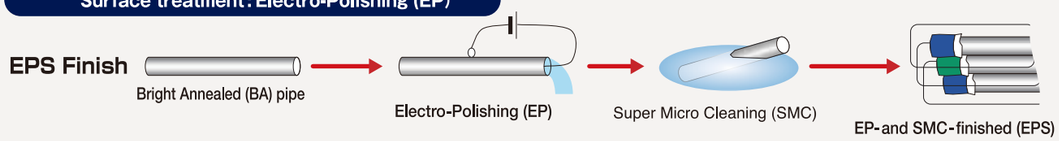
Series	Outside Diameter			Wall Thickness		
	(in.)	JIS	(mm)	(in.)	JIS	(mm)
NSCP S	5/8	—	15.88	0.039 0.049	—	1.00 1.24
	3/4	—	19.05	0.065	—	1.65
	—	15A	21.7	—	Sch5S	1.65
	—	20A	27.2	—	Sch5S	1.65
	—	25A	34.0	—	Sch5S	1.65
	—	32A	42.7	—	Sch5S	1.65
	—	40A	48.6	—	Sch5S	1.65
	—	50A	60.5	—	Sch5S	1.65

Bright Annealed pipe manufacturing process



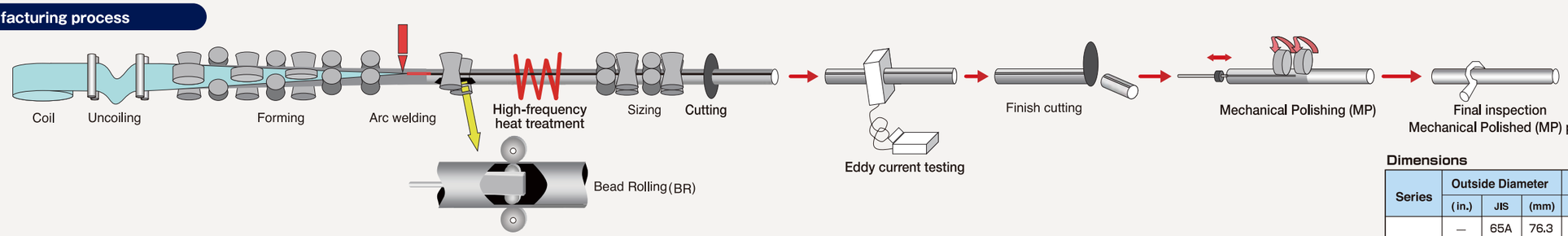
Surface treatment: Super Micro Cleaning (SMC)

Surface treatment: Electro-Polishing (EP)



Welded pipe manufacturing process

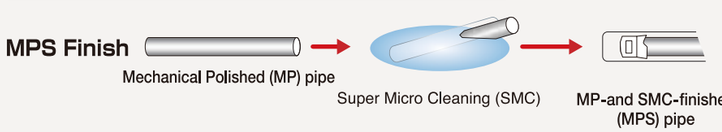
NSCP® A NIPPON STEEL CLEAN PIPE



Dimensions

Series	Outside Diameter			Wall Thickness		
	(in.)	JIS	(mm)	(in.)	JIS	(mm)
NSCPA	—	65A	76.3	—	Sch5S	2.1
	—	80A	89.1	—	Sch5S	2.1
	—	100A	114.3	—	Sch5S	2.1
	—	125A	139.8	—	Sch5S	2.8
	—	150A	165.2	—	Sch5S	2.8
	—	200A	216.3	—	Sch5S	2.8
	—	250A	267.4	—	Sch5S	3.4
	—	300A	318.5	—	Sch5S	4.0

Surface treatment: Super Micro Cleaning (SMC)



Surface treatment: Electro - Polishing (EP)