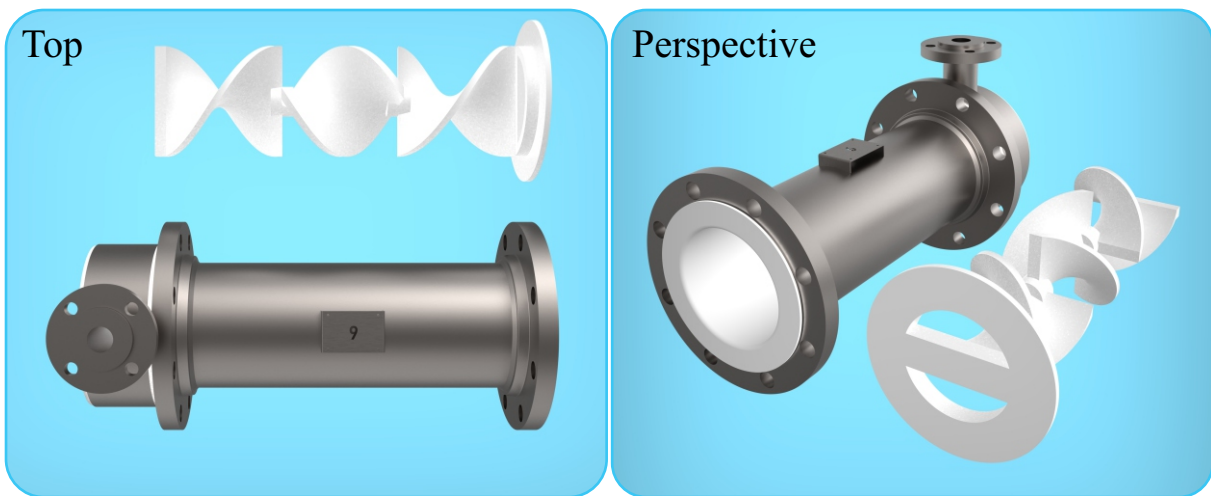


Helical Static Mixer

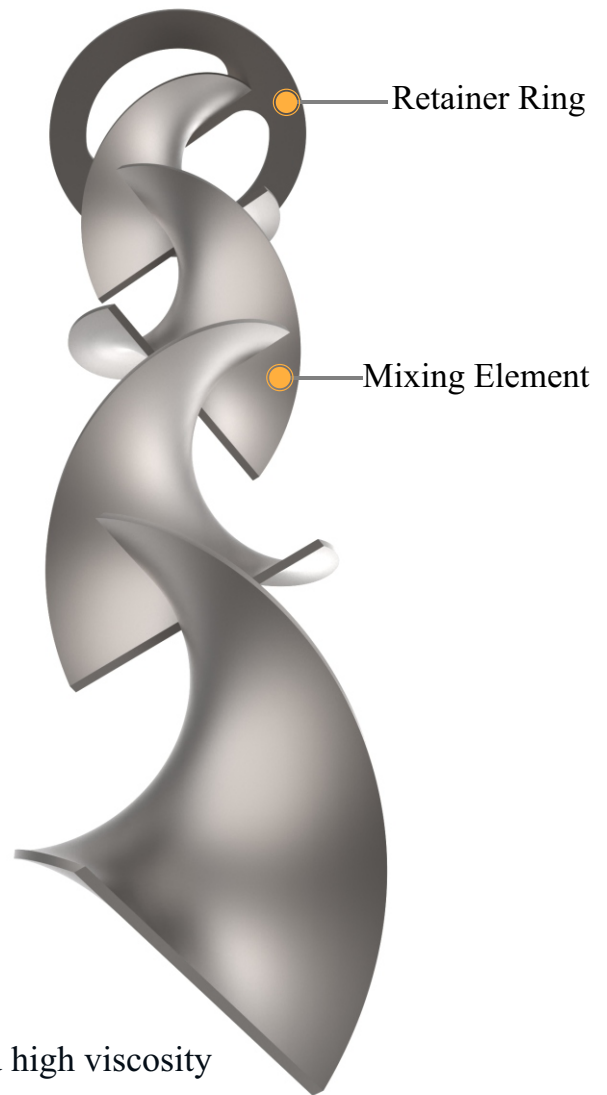
This type of mixer is used in a wide range of industries. Helical mixers are highly suitable for fluids with medium viscosity and density. The working principles of these mixers are based on division for laminar flows with Reynolds numbers less than 2300, and on division, conversion, and inversion for turbulent flows with Reynolds numbers greater than 4000.



1. Division: As the fluid passes through the mixer, each element divides the fluid into two distinct layers. The total number of divisions after passing through 'n' elements is calculated by the formula $x = 2^n$. Therefore, with 18 elements in the mixer, the fluid is divided into 262,144 layers.
2. Conversion: The fluid moves along the elements due to pressure. The helical wall of the elements guides the fluid in the center towards the wall, and the fluid near the wall towards the center. This movement creates a velocity difference among the fluid molecules, causing the fluid to be sheared.
3. Inversion: The direction of the fluid flow changes by 90 degrees from one element to the next. This inversion of the flow direction induces turbulence in the fluid, thereby enhancing the mixing power.

Main Applications

- Water and wastewater treatment
- Mixing gas with liquid and liquid with liquid
- Producing oil-in-water emulsions
- Producing biodiesel fuel
- Blending antioxidants with other additives
- Injecting coagulants into the main stream
- Viscosity modification
- PH control
- Homogenizing lines for sampling
- Mixing two or more liquid resins
- Carrying out chemical reactions with low and high viscosity



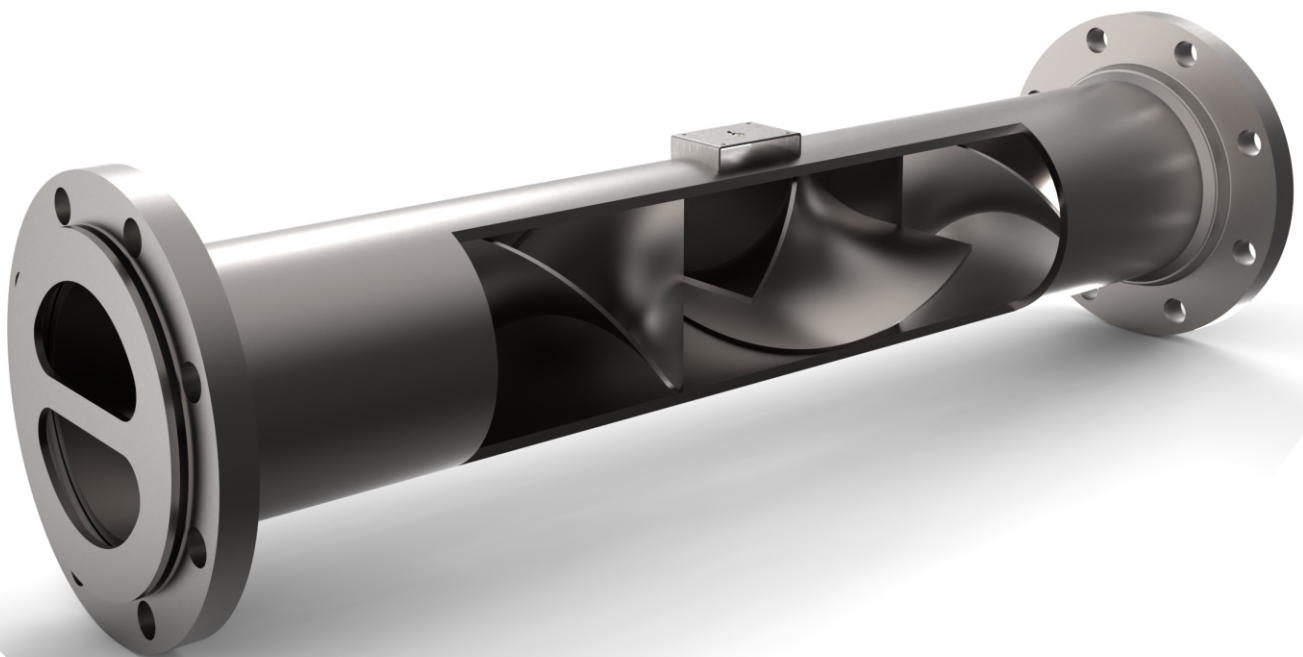
Construction Material Include

Options

- Element construction: Fixed, Removable
- Element material: Virgin PTFE
- Element coating: PE and FEP types
- Installation of injection Quills before mixer

Construction materials include

- Housing material
 - None Metal: GRP, GRE, HDPE, UPVC
 - Metal: CS, 304 SS, 316 SS, Duplex SS, Super Duplex SS
- Flange Standard: ASME, DIN, JIS
- Flange Type: Welding Neck, Slip On

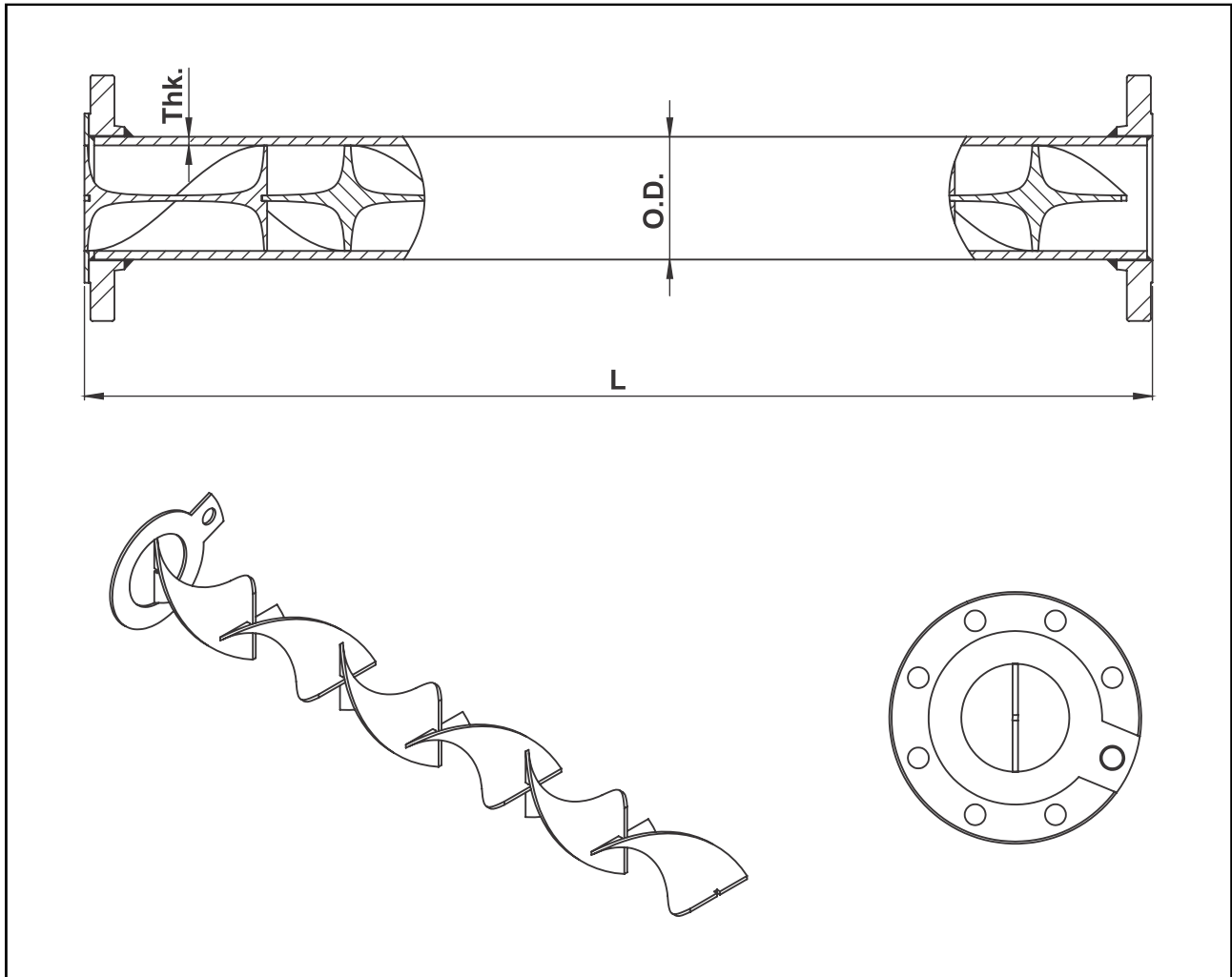


Identity Code of HSM Mixers

Mixer Selection	
HSM	Helical Static Mixers
Mixer Version Indicator	
V2	Version 2
Wet Parts Material	
S4	SS 304
S6	SS 316L
S4	TITANIUM
S10	HASTELLOY C-276
Mixer Size	
A	1/2" E 2" I 6"
B	3/4" F 3"
C	1" G 4"
D	1 1/2" H 5"
Mixer Element Type	
A	Fixed
B	Removable
Number Of Element	
2	4
6	8
10	12
Housing Scheoule	
TI	Scheoule 10
TH	Scheoule 40
TV	Scheoule 80
Connection Type	
0	NPT
1	ANSI 150 LBS FLANGES
2	ANSI 300 LBS FLANGES
3	Pn16, Flange (DIN2501)
4	Pn40, Flange (DIN2501)
Element Coat	
A	N/A
B	PE Coating
C	ETFE Coating
D	FEP Coating
Housing Lining	
1	W/O
2	Hard Rubber
3	PTFE
Number Of Injection Points	
CO	W/O
C1	1
C2	2
C3	3
Additional Test	
T1	W/O
T2	Mat. Certificate
T3	Welding TEST
T4	Pressure TEST
T5	All TEST



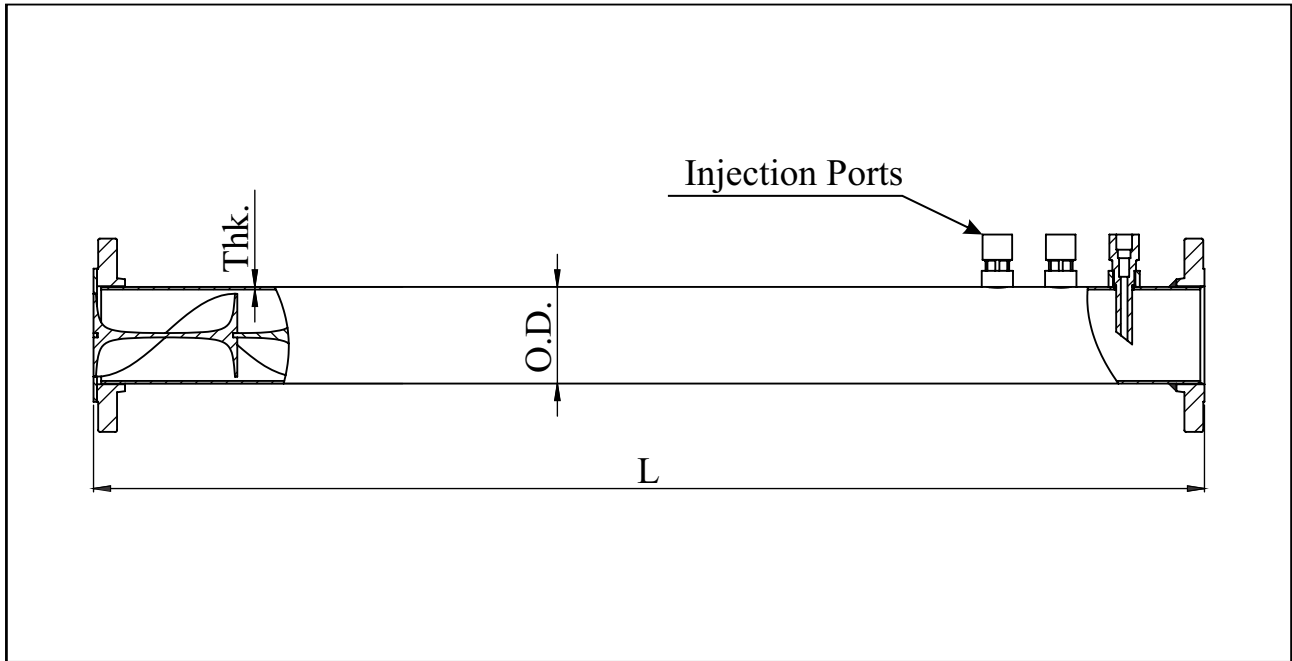
Dimensional Drawing of Helical Static With Slip On Flange



Normal Size (inch)		1/2	3/4	1	1 1/2	2	3	4	5	6	
OD(mm)		21.3	26.7	33.4	48.3	60.3	88.9	114.3	141.3	168.3	
HOUSING THICKNESS Thk (mm)	SCH 10	2.11	2.11	2.77	2.77	2.77	3.05	3.05	3.4	3.4	
	SCH 40	2.77	2.87	3.38	3.68	3.91	5.49	6.02	6.55	7.11	
	SCH 80	3.73	3.91	4.55	5.08	5.54	7.62	8.56	9.53	10.97	
TOTAL LENGTH L (mm)	Element Number	2	65	85	115	155	205	295	400	430	525
		4	115	150	195	280	365	525	675	820	990
		6	160	210	275	400	520	760	980	1200	1450
		8	210	275	355	525	680	995	1290	1585	-
		10	255	335	435	645	835	1230	1595	-	-
		12	305	400	515	770	995	1460	-	-	-

● The Tolerance Of Overall Length is ± 5 mm

Helical Static Mixer With Slip On Flange & Injection Quills



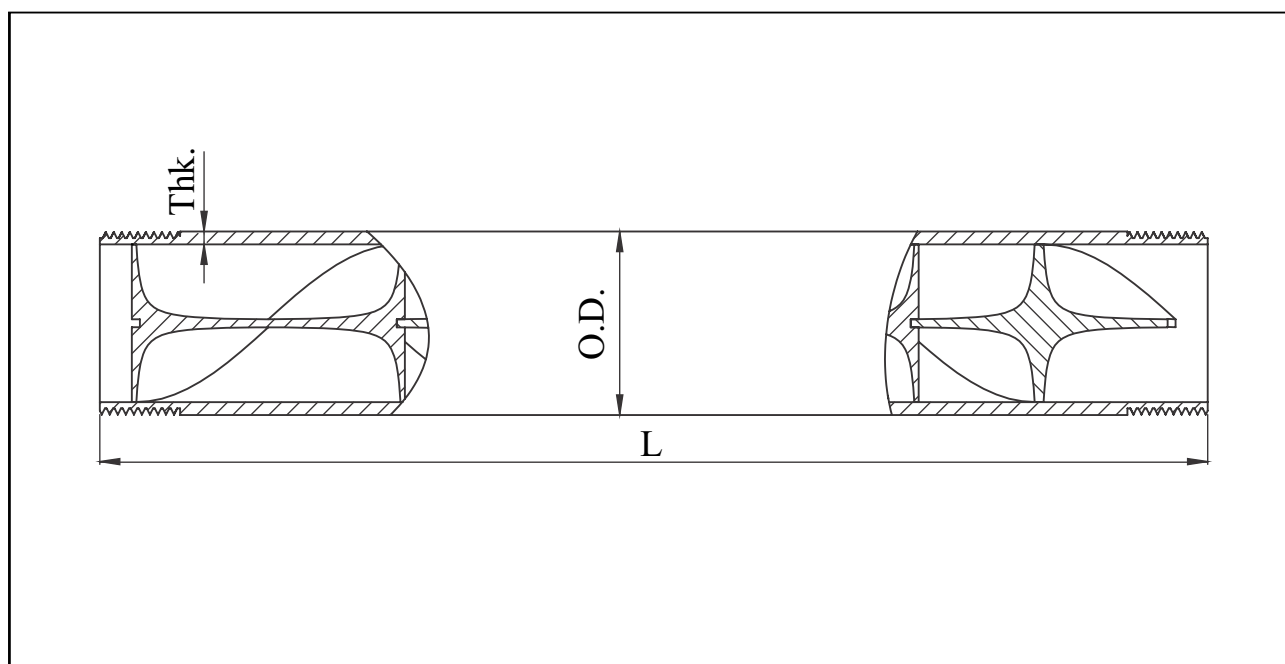
Normal Size (inch)		1/2	3/4	1	1 1/2	2	3	4	5	6		
OD(mm)		21.3	26.7	33.4	48.3	60.3	88.9	114.3	141.3	168.3		
Coupling Size (inch)		1.2	1.2	1.2	1.2	1.2	3.4	3.4	3.4	3.4		
TOTAL LENGTH L (mm)	Element Number	2	1	165	185	215	255	305	395	500	530	625
			2	265	285	315	355	405	495	600	630	725
			3	365	385	415	455	505	595	700	730	825
		4	1	215	250	295	380	465	625	775	920	1090
			2	315	350	395	480	565	725	875	1020	1190
			3	415	450	495	580	665	825	975	1120	1290
		6	1	260	310	375	500	620	860	1080	1300	1550
			2	360	410	475	600	720	960	1180	1400	1650
			3	460	510	575	700	820	1060	1280	1500	1750
		8	1	310	375	455	625	780	1095	1390	1685	-
			2	410	475	655	725	880	1195	1490	1785	-
			3	510	575	755	825	980	1295	1590	1885	-

→ Injection Ports Numbers

● The Tolerance Of Overall Length is ± 5 mm



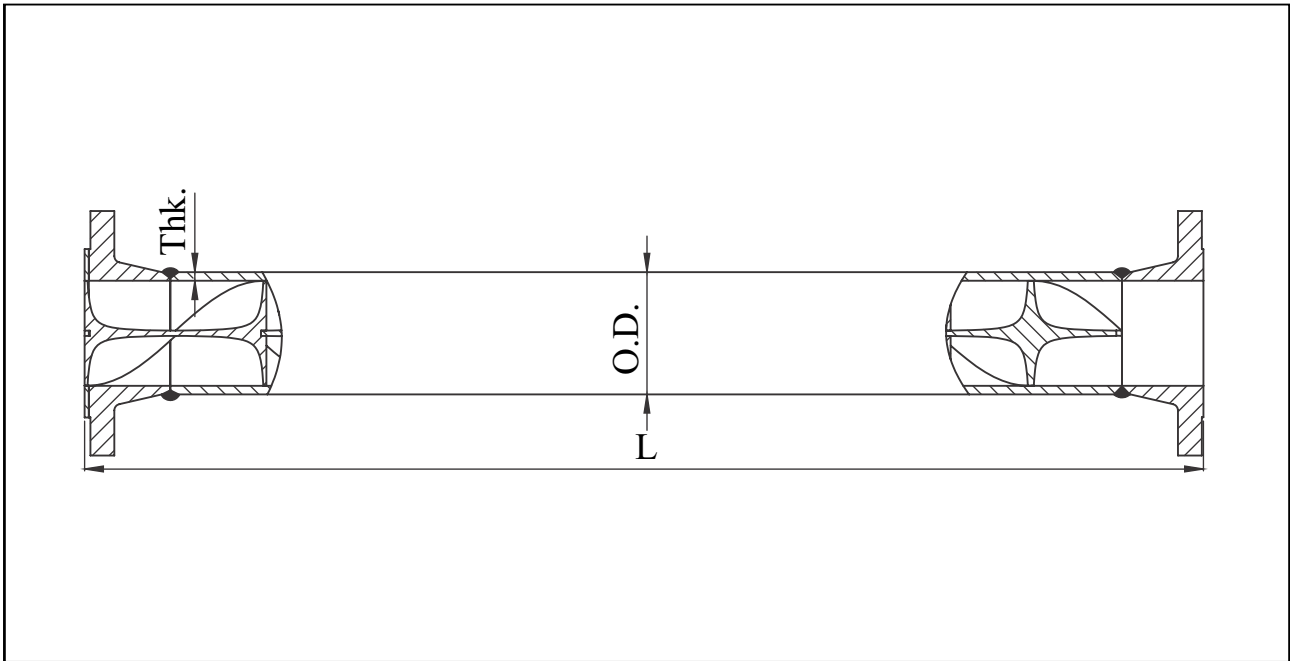
Helical Static Mixer With NPT Thread



Normal Size (inch)		1/2	3/4	1	1 1/2	2	3	4	
OD(mm)		21.3	26.7	33.4	48.3	60.3	88.9	114.3	
HOUSING THICKNESS Thk (mm)	SCH 10	2.11	2.11	2.77	2.77	2.77	3.05	3.05	
	SCH 40	2.77	2.87	3.38	3.68	3.91	5.49	6.02	
	SCH 80	3.73	3.91	4.55	5.08	5.54	7.62	8.56	
TOTAL LENGTH L (mm)	Element Number	2	52	70	85	135	170	242	315
		4	100	130	165	252	325	475	622
		6	145	195	245	375	480	710	930
		8	192	258	325	498	638	945	1235
		10	240	320	405	620	795	1175	1542
		12	285	380	485	745	952	1410	1850

● The Tolerance Of Overall Length is ± 5 mm

Helical Static Mixer With Welding Neck Flange



Normal Size (inch)		1/2	3/4	1	1 1/2	2	3	4	5	6	
OD(mm)		21.3	26.7	33.4	48.3	60.3	88.9	114.3	141.3	168.3	
HOUSING THICKNESS Thk (mm)	SCH 10	2.11	2.11	2.77	2.77	2.77	3.05	3.05	3.4	3.4	
	SCH 40	2.77	2.87	3.38	3.68	3.91	5.49	6.02	6.55	7.11	
	SCH 80	3.73	3.91	4.55	5.08	5.54	7.62	8.56	9.53	10.97	
TOTAL LENGTH L (mm)	Element Number	2	130	160	190	235	280	375	285	535	625
		4	180	225	270	360	440	605	760	925	1100
		6	225	285	350	480	595	840	1070	1305	1550
		8	275	350	430	605	755	1075	1375	1690	-
		10	320	410	510	725	910	1310	1680	-	-
		12	370	475	590	850	1070	1540	-	-	-

● The Tolerance Of Overall Length is ± 5 mm

