

Dong Hwa brings you good luck~

Established 1979

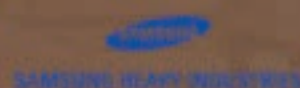


DSPF

The World Best Donghwa Special Pipe & Fitting

DongHwa TCA

Partnership & Certificate



							
ISO 14001:2004	ISO 18001:2007	ISO 9001:2008	BV	ABS	DNV	LR	RINA



Company History

- | | | | |
|-----------|---|-----------|---|
| 1979. 03. | Established Dong Hwa Metal | 2001. 11. | Received a prize for \$1million export |
| 1990. 02. | Changed company name into Dong Hwa Metal Co., LTD | 2001. 11. | Received a prize from Minister of Commerce |
| 1991. 08. | Achieve KS certification | 2002. 02. | Approval from BEREAU VERITAS INTERNATIONAL REGISTER |
| 1992. 12. | Registered as a partner company with Hyundai Heavy Industry | 2002. 06. | Approval for copper pipe as self-inspection item by Hyundai Heavy Industries |
| 1993. 11. | Established Welding business section | 2002. 06. | Appointed as a promising export company |
| 1993. 12. | Approved as military service person's workplace | 2002. 07. | Enlarged factory capacity |
| 1994. 01. | Achieve additional KS certification | 2002. 11. | Approval from A.B.S |
| 1994. 06. | Registered as a trading company | 2003. 06. | Approval from D.N.V |
| 1997. 11. | Registered as a partner company with Daewoo Heavy Industries | 2003. 04. | Approval from K.R |
| 1997. 12. | Appointed as a promising small&midium sized company by Kookmin Bank | 2003. 04. | Equiped with 3 1/2" Twin Cold Pilger Mill |
| 1998. 01. | Established a second factory | 2003. 06. | Approval from B.V |
| 1998. 03. | Registered as a partner company with by Hyundai Mipo Shipyard | 2003. 08. | Equiped with additional consecutive furnace |
| 1998. 04. | Registered as a partner company with by Samsung Heavy Industries | 2004. 01. | Changed company name into Dong Hwa TCA |
| 1998. 11. | Approval for KS A 9001:2001 / ISO 9001:2000 QC system | 2004. 11. | Received a prize for \$3million export |
| 1999. 04. | Appointed as a promising small & midium sized company by Small Business Corporation | 2004. 11. | Received a prize from |
| 1999. 09. | Moved factory to Yangsan | 2004. 02. | Approval as a partner company with Dae Woo Shipyard |
| 2000. 03. | Received a prize from Korea Internation Trade Association | 2005. 01. | Approval as a partner company with clean workplace from Korea Occupational Safety and Health Agency |
| 2000. 05. | Approval from Lloyd's Register of Shipping | 2005. 05. | Appointed as a Inno-Biz from |
| 2000. 12. | Registered Utility Model Patent for gas torch welding nozzle | 2005. 06. | Appointed as a Venture company from Small and Midium Business Administration |



- | | | | |
|-----------|---|-----------|--|
| 2005. 06. | Approval from RINA | 2010. 12. | The Best small & medium company membership & select world class company(Small & Medium business corporation) |
| 2005. 10. | Utility Model Patent for welding tip press | 2011. 11. | Received a prize from the mayor of Yang San-City |
| 2006. 03. | Received a prize from district tax office | 2011. 12. | Received a prize from Gyeongsang Province Governor " Prize of Gyeongnam Trading" |
| 2006. 03. | Utility Model Patent for ring preventing tubes from bending | 2012. 10. | Approval for ISO 14001: 2004 from ABS |
| 2006. 07. | Appointed as a high-tech company from KIBO Technology Fund | 2012. 10. | Approval for OHSAS 18001:2007 from ABS |
| 2006. 08. | Appointed as a leading company from Kook Min Bank | 2012. 11. | Renewal ISO 9001:2008 from ABS |
| 2006. 08. | Signed contract for industry and academy cooperation with Bu Kyung University | 2012. 11. | Received a prize for \$30 million export |
| 2006. 09. | Received a prize from Prime Minster | 2013. 04. | Merged with Dong Hwa S&S, Took over KOREA NIPPLE |
| 2006. 11. | Aquired a license for welding torch tip and gas diffuser connection structure | 2013. 06. | Approval for KS A 9001:2001 / ISO 9001:2000 QC system (FACTORY4) |
| 2006. 11. | Received a prize for \$5million export | 2013. 08. | Registered as a partner company with Hyundai Mipo Shipyard (FACTORY4) |
| 2007. 01. | Received a prize for 1st best enterpriser from yangsan city | 2013. 08. | Approval from Lloyd's (FACTORY4) |
| 2007. 02. | Approval As Manufacturer of Copper Alloy Tube From GS Caltex | 2013. 08. | Approval from KS(C8460, B1533, B1541, B1543) (FACTORY4) |
| 2007. 05. | Aquired a license for a heat treatment formula of Precipitation Hardening-Type Copper Alloy Tubes or Bars for mass production | 2013. 09. | Registered as a partner company with Hyundai Heavy Industry (FACTORY4) |
| 2007. 11. | Received a prize for \$10million export | | |
| 2008. 02. | Eablished of The Metal Laboratory attached Dong Hwa T.C.A Co.,LTD | | |
| 2009. 03. | Received a prize for Tax-Player's day (Busan Regional Tax Office) | | |

Message From CEO



We, DONG HWA TCA CO., LTD (DHTCA) were established in 1979 to manufacture copper and copper alloy products and we have been supplying them to the various field of industry such as Shipbuilding, Heating coil, Heat exchanger, Desalination plants, Petrochemistry equipment, offshore etc.

We have a recognition of top quality from prominent companies of overseas country and domestic.

We obtained ISO 9001 quality system, ISO 14001 environmental management system, OHSAS 18001 occupational safety and health management system and various classes of certificates such as ABS, Lloyds, DNV, BV, KR through highest quality control system.

We have accumulated technology and abundant experience for over 35 years will satisfy the customers with the best delivery, the highest quality and the most competitive prices.

We are doing our utmost for customer satisfaction

We always stand by customer.

Please do not hesitate to contact us for all of your requirements and inquiries.

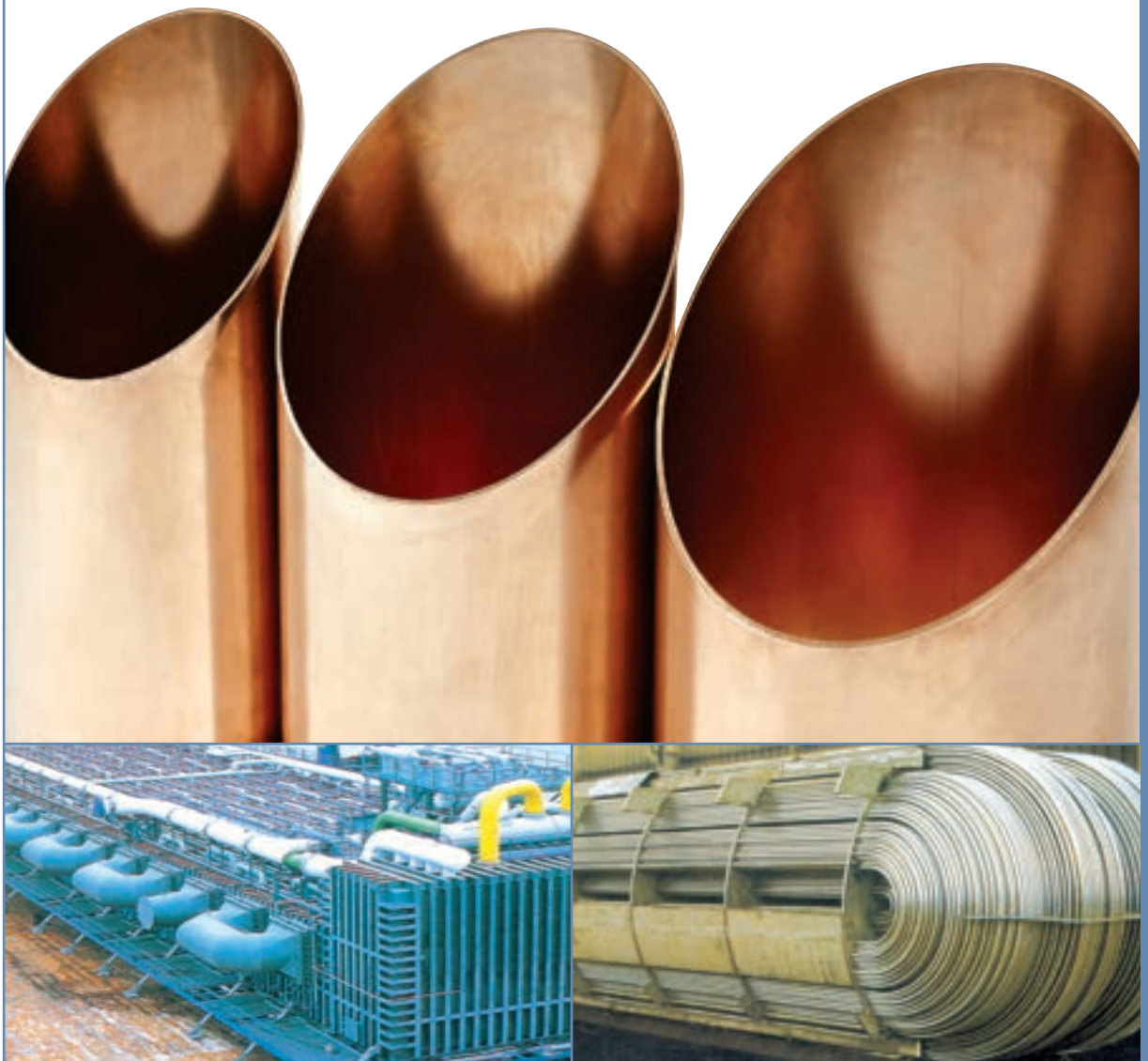
We sincerely hope you to give us continuous advice and interest.

PRESIDENT **TAE HO. SON**

Established 1979

DSPF (주)동화 **TCA**

The World Best Donghwa Special Pipe & Fitting



• Manufacturing Capacity of Seamless

PRODUCT	O.D(MM)		THICKNESS(MM)		LENGTH(M)	
	MAX	MIN	MAX	MIN	STRAGHT	R/L
CUNI 90/10 TUBE C7060T	419.1	6.0	14.0	0.5	23.0	
CUNI 70/30 TUBE C7150T	114.0	6.0	8.5	0.6	23.0	
ADMIRALTY BRASS TUBE C4430T	110.0	9.0	10.0	0.5	23.0	
AL-BRASS TUBE C6870T C6871T C6872T	110.0 110.0 110.0	9.0 9.0 9.0	10.0 10.0 10.0	0.5 0.5 0.5	23.0 23.0 23.0	
BRASS TUBE C2600T C2700T	110.0 110.0	3.0 3.0	10.0 10.0	0.2 0.2	23.0 23.0	
COPPER TUBE C1100T C1201T C1220T	219.0 219.0 219.0	3.0 3.0 3.0	15.0 15.0 15.0	0.4 0.4 0.4	23.0 23.0 23.0	10.0 ~ 150.0

* TEMPER : H, 1/2H, 1/4H, OL, O

* Limits for unnamed size may be established by agreement between manufacturer and purchaser

* Chemical composition is followed by JIS But other specs also be matched

• Production Item

Tube Division

PRODUCTION	ALLOY NO.				
	KS D53017 JIS H3300	ASTM B111	BS2871 (PART2)	AS1752	DIN
Copper Nickel (90/10) tube / pipe	C7060T	C70600	CN102	C70600	DIN 17644 CuNi10FeMn 2.0872
Copper Nickel (70/30) tube / pipe	C7150T	C71500	CN107	C71500	DIN 17644 CuNi30FeMn 2.0882
Copper tube / Pipe, LWC, Pan cake coil	C1220T	C1220	CN102	C12200	DIN 1786 SFCuF37
Copper Chrom plating tube / Pipe					
Aluminium Brass tube / Pipe	C6870T C6871T C6872T	C68700	CZ110	C68700	
Brass tube / Pipe	C27005-T	C26000			
Admiralty Brass tube / Pipe	C4430T	C44300			DIN 17660
Copper Bus Bar					
Stainless steel tube / Pipe(seamless)	SUS 304, SUS 316				

• Production Capacity

Description	Capacity / Month	Size (Out Dia)		Remarks
		Min	Max	
Copper Tube	700 TON	3.0mm	219.0mm	
Brass Tube		9.0mm	110.0mm	
AL-Brass Tube		9.0mm	110.0mm	
Cu-Ni Tube (90/10)		6.0mm	419.1mm	
Cu-Ni Tube (70/30)		6.0mm	114.0mm	
STAINLESS TUBE		16.0mm	55.0mm	
TOTAL	700 TON			

* TEMPER : H, 1/2H, 1/4H, OL, O

• Copper and Copper Alloy Tube & Pipe

ITEM	Class	Chemical Composition (%)											Related Standards				
		Cu	Zn	Pb	Fe	P	Sn	Ni	Mn	Al	As	other	KS	JIS	ASTM	BS	DIN
Toughpitch Copper	1	99.9 MIN											D5301 C1100	H3300 C1100	B188 C11000	2871 C101 C102	1787 ECU58 ECU57
Copper Capillary	1	99.9 MIN				0.015 -0.040							D5301 C1220	H3300 C1220	B68 B75 B360 B12200	2871 C106	1787 SF-CU
Phos-Phorus Deoxidized Copper	1	99.9 MIN				0.004 -0.015							D5301 C1201	H3300 C1201	B75 C12000	2871 C106	1787 SW-CU
	2	99.9 MIN				0.015 -0.040							D5301 C1220	H3300 C1220	B75 C12200	2871 C106	1787 SF-CU
Brass Tube	1	68.5 -71.5	REM	0.05 MAX	0.05 MAX								D5301 C2600	H3300 C2600	B135 C26000	2871 Cz106	17660 cuzn30
	2	63.0 -67.0	REM	0.05 MAX	0.05 MAX								C2700	C2700	C27000		cuzn36
	3	59.0 -63.0	REM	0.10 MAX	0.07 MAX								C2800	C2800	C28000	Cz119	cuzn40
Admiralty Brass Tube	1	70.0 -73.0	REM	0.07 MAX	0.05 MAX		0.9 -1.2				0.02 -0.06		D5301 C4430	H3300 C4430	B111 C44300	2871 Cz111	1785 cuzn28sn
Al-Brass Tube	1	76.0 -79.0	REM	0.05 MAX	0.05 MAX					1.8 -2.5	0.02 -0.06	Si0.2 -0.5	C6871	C6871	C68700	Cz110	cuzn20Al
	2	76.0 -79.0	REM	0.05 MAX	0.05 MAX			0.20 -1.0		1.8 -2.5	0.02 -0.06		C6872	C6872	C68700	Cz110	cuzn20Al
	3	76.0 -79.0	REM	0.05 MAX	0.05 MAX					1.8 -2.5	0.02 -0.06		C6870	C6870	C68700	Cz110	cuzn20Al
Cu-Ni Tube	1		0.5 MAX	0.05 MAX	1.0 -1.8			9.0 -11.0	0.2 -1.0		Cu+Ni+ Fe+Mn 99.5MIN		D5301 C7060	H3300 C7060	B111 C70600	2871 CN102	17664 CuNi10Fe
	2		0.5 MAX	0.05 MAX	0.5 -1.0			19.0 -23.0	0.2 -1.0		Cu+Ni+ Fe+Mn 99.5MIN		C7100	C7100	C71000	CN107	CuNi20Fe
	3		0.5 MAX	0.05 MAX	0.4 -1.0			29.0 -33.0	0.2 -1.0		Cu+Ni+ Fe+Mn 99.5MIN		C7150	C7150	C71500	CN106	CuNi30Fe

* Chemical composition is followed by JIS But other specs also be matched

• Basic Management Policy



1) The Slogan of Company

The quality is the foundation of our company

2) Top management policy this year



• Quality

TEST & INSPECTION

- Chemical Composition Test
- Dimension Inspection
- Surface Inspection
- Eddy Current Test
- Hydraulic or Pneumatic Test
- Mechanical & Physical Properties Test
- Tensile Strength
- Elongation
- Flattening
- Microscopic Structure
- Hydrogen Embrittlement
- Mercurous Nitrate
- Expansion
- Hardness Test Machine
- Bending

All of DONG HWA TCA products are passed the various test and severe inspection.



■ Eddy Current Test Machine ■



■ Portable Hardness Test Machine ■



■ Hardness Test Machine ■

• Quality



■ Mounting press ■



■ Universal Test Machine ■



■ Sigma Scope ■



■ Positive Material Analysis ■

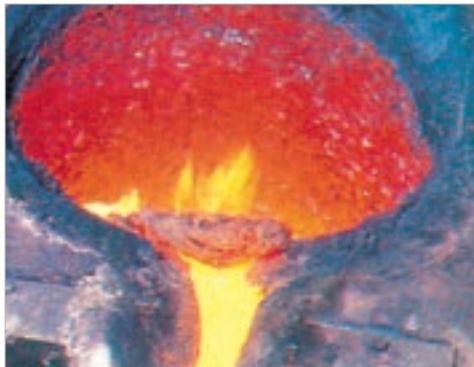
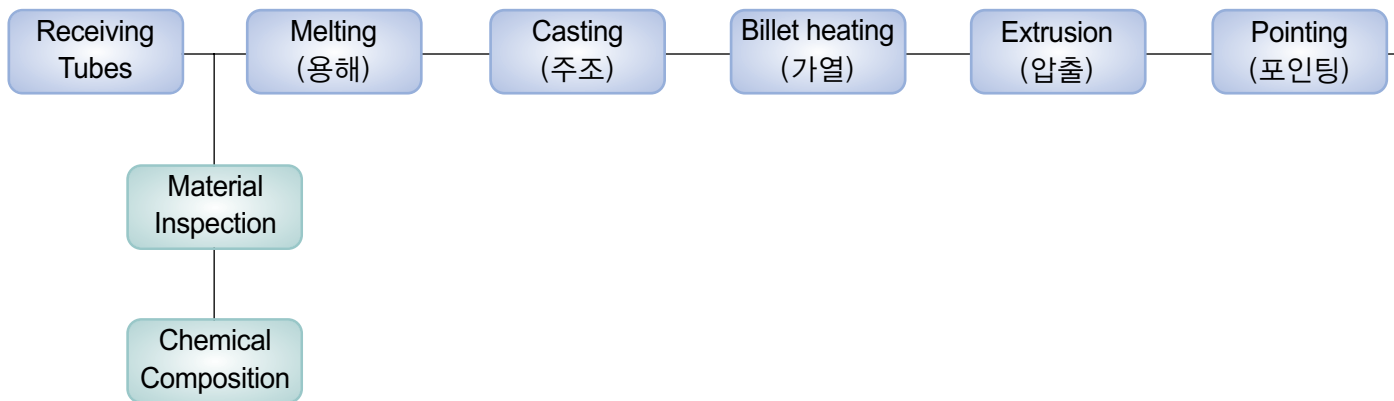


■ Microscope ■

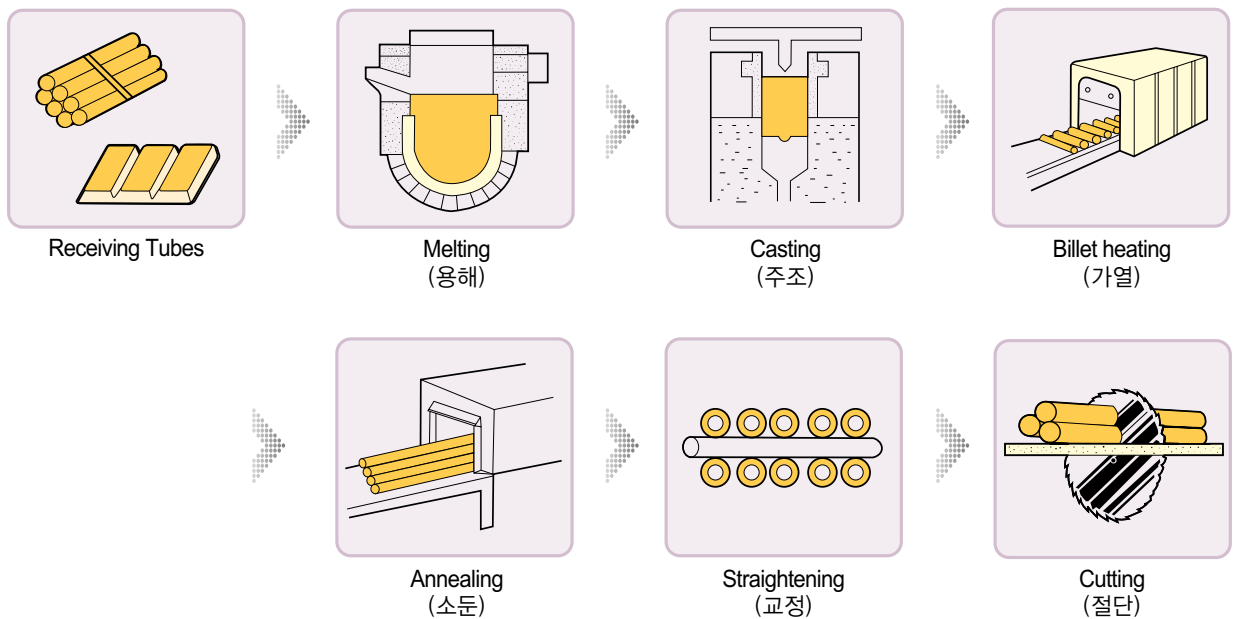


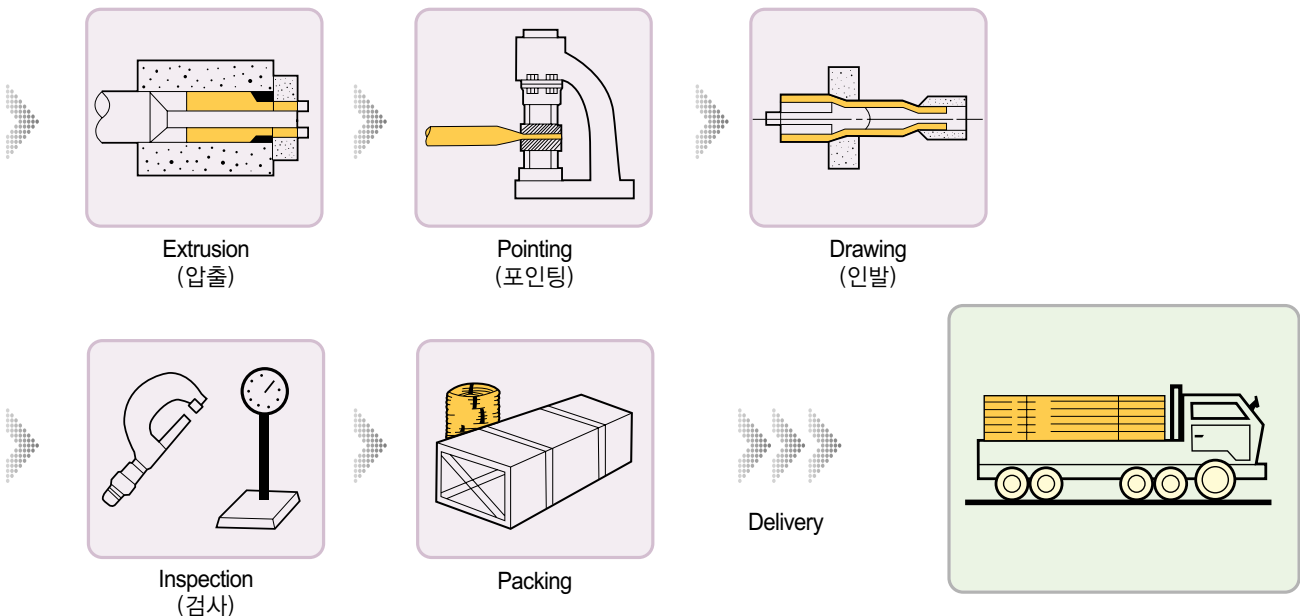
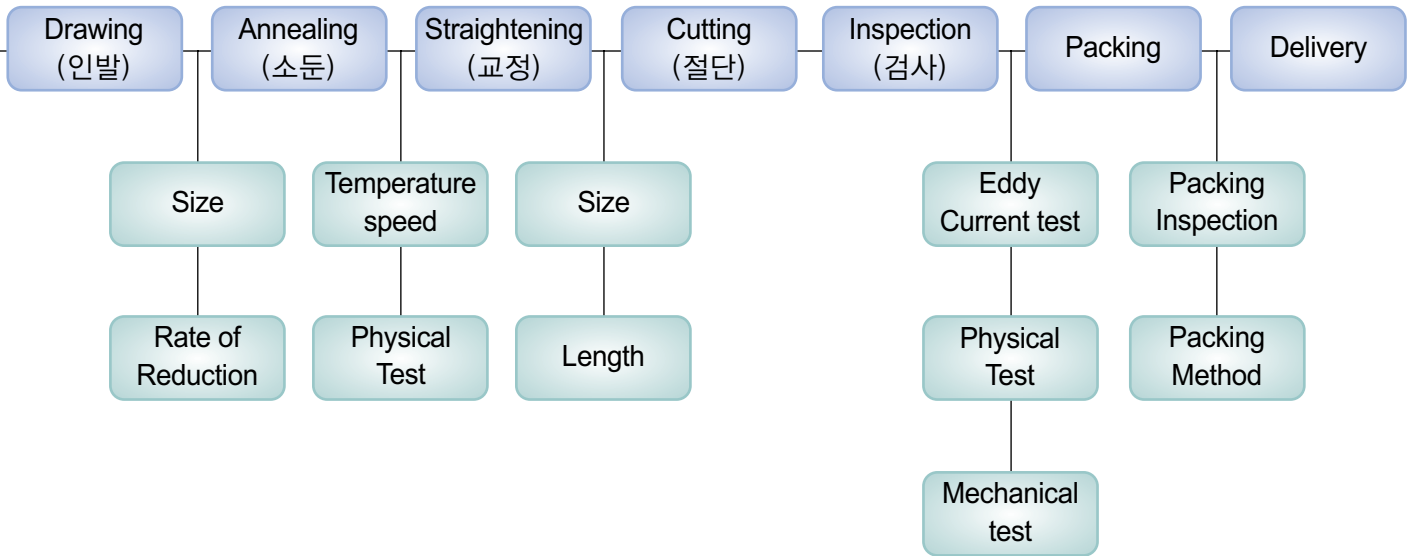
■ Spectrometer ■

• Manufacturing



» Manufacturing process



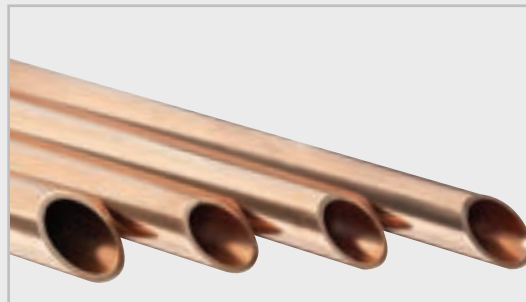


• Tube Division

Copper and Copper alloy tubes for industry are superior at Thermal conductivity, Corrosion resistance, Physical properties and Mechanical properties. Using in the field of Shipbuilding, Heat exchanger, Heating coil, Desalination plants, Petrochemistry equipment and offshore project.



CuNi tube



Copper Tube



Level wound coil



Brass tube



Pan cake coil



Aluminum inner fin tube & fin tube

▶▶ PRODUCTS

- COPPER TUBES
- BRASS TUBES
- AL-BRASS TUBES
- ALUMINUM TUBES
- COPPER NICKEL TUBES
- COPPER CHROMIUM TUBES
- COPPER BARS
- HEAT-TRANSFER TUBES
- COPPER CHROMIUM BARS
- STAINLESS TUBE(SEAMLESS)

Class	Certificate Items
B . V .	CUNI, AL-BRASS, ADMIRALTY, COPPER TUBES.
L . R .	
A . B . S .	
D . N . V .	
K . R .	
RINA	
G.L.	



PIPES Division



• PIPES - European Standards

MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA144



Outside diameter of pipe ØD			10 bar		14 bar		16 bar		20 bar	
			Wall thickness	Theoretical weight	Wall thickness	Theoretical weight	Wall thickness	Theoretical weight	Wall thickness	Theoretical weight
nominal		actual	actual mm	Kg/m	actual mm	Kg/m	actual mm	Kg/m	actual mm	Kg/m
inch	ND	mm								
SEAMLESS										
1/2	15	16.0	1.0	0.53	1.0	0.53	2.0	1.01	2.0	1.01
3/4	20	25.0	1.5	0.99	1.5	0.99		1.30		1.30
1	25	30.0		1.20		1.20	2.5	1.93	2.5	1.93
1 1/4	32	38.0		1.54		1.54		2.50		2.50
1 1/2	40	44.5		1.81		1.81		2.95		2.95
2	50	57.0		2.34		2.34		3.83		3.83
2 1/2	65	76.1		2.0		4.16		2.0		4.16
3	80	88.9	4.88		2.5	6.07		6.07		6.07
4	100	108.0	2.5	7.41		3.0	7.41	3.0	8.85	8.85
5	125	133.0		9.16	10.95		10.95		10.95	
6	150	159.0		10.99	13.14		13.14		3.5	15.29
7	175	193.7		13.43	18.70		16.07			18.70
8	200	219.1	3.0	18.21	3.5	21.19	4.0	24.17	4.5	27.12
10	250	267.0		22.24		4.0	29.55	4.5	33.18	5.5
12	300	323.9	4.0	35.94	5.0	44.78	5.5	49.18	7.0	62.30
14	350	368.0		40.89	6.5	56.00	6.5	65.99	8.0	80.89
SEAMLESS or SEAM WELDED										
16	400	419.1	4.0	46.62	6.0	69.60	7.0	81.00	9.0	103.64
SEAM WELDED										
18	450	457.2	4.0	50.91	6.0	76.03	8.0	100.93	9.5	119.45
20	500	508.0	4.5	63.63	6.5	91.55	8.5	119.24	11.0	153.54
24	600	610.0	5.0	84.96	8.0	135.26	10.5	176.79	13.0	217.97
28	700	711.0	6.0	118.80	9.0	177.45	12.0	235.58	15.0	293.22
32	800	813.0		135.99	10.0	225.53	13.5	303.14	17.0	380.06
36	900	914.0	8.0	203.57	11.0	278.98	15.5	391.14	19.0	477.60

Other wall thicknesses are also available upon request.

• PIPES - U.S. Standards

MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

SEAMLESS	ASTM B 466 alloy UNS C70600
SEAM WELDED	ASTM B 467 alloy UNS C70600

NAVINIC 30® CuNi30Mn1Fe

SEAMLESS	ASTM B 466 alloy UNS C71500
SEAM WELDED	ASTM B 467 alloy UNS C71500



Outside diameter of pipe ØD			Wall thickness		Theoretical weight	
nominal inch	actual inch	actual mm	actual inch	actual mm	Lb / 19.68Ft	Kg / 6m
SEAMLESS						
1/8	0.540	13.72	0.058	1.47	6.68	3.03
1/4			0.065	1.65		
3/8	0.675	17.15			9.50	4.31
1/2	0.840	21.34			12.06	5.47
3/4	1.050	26.67			15.34	6.96
1	1.315	33.40			19.47	8.83
1 1/4	1.660	42.16	0.072	1.83	27.40	12.43
1 1/2	1.900	48.27			31.57	14.32
2	2.375	60.32	0.083	2.11	45.61	20.69
2 1/2	2.875	73.03			55.58	25.21
3	3.500	88.90	0.095	2.41	77.43	35.12
4	4.000	114.30			100.16	45.43
5	4.500	141.30	0.109	2.77	142.53	64.65
6	5.563	168.30	0.125	3.18	195.04	88.47
7	6.625	193.70	0.134	3.40	240.33	109.01
8	8.625	219.10			272.40	123.56
10	10.750	273.05	0.134	3.40	340.53	154.46
12	12.750	323.90	0.156	3.96	470.60	213.46
14	14.000	355.60	0.165	4.19	546.90	248.07
SEAMLESS or SEAM WELDED						
16	16.000	406.40	0.165	4.19	625.96	283.93
SEAM WELDED						
18	18.000	457.20	0.180	4.57	768.31	348.50
20	20.000	508.00			854.88	387.77
24	24.000	609.60	0.180	4.57	1027.02	465.85
30	30.000	762.00	0.250	6.35	1794.08	813.78

Other special wall thicknesses, regular or extra strong as well as relevant flanges, butt weld and machined fittings also available upon request.

• PIPES - U.S. Standards

MATERIAL : NAVINIC 10® CuNi10Fe1Mn
alloy UNS C70600

NAVINIC 30® CuNi30Mn1Fe
alloy UNS C71500

DIMENSION : ANSI / ASME B36.19M

Outside diameter of pipe ØD			Schedule 5S				Schedule 10S			
			Wall thickness		Theoretical weight		Wall thickness		Theoretical weight	
nominal inch	actual inch	actual mm	actual inch	actual mm	Lb / Ft	Kg / m	actual inch	actual mm	Lb / Ft	Kg / m
SEAMLESS										
1/8	0.405	10.29					0.049	1.24	0.19	0.28
1/4	0.540	13.72					0.065	1.65	0.33	0.49
3/8	0.675	17.15							0.42	0.63
1/2	0.840	21.34			0.54	0.80	0.083	2.11	0.67	1.00
3/4	1.050	26.67			0.69	1.03			0.86	1.28
1	1.315	33.40	0.065	1.65	0.87	1.30	0.109	2.77	1.40	2.09
1 1/4	1.660	42.16			1.11	1.65			1.81	2.70
1 1/2	1.900	48.27			1.28	1.91			2.09	3.11
2	2.375	60.32			1.61	2.40			2.64	3.93
2 1/2	2.875	73.03			2.48	3.69			3.53	5.26
3	3.500	88.90	0.083	2.11	3.03	4.51	0.120	3.05	4.33	6.45
3 1/2	4.000	101.60			3.48	5.18			4.97	7.40
4	4.500	114.30			3.92	5.84			5.61	8.36
5	5.563	141.30	0.109	2.77	6.36	9.47	0.134	3.40	7.77	11.57
6	6.625	168.30			7.60	11.32			9.29	13.84
8	8.625	219.10			9.93	14.79	0.148	3.76	13.40	19.96
10	10.750	273.05	0.134	3.96	15.19	22.63	0.165	4.19	18.65	27.78
12	12.750	323.90	0.156		20.98	31.25	0.180	4.57	24.17	36.00

Outside diameter of pipe ØD			Schedule 40S				Schedule 80S			
			Well thickness		Theoretical weight		Well thickness		Theoretical weight	
nominal inch	actual inch	actual mm	actual inch	actual mm	Lb / Ft	Kg / m	actual inch	actual mm	Lb / Ft	Kg / m
SEAMLESS										
1/8	0.405	10.29	0.068	1.73	0.24	0.37	0.095	2.41	0.31	0.47
1/4	0.540	13.72	0.088	2.24	0.42	0.63	0.119	3.02	0.54	0.80
3/8	0.675	17.15	0.091	2.31	0.57	0.84	0.126	3.20	0.74	1.10
1/2	0.840	21.34	0.109	2.77	0.85	1.27	0.147	3.73	1.09	1.62
3/4	1.050	26.67	0.113	2.87	1.13	1.69	0.154	3.91	1.47	2.20
1	1.315	33.40	0.133	3.38	1.68	2.50	0.179	4.55	2.17	3.24
1 1/4	1.660	42.16	0.140	3.56	2.27	3.39	0.191	4.85	3.00	4.47
1 1/2	1.900	48.27	0.145	3.68	2.72	4.05	0.200	5.08	3.63	5.41
2	2.375	60.32	0.154	3.91	3.65	5.44	0.218	5.54	5.02	7.48
2 1/2	2.875	73.03	0.203	5.16	5.79	8.63	0.276	7.01	7.66	11.41
3	3.500	88.90	0.216	5.49	7.58	11.29	0.300	7.62	10.25	15.27
3 1/2	4.000	101.60	0.226	5.74	9.11	13.57	0.318	8.08	12.51	18.63
4	4.500	114.30	0.237	6.02	10.79	16.07	0.337	8.56	14.98	22.32
5	5.563	141.30	0.258	6.55	14.62	21.77	0.375	9.53	20.78	30.97
6	6.625	168.30	0.280	7.11	18.97	28.26	0.432	10.97	28.57	42.56
8	8.625	219.10	0.322	8.18	28.55	42.55	0.500	12.70	43.39	64.64
10	10.750	273.05	0.365	9.27	40.48	60.31	0.500	12.70	54.74	96.01
12	12.750	323.90	0.375	9.53	49.56	73.88	0.500	12.70	65.42	132.08

Other dimensions, wall thicknesses and outside and diameters as well as relevant flanges, butt weld and machined fittings also available upon request.

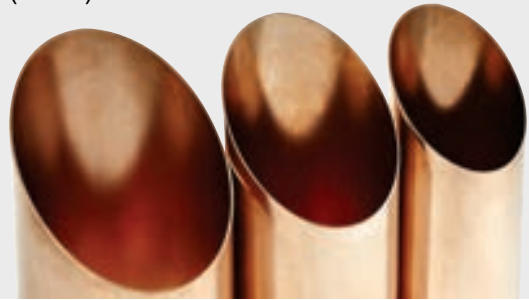
• PIPES - U.S. Navy Standards

MATERIAL :

NAVINIC 10® CuNi10Fe1Mn MIL - T -16420K alloy 706 (90/10)
US Navy Specification

NAVINIC 30® CuNi30Mn1Fe MIL - T -16420K alloy 715 (70/30)
US Navy Specification

Type | Seamless or Type II Seam welded Grade 1 or 2
(without or with heat identification)



Outside diameter of pipe ØD			Class 200				Class 700			
			Minimum Wall thickness		Theoretical weight		Minimum Wall thickness		Theoretical weight	
nominal inch	actual inch	actual mm	actual inch	actual mm	Lb / Ft	Kg / m	actual inch	actual mm	Lb / Ft	Kg / m
SEAMLESS										
	0.025	6.35	0.035	0.89	0.09	0.14	0.065	1.65		
	0.500	12.70			0.20	0.29			0.34	0.51
1/8	0.540	13.72	0.065	1.65	0.38	0.56	0.072	1.83	0.38	0.56
3/8	0.675	17.15			0.48	0.72			0.53	0.79
1/2	0.840	21.34			0.61	0.91	0.67	1.00		
3/4	1.050	26.67			0.78	1.16	0.98	1.45		
1	1.315	33.40	0.072	1.83	0.99	1.47	0.095	2.41	1.41	2.10
1 1/4	1.660	42.16			1.39	2.07			1.81	2.69
1 1/2	1.900	48.27			1.60	2.39	2.38	3.54		
2	2.375	60.32	0.083	2.11	2.32	3.45	0.120	3.05	3.30	4.91
2 1/2	2.875	73.03			2.82	4.20	0.134	3.40	4.47	6.65
3	3.500	88.90	0.095	2.41	3.93	5.85	0.165	4.19	6.70	9.97
3 1/2	4.000	101.60			4.51	6.71	0.180	4.57	8.37	12.45
4	4.500	114.30	0.109	2.77	5.83	8.68	0.203	5.15	10.61	15.78
	5.000	127.00	0.120	3.05	7.14	10.62			11.84	17.62
5	5.563	141.30	0.125	3.18	8.29	12.34	0.220	5.59	14.32	21.30
6	6.625	168.30	0.134	3.40	10.58	15.75	0.259	6.58	20.08	29.89
	7.625	193.70			12.21	18.17	0.284	7.21	25.38	37.76
8	8.625	219.10	0.148	3.76	15.28	22.74	0.340	8.64	34.32	51.07
	9.625	244.48	0.187	4.75	21.49	31.98			38.46	57.23
10	10.750	273.05			24.05	35.79	0.380	9.65	47.96	71.37
12	12.750	323.90	0.250	6.35	38.05	56.63	0.454	11.53	67.97	101.15
14	14.000	355.60	0.165	4.19	27.78	41.35	0.473	12.01	77.90	115.87
	15.000	381.00					0.503	12.77	88.80	132.04
SEAMLESS or SEAM WELDED			Class 50				Class 700			
16	16.000	406.40	0.165	4.19	31.80	47.32	0.534	13.56	101.00	149.58
SEAMLESS WELDED										
18	18.000	457.20	0.180	4.19	39.03	58.10				
20	20.000	508.20			43.41	64.62				
22	22.000	558.80		4.57	47.80	71.12				
	22.750	577.85			49.50	73.57				
30	30.000	762.00	0.250	6.35	90.54	134.77				
40	40.000	1016.00	0.312	7.92	150.70	224.19				

Special classes, class 1650, class 3300 and class 6000 well as relevant flanges, butt weld and machined fittings also available upon request.

• PIPES - Japanese Standards

MATERIAL :

NAVINIC 10® CuNi10Fe1Mn
JIS H 3300 alloy C7060 T or TS

NAVINIC 30® CuNi30Mn1Fe
JIS H 3300 alloy C7150 T or TS

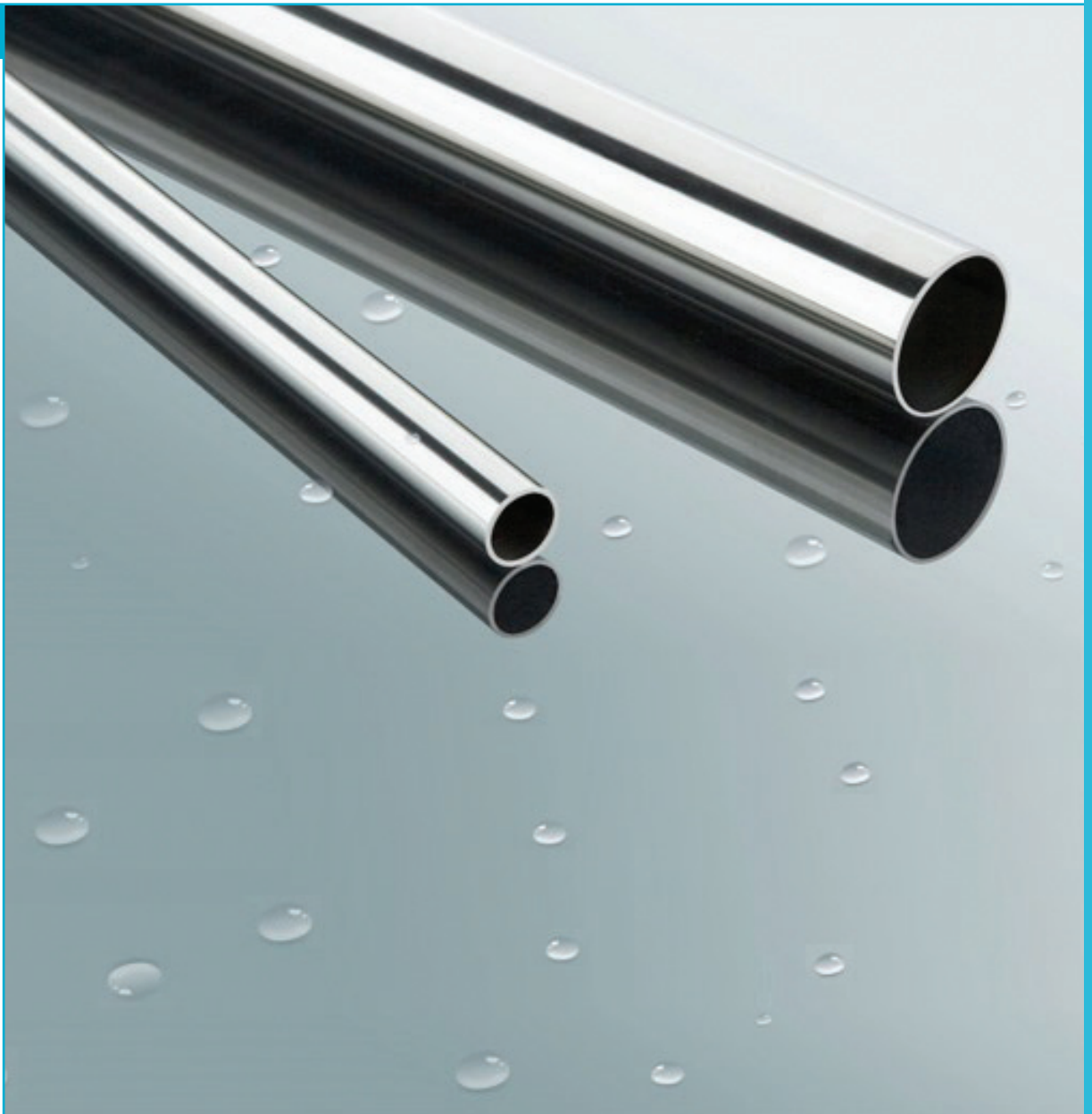


NOMINAL DIAMETER		METRIC SIZE			NAVY DIMENSION inch Size						M.M. (NDS) Size		
					5K			10K					
inch	M/M	outside Diam. (mm)	Wall thick. (mm)	Theore. weight (Kg/m)	outside Diam. (mm)	Wall thick. (mm)	Theore. weight (Kg/m)	outside Diam. (mm)	Wall thick. (mm)	Theore. weight (Kg/m)	outside Diam. (mm)	Wall thick. (mm)	Theore. weight (Kg/m)
SEAMLESS													
1/8	6A							6.35	0.89	0.14			
3/8	10A	16.0	1.0	0.42				12.71	0.89	0.29	15.0	1.5	0.57
1/2	15A	20.0	1.0	0.53	15.14	1.21	0.47	15.14	1.65	0.62	20.0	1.5	0.78
3/4	20A	25.0	1.5	0.99	21.49	1.21	0.69	21.49	1.65	0.92	25.0	1.5	0.99
1	25A	30.0	1.5	1.20	28.25	1.42	1.07	28.25	1.65	1.23	30.0	1.5	1.20
1 1/4	32A	38.0	1.5	1.54	34.60	1.42	1.32	34.60	1.65	1.53	38.0	2.0	2.02
1 1/2	40A	44.5	1.5	1.81	40.95	1.42	1.58	40.95	1.83	2.01	45.0	2.0	2.41
2	50A	57.0	1.5	2.34	54.05	1.62	2.39	54.05	2.11	3.08	55.0	2.0	2.98
2 1/2	65A	76.1	2.0	4.16	66.75	1.62	2.96	66.75	2.41	4.35	70.0	2.0	3.82
3	80A	88.9	2.5	6.07	79.86	1.82	3.99	79.86	2.41	5.24	85.0	3.0	6.91
3 1/2	90A										95.0	3.0	7.75
4	100A	108.0	2.5	7.41	106.27	2.33	6.80	106.27	2.77	8.05	110.0	3.0	9.02
5	125A	133.0	2.5	9.16	131.67	2.33	8.46	131.67	3.18	11.47	130.0	3.0	10.70
6	150A	159.0	2.5	10.99	157.68	2.64	11.49	157.68	3.40	14.73	160.0	4.0	17.52
7	175A										180.0	4.0	19.77
8	200A	219.1	3.0	18.21	208.48	2.64	15.26	208.48	3.76	21.61	210.0	4.0	23.14
	225A										230.0	4.0	25.39
10	250A	267.0	3.0	22.24	260.50	3.25	23.48	260.50	4.75	34.11	260.0	4.5	32.29
12	300A	323.9	4.0	35.94	312.11	3.68	31.87	312.11	6.35	54.52	310.0	5.5	47.03
14	350A	368.0	4.0	40.89									
SEAMLESS or SEAM WELDED													
16	400A	419.1	4.0	46.62									
SEAM WELDED													
18	450A	457.2	4.0	50.91									
20	500A	508.0	4.5	63.63									
24	600A	610.0	5.0	84.96									
28	700A	711.0	6.0	118.80									

Other diameters and wall thicknesses are also available upon request.



TUBE Division



• HEAT - EXCHANGER TUBE

MATERIAL :

ASTM A 213

SEAMLESS FERRITIC
ALLOY-STEEL



Outside diameter of tube		Wall thickness		Theoretical weight		Wall thickness		Theoretical weight	
actual inch	actual mm	actual inch	actual mm	Lb / Ft	Kg / m	actual inch	actual mm	Lb / Ft	Kg / m
0.500	12.70	0.035	0.89	0.578	0.262				
0.625	15.88	0.048	1.24	0.968	0.439	0.090	2.30	1.717	0.779
		0.064	1.65	1.257	0.570	0.102	2.60	1.898	0.861
		0.084	2.11	1.526	0.692	0.114	2.90	2.070	0.939
0.750	19.05	0.048	1.24	1.173	0.532	0.090	2.30	2.110	0.957
		0.064	1.65	1.528	0.693	0.120	2.60	2.337	1.060
		0.083	2.11	1.867	0.847	0.114	2.90	2.557	1.160
0.854	21.70	0.048	1.24	1.351	0.613	0.090	2.30	2.447	1.110
		0.064	1.65	1.766	0.801	0.120	2.60	2.734	1.240
		0.083	2.11	2.163	0.981	0.114	2.90	2.998	1.360
1.000	25.40	0.048	1.24	1.594	0.723	0.090	2.30	2.910	1.320
		0.064	1.65	2.092	0.949	0.120	2.60	3.263	1.480
		0.083	2.11	2.579	1.170	0.114	2.90	3.594	1.630
1.070	27.20	0.048	1.24	1.713	0.777	0.090	2.30	3.153	1.430
		0.064	1.65	2.249	1.020	0.120	2.60	3.505	1.590
		0.083	2.11	2.778	1.260	0.114	2.90	3.880	1.760
1.251	31.80	0.048	1.24	2.017	0.915	0.090	2.30	3.726	1.690
		0.064	1.65	2.646	1.200	0.120	2.60	4.167	1.890
		0.083	2.11	3.263	1.480	0.114	2.90	4.608	2.090
1.338	34.00	0.064	1.65	2.844	1.290	0.102	2.60	4.475	2.030
		0.083	2.11	3.505	1.590	0.114	2.90	4.960	2.250
		0.090	2.30	4.012	1.820	0.125	3.20	5.423	2.460
1.500	38.10	0.064	1.65	3.197	1.450	0.102	2.60	5.071	2.300
		0.083	2.11	3.968	1.800	0.114	2.90	5.600	2.540
		0.090	2.30	4.519	2.050	0.125	3.20	6.129	2.780
1.681	42.70	0.083	2.11	4.475	2.030	0.114	2.90	6.349	2.880
		0.090	2.30	5.093	2.310	0.125	2.90	6.945	3.150
		0.102	2.60	5.732	2.600	0.137	3.20	7.540	3.420
1.771	45.00	0.083	2.11	4.718	2.140	0.114	2.90	6.702	3.040
		0.090	2.30	5.401	2.450	0.125	3.20	7.341	3.330
		0.102	2.60	6.063	2.750	0.137	3.50	7.981	3.620
1.913	48.60	0.083	2.11	5.115	2.320	0.114	2.90	7.275	3.300
		0.090	2.30	5.842	2.650	0.125	3.20	7.981	3.620
		0.102	2.60	6.570	2.980	0.137	3.50	8.664	3.930
2.000	50.80	0.083	2.11	5.357	2.430	0.114	2.90	7.628	3.460
		0.090	2.30	6.129	2.780	0.125	3.20	8.356	3.790
		0.102	2.60	6.878	3.120	0.137	3.50	9.083	4.120
2.125	54.00	0.083	2.11	5.710	2.590	0.114	2.90	8.135	3.690
		0.090	2.30	6.526	2.960	0.125	3.20	8.929	4.050
		0.102	2.60	7.341	3.330	0.137	3.50	9.700	4.400
2.248	57.10	0.083	2.11	6.063	2.750	0.114	2.90	8.642	3.920
		0.090	2.30	6.923	3.140	0.125	3.20	9.480	4.300
		0.102	2.60	7.385	3.350	0.137	3.50	10.296	4.670
2.374	60.30	0.083	2.11	6.393	2.900	0.125	2.90	9.149	4.150
		0.090	2.30	7.319	3.320	0.137	3.20	10.031	4.550
		0.102	2.60	8.245	3.740	0.157	3.50	10.913	4.950
2.500	63.50	0.090	2.30	7.738	3.510	0.125	3.20	10.604	4.810
		0.102	2.60	8.686	3.940	0.137	3.50	11.530	5.230
		0.114	2.90	9.656	4.380	0.157	4.00	13.073	5.930
2.559	65.00	0.090	2.30	7.915	3.590	0.125	3.20	10.869	4.930
		0.102	2.60	8.907	4.040	0.137	3.50	11.817	5.360
		0.114	2.90	9.899	4.490	0.157	4.00	13.404	6.080
2.755	70.00	0.090	2.30	8.554	3.880	0.125	3.20	11.729	5.320
		0.102	2.60	9.634	4.370	0.137	3.50	12.787	5.800
		0.114	2.90	10.692	4.850	0.157	4.00	14.506	6.580
3.000	76.20	0.090	2.30	9.326	4.230	0.125	3.20	12.831	5.820
		0.102	2.60	10.516	4.770	0.137	3.50	13.977	6.340
		0.114	2.90	11.685	5.300	0.157	4.00	15.807	7.170



BARS Division



• BARS - metric sizes

FRANCE	GERMANY	UNITED KINGDOM	U.S.A
NAVINIC 10®		CuNi10Fe1Mn	
GAM MM11 (French Navy) GAM MM13 (French Navy)	DIN 17664 alloy 2.0872 Chemicals DIN 17672 alloy 2.0872.10 Mechanicals	BS 2872 alloy CN 102-O BS 2874 alloy CN 102-O Mechanicals Chemicals	ASTM B 151 alloy C70600 Mechanicals Chemicals ASTM B 249 alloy Dimensional
NAVINIC 30®		CuNi30Mn1Fe	
	DIN 17664 alloy 2.0872 Chemicals DIN 17672 alloy 2.0872.10 Mechanicals	BS 2872 alloy CN 102-O BS 2874 alloy CN 102-O Mechanicals Chemicals	ASTM B 151 alloy C71500 Mechanicals Chemicals ASTM B 249 alloy Dimensional

Rounds		Hexagonals		Flats		Squares	
D mm	Theoretical weight Kg/m	H mm	Theoretical weight Kg/m	L x l mm	Theoretical weight Kg/m	C mm	Theoretical weight Kg/m
10	0.70	12	1.11	20 x 10	1.70	10 x 10	0.90
■ 15	1.58	14	1.51	30 x 10	2.67	20 x 20	3.57
■ 20	2.80	17	2.27	40 x 10	3.57	30 x 30	8.05
■ 25	4.39	■ 19	2.78	40 x 20	7.13	40 x 40	14.26
■ 30	6.32	■ 22	3.73	45 x 30	12.05	50 x 50	22.35
■ 35	8.60	■ 24	4.43	50 x 20	8.90	60 x 60	32.25
■ 40	11.20	■ 27	5.64	60 x 20	10.75	70 x 70	43.80
■ 45	14.20	■ 30	6.97	60 x 30	16.13	80 x 80	57.16
■ 50	17.55	■ 32	7.92	60 x 40	21.90	90 x 90	72.44
■ 55	21.20	■ 36	9.96	80 x 20	14.30	100 x 100	89.50
■ 60	25.30	37	10.77	80 x 40	28.57		
■ 65	29.70	■ 38	11.13	90 x 30	24.15		
■ 70	34.40	■ 40	12.35	90 x 60	48.30		
■ 75	39.40	■ 41	12.98	100 x 50	44.75		
■ 80	44.90	■ 42	13.59	100 x 70	62.45		
■ 85	50.70	■ 46	16.30	120 x 30	32.12		
■ 90	56.90	■ 50	19.36	120 x 40	42.82		
■ 95	63.10	■ 55	23.40	120 x 60	64.23		
■ 100	69.87	■ 60	27.90	120 x 80	85.65		
■ 105	77.03	■ 65	32.60				
■ 110	84.54	70	38.55				
115	92.40	75	44.25				
■ 120	100.61	■ 80	49.53				
■ 125	109.00	■ 85	55.93				
■ 130	118.00						
140	136.00						
■ 150	157.00						
160	179.00						
170	206.00						
180	228.00						
190	257.50						
■ 200	280.00						
250	445.80						
■ 285	570.50						

■ Dimensions kept on stock alloy **NAVINIC 10®**

Please inquire for other dimensions as for forgings such as plates, discs, rings and blocks.

• BARS - imperial sizes

FRANCE	GERMANY	UNITED KINGDOM	U.S.A
NAVINIC 10®		CuNi10Fe1Mn	
BS 2872 alloy CN 102-O Mechanicals Chemicals BS 2874 alloy CN 102-O Mechanicals Chemicals		ASTM B 151 alloy C70600 Mechanicals Chemicals MIL-C-15726 alloy C70600 Mechanicals Chemicals	
NAVINIC 30®		CuNi30Mn1Fe	
BS 2872 alloy CN 102-O Mechanicals Chemicals BS 2874 alloy CN 102-O Mechanicals Chemicals NES 780 PART 2 Mechanicals Chemicals		ASTM B 151 alloy C71500 Mechanicals Chemicals MIL-C-15726 alloy C71500 Mechanicals Chemicals	

Rounds				Hexagonals			
D		Theoretical weight		H		Theoretical weight	
inch	mm	Kg/m	Lb/Ft	inch	mm	Kg/m	Lb/Ft
1/4 "	6.35	0.29	0.19	1 3/8 "	34.93	9.60	6.45
3/8 "	9.53	0.65	0.43	1 5/8 "	41.27	13.40	9.00
1/2 "	12.70	1.15	0.77	2 "	50.80	20.30	13.64
5/8 "	■ 15.87	1.79	1.21	2 1/4 "	57.15	25.69	17.26
3/4 "	19.05	2.59	1.74	2 9/16 "	65.08	33.32	22.38
7/8 "	■ 22.22	3.52	2.36	3 "	76.20	45.68	30.69
1 "	■ 25.40	4.60	3.09	3 1/2 "	88.90	62.18	41.77
1 1/8 "	28.58	5.83	3.91				
1 1/4 "	31.75	7.19	4.83				
1 3/8 "	34.93	8.70	5.85				
1 1/2 "	■ 38.10	10.35	6.96				
1 3/4 "	44.45	14.09	9.47				
2 "	■ 50.80	18.41	12.37				
2 1/4 "	57.15	23.30	15.65				
2 3/8 "	60.32	25.95	17.43				
2 1/2 "	■ 63.50	28.76	19.32				
2 3/4 "	69.85	34.80	23.38				
3 "	■ 76.20	41.42	27.82				
3 1/2 "	■ 88.90	56.37	37.87				
4 "	101.60	73.63	49.46				
4 1/2 "	114.30	93.18	62.60				
5 "	127.00	115.05	77.29				
5 1/2 "	139.70	139.21	93.52				
6 "	■ 152.40	165.67	111.29				
7 "	■ 177.80	225.49	151.49				
8 "	203.20	294.52	197.86				
9 "	■ 228.60	372.76	250.42				
10 "	254.00	460.19	309.16				
11 "	279.40	556.83	374.08				
12 "	304.80	662.68	445.19				

■ Dimensions kept on stock alloy **NAVINIC 10®**

Please inquire for other dimensions as for forgings such as plates, discs, rings and blocks.

Free - Cutting Brass(Hard brass)

Free Cutting brass(Hard brass) are excellent of cutting properties and processes surface, especially, C3601, C3602 is good for ductility too. Using in field of bolt, nut, screw, spindle,gear, valve, lighter, watch, camera accessories.

Chemical Composition

Alloy No.		Chemical Composition					
KS/JIS	UNS	Cu	Pb	Fe	Sn	Zn	Others
C3601	C36000	59.0~63.0	1.8~3.7	0.3	(Fe+Sn)0.5	Rem.	-
C3602	C36000	59.0~63.0	1.6~3.7	0.5	(Fe+Sn)1.2	Rem.	-
C3603	-	57.0~61.0	1.8~3.7	0.35	(Fe+Sn)0.6	Rem.	-
C3604	-	57.0~61.0	1.8~3.7	0.5	(Fe+Sn)1.2	Rem.	-
C3605	-	56.0~60.0	3.5~4.5	0.5	(Fe+Sn)1.2	Rem.	-

Mechanical Properties

Alloy No. (UNS)	STANDARD NO.	Temper	Tensile Strength Test			Hardness Test	
			O.DIA (mm)	Tensile Strength (Kgf/mm ²)	Elongation (%)	HV	HBW
C3601	KSD 5101	F	6 ↑	30	15		
		O	6 - 75		25		
		1/2 H	6 - 50	35		95	
		H	6 - 20	46		130	
C3602	KSD 5101	F	6 - 75	32		75 ↑	
C3603	KSD 5101	F	6 ↑	32	10		
		O	6 - 75	32	20		
		1/2 H	6 - 50	37		100	
		H	6 - 20	46		130	
C3604	KSD 5101	F	6 - 75	34		80	

Production range & Shape



Shape	Production range
Hexagon	Ø3 ~
Square Rod	Ø2 ~
Wire	Ø0.2 ~
Hot low bar	ID : MIN. 14 ~
	Thickness : Min.5T





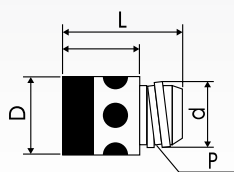
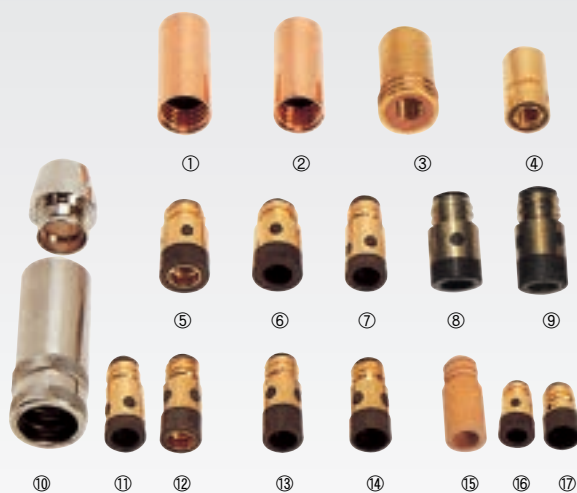
Weld Division

CO2 Accessories Division

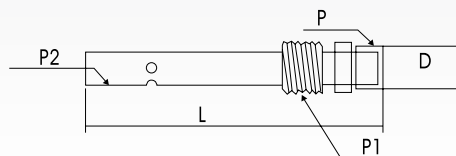
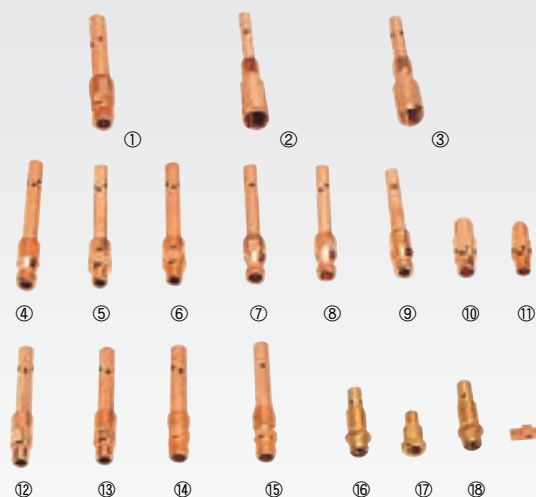


• CO2 Accessories

INSULATOR



GAS DIFFUSER

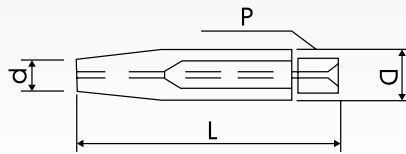


No	Products	Size					
		A	D	d	ℓ	L	P
1	현대	F500	28.5	52.0	52	52.0	3.175P
2	두산	F400	27.0	50.0	50	50.0	3.175P
3	삼성	500A	32.0		30	42.0	3.000P
4	삼성	400A	24.0		22	34.0	1.750P
5	부싱	500A	25.0	21.0	24	37.0	5.000P
6	일반	500A	25.0	21.0	24	37.0	5.000P
7	대우	350A	21.0	18.0	26	41.0	4.000P
8	일흥	350A	21.0	18.0	26	41.0	4.000P
9	일흥(부싱)	350A	21.0	18.0	26	41.0	4.000P
10	파나소닉	350A	20.0	17.5	24	38.5	4.000P
11	부싱	350A	20.0	17.0	25	40.0	4.000P
12	일반	350A	20.0	17.0	25	40.0	4.000P
13	OTC	350A	20.0	17.0	24	38.0	4.000P
14	빠크	350A	20.0	17.0	25	40.0	4.000P
15	OTC	180A	18.0	16.0	13	25.0	4.000P
16	파나소닉	350A					
17	NOR	180A					

No	Products	Size					
		A	D	L	P	P1	P2
1	히다치	500A	16.0	84.0	1.5P	2P	1.25P
2	OTC	350A	17.0	84.7		1.75P	6x1P
3	OTC	350A	17.0	81.0		1/2x12산	6x1P
4	일반	500A	14.0	85.0	12x1P	1/2x13산	6x1P
5	일반	500A	14.0	81.0	10x1P	1/2x13산	6x1P
6	일반(통)	500A	14.0	81.0	11x1P	1/2x13산	6x1P
7	현대	350A	14.0	78.5	12x1P	1/2x13산	6x1P
8	미포	305A	14.0	76.0	12x1P	1/2x13산	6x1P
9	삼성	350A	14.0	72.0	12x1P	1/2x12산	6x1P
10	현대	F500	13.0	35.0	7/16x20산		5/8x24산
11	두산	F400	11.0	32.0	3/8x24산		1/4x28산
12	일반	350A	12.5	68.0	10x1P	1/2x12산	6x1P
13	일반	350A	12.5	70.0	10x1P	1/2x12산	6x1P
14	일반	350A	13.0	68.0	10x1P	1/2x12산	6x1P
15	대우	350A	13.0	68.0	11x1P	1/2x13산	6x1P
16	빈젤	180A	12.0				6x1P
17	빈젤	350A	12.0	24.0	8x125P		8x125P
18	엔드블락	500A	13.0	40.0			

• CO2 Accessories

▶▶ TIP



Use : Contact Tip for Co2 Welding

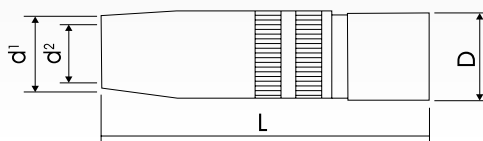


TIP	규격(Spec)
크롬팁(Chrome 0.5%)	경도(Hardness) 160 350A - 500A
지르코늄팁(zirconium)	
일반동 팁(copper)	

No	Products	Size			
		D	d	L	P
1	롱(크롬)	6.3	6.0	210	
2	셔브	20.0	9.0	58	
3	링컨	16.0	13.0	48	
4	셔브	12.7	10.8	40	14x1.5P
5	산소	11.0	5.0	40	
6	빈젤	13.0	8.0	28	8x1.25P
7	빈젤	10.0	7.0	28	9x1.25P
8	빈젤	8.0	6.0	28	8x1.25P
9	빈젤	8.0	5.0	28	6x1P
10	빈젤	9.0	6.0	28	6x1P
11	미그	6.0	5.0	25	6x1P
12	미그	9.0	6.0	20	6x1P
13	롱	9.0	6.0	72	6x1P
14	롱	6.0	4.0	72	6x1P
15	F500(크롬)	9.0	R	50	8x1.25P
16	현대(크롬)	9.0	5.0	45	6x1P
17	일반	8.0	6.0	45	6x1P
18	수입	8.0	6.0	45	6x1P
19	자동	8.0	5.5	40	6x1P
20	F400	8.0	5.5	36	1/4x2841
21	빈젤	6.0	5.0	30	6x1P
22	자동	8.0	5.0	32	6x1P
23	미그	6.0	R	37	1/4x2841
24	미니	6.0	4.0	30	5x0.7P
25	미니	5.0	R	15	4x0.5P

• CO2 Accessories

▶▶ NOZZLE



No	Products	Size					
		A	D(ø)	d1(ø)	d2(ø)	L	P
1	3단 룡	현대 350	25	16.0	12.0	130	5P
2	3단	현대 350	25	16.0	12.0	80	5P
3	2단	현대 350	25	22.0	16.0	80	5P
4	일반	500A	25	25.0	19.0	88	5P
5	세경	500A	25	20.0	14.0	88	5P
6	룡	500A	25	25.0	19.0	88	5P
7	히다치	500A	26	23.5	18.0	82	5P
8	삼성	350A	24	20.0	16.0	70	3P
9	서브	500A	25	25.0	25.0	100	2P
10	룡	350A	20	16.0	12.0	102	4P
11	세경	350A	20	16.0	12.0	73	4P
12	세경	350A	20	13.0	10.0	73	4P
13	(동)세경	350A	20	16.5	13.0	73	4P
14	세경	350A	20	16.5	13.0	73	4P
15	일흥	350A	21	19.5	16.0	73	4P
16	대우	350A	21	21.0	16.0	73	4P
17	일반	350A	20	20.0	16.5	73	4P
18	삼성	350A	21	21.0	18.0	74	4P
19	OTC	350A	20	17.0	14.5	65	4P

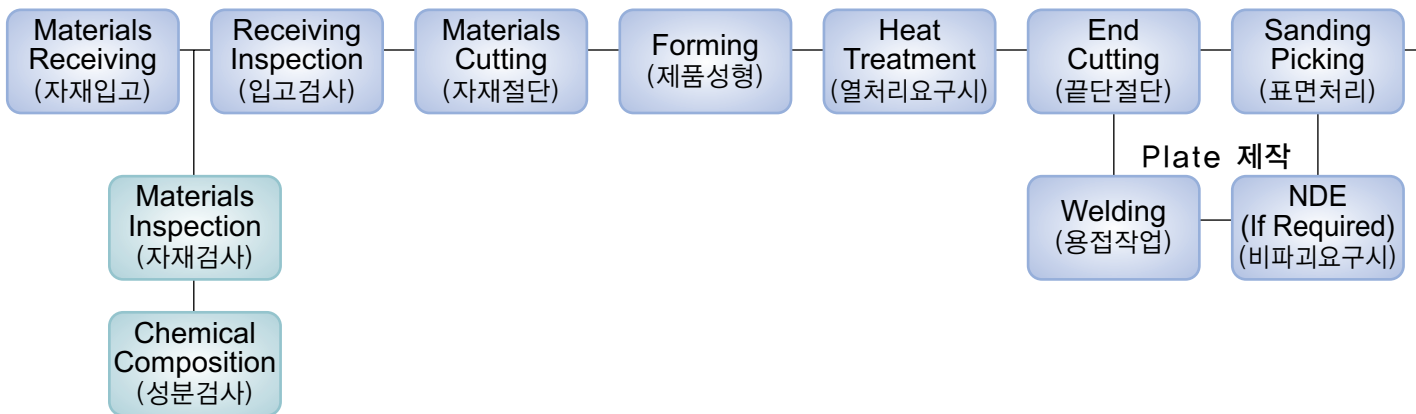
No	Products	Size					
		A	D(ø)	d1(ø)	d2(ø)	L	P
20	오토케리지	500A	28.0	24.0	20.0	76.0	
21	오토케리지	500A	30.0	26.0	22.0	71.0	
22	오토케리지	500A	28.5	28.5	23.5	56.0	3.175P
23	빈젤	500A	26.0	26.0	21.0	67.0	
24	빈젤		24.0	20.0	16.0	84.0	
25	삼성	500A	28.0	22.0	17.0	55.0	
26	현대	F500	28.5	24.0	19.0	56.0	3.175P
27	두산	F400	27.0	21.0	17.0	45.0	
28			25.5	21.0	16.0	41.5	1.750P
29	일체형	180A	19.0	16.0	13.0	77.0	
30	일체형	180A	18.0	15.0	13.0	72.0	
31	결합형	180A	18.0	15.0	13.0	80.0	
32	세경	180A	18.0	16.0	13.0	66.0	4.000P
33	분리형	180A	18.0	18.0	15.0	64.0	4.000P
34	일체형	180A	18.0	15.0	12.0	53.0	10.350P
35	일체형	180A	18.0	15.0	12.0	53.0	12.000P
36	일반	350A	20.0	20.0	16.5	60.0	4.000P
37	OTC	350A	20.0	20.0	16.5	60.0	4.000P
38	S-4		34.0	27.0	21.0	35.0	1.250P



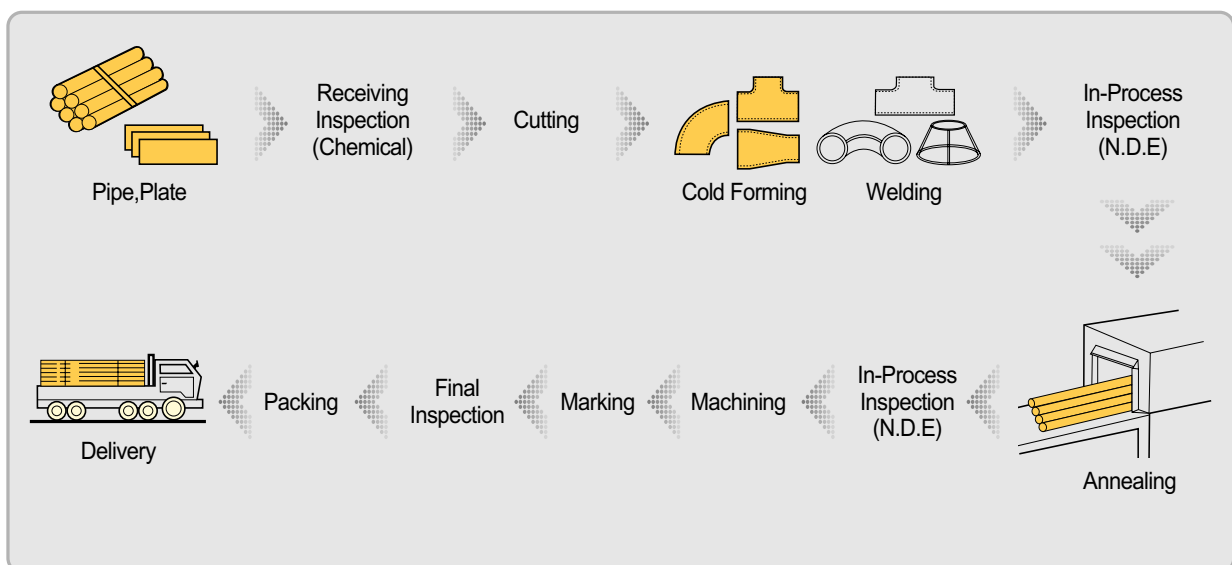
Fittings Division

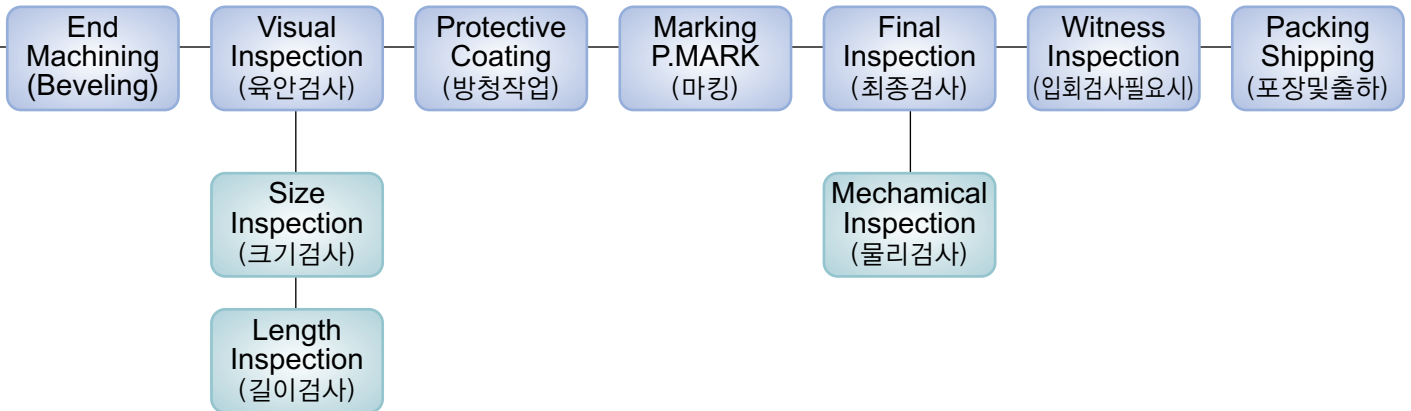


• Manufacturing

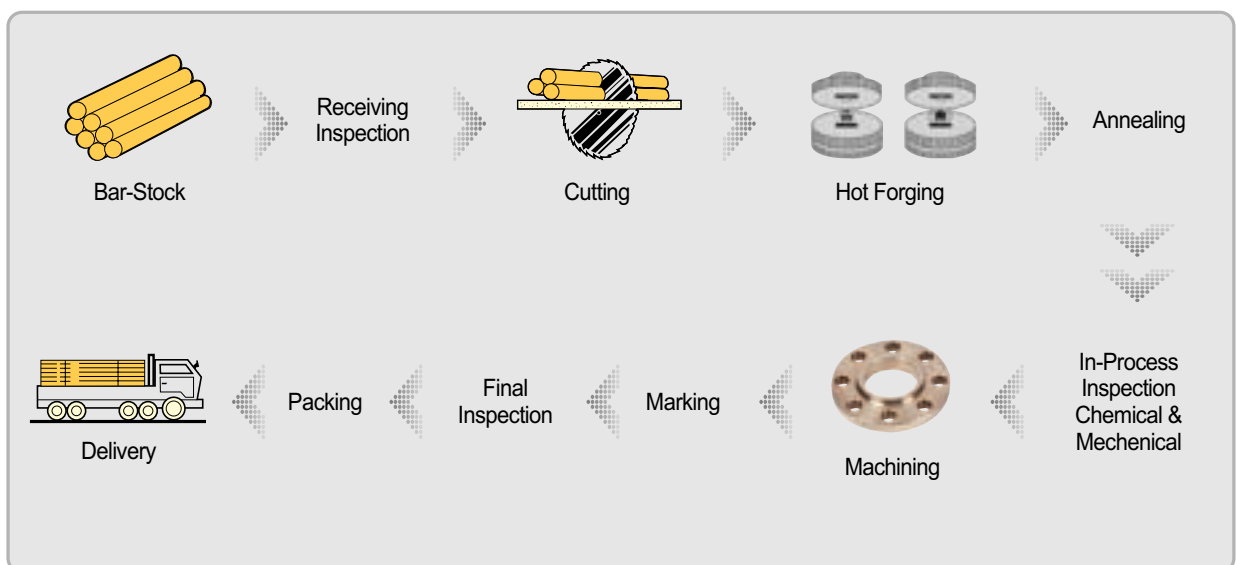


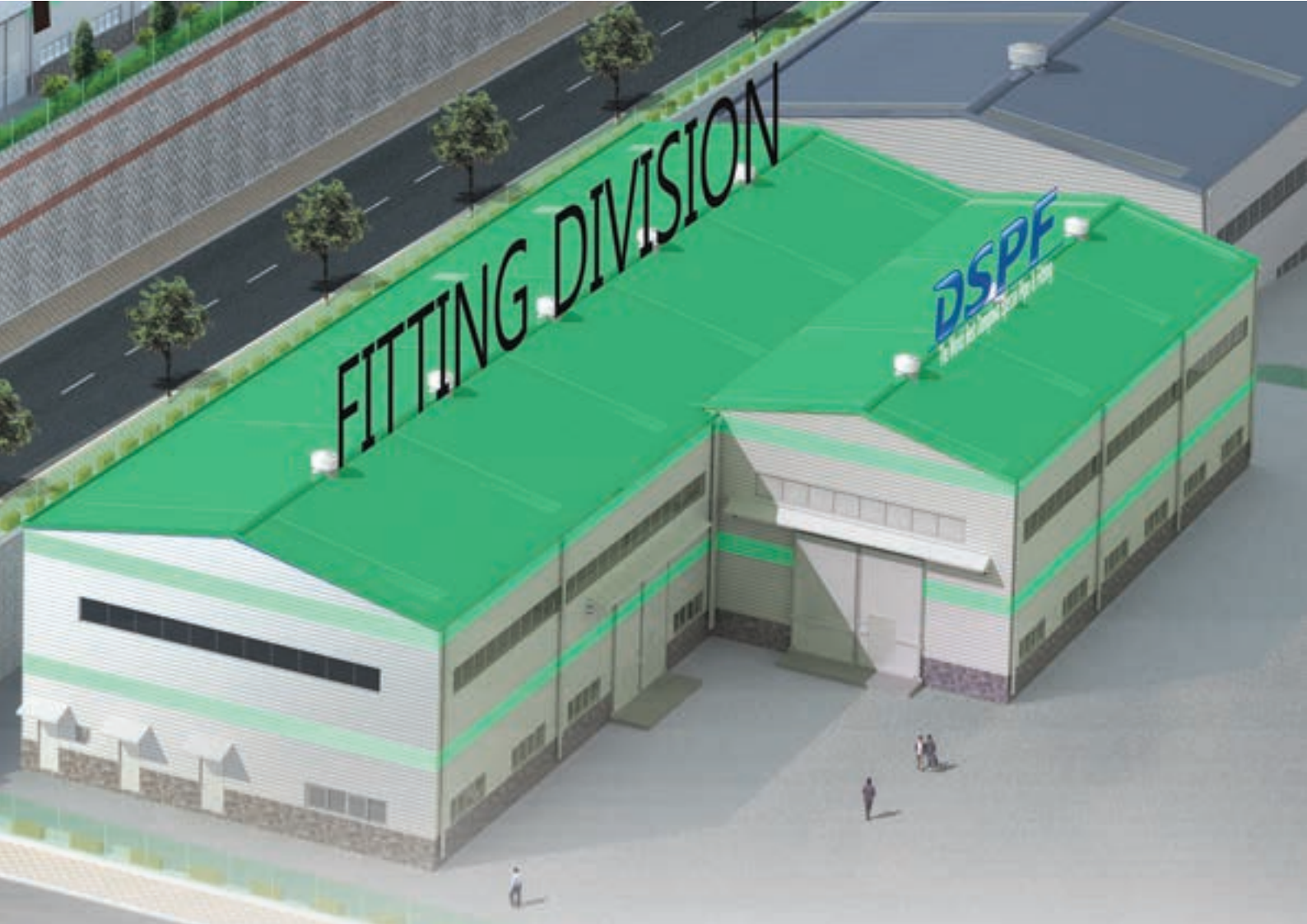
➤➤ FITTING





➤ FITTING





Company History

Fittings Division

- 2007. 11. Established Dong Hwa S&S.
- 2009. 03. Received a prize for Tax-Player's day (Busan Regional Tax Office).
- 2010. 02. Moved to the new factory at MAEGOK-DONG YANGSAN-SI.
- 2010. 12. The Best small & medium company membership & elect world class company (Small & Medium business corporation).
- 2010. 12. Received a prize from the mayor of Yang San-City
- 2011. 12. Received a prize from Gyeongsang Province Governor "Prize of Gyeongnam Trading"
- 2012. 04. Certified for ISO 9001 Quality Assurance System.
- 2012. 11. Register Bureau Veritas(BV).
- 2012. 12. Approval from Germanischer Lloyd(GL).
- 2013. 04. Dong Hwa TCA merged with Dong Hwa S&S



BUTT WELD FITTINGS

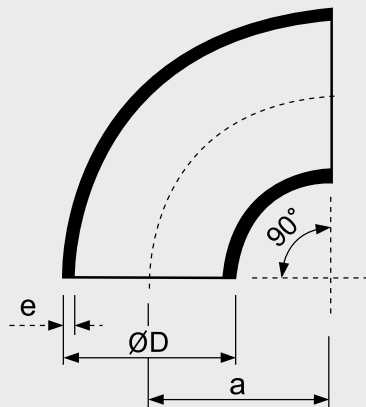


• Elbows short radius

10 BAR

R~1D - 90°

■ and 14 Bar



MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : Extrapolated from DIN 86090

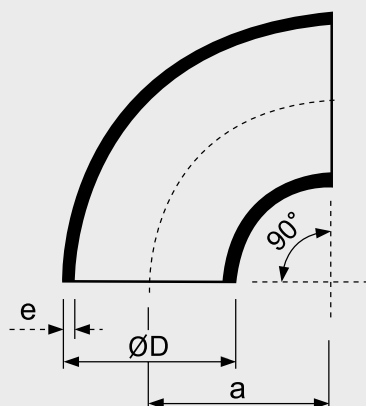
Outside diameter of pipe ØD		Wall thickness e mm	Radius a mm	Theoretical weight kg/piece
nominal inch	actual mm			
SEAMLESS				
1	30.0	1.5	30	0.04
1 1/4	38.0		32.5	0.08
1 1/2	44.5		40	0.12
2	57.0		52.5	0.20
2 1/2	76.1	2	70	0.44
3	88.9		■ 2.5	82.5
4	108.0	0.80		
5	133.0	2.5	100	1.16
		■ 3	125	1.80
2.5	150			2.16
6		159.0	■ 3	2.60
7	193.7	2.5	180	3.12
		■ 3.5		3.80
8	219.1	2.5	210	5.32
		3		6.00
		■ 3.5		7.00
SEAMLESS or SEAM WELDED				
10	267.0	3	255	8.80
		■ 4		11.74
12	323.9	4	305	17.20
		■ 5		21.50
14	368.0	4	352.5	22.60
		■ 5.5		31.08
SEAM WELDED				
16	419.1	4	400	32.80
		■ 6		43.74
18	457.2	4	455	40.80
		■ 6		61.20
20	508.0	4.5	505	56.20
		■ 6.5		84.30
24	610.0	5	610	81.80
		■ 8		130.90

Other diameters, wall thicknesses and outside diameters are also available upon request.

• Elbows long radius

10 BAR

R~1.5D - 90°

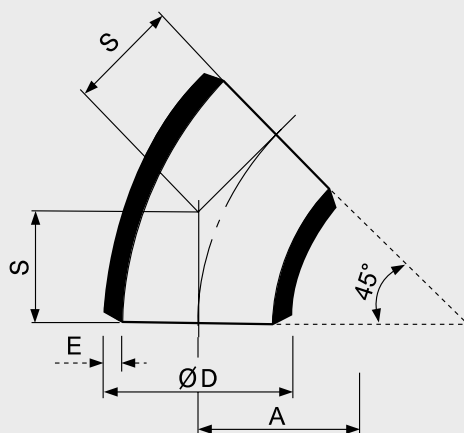


MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 146

Outside diameter of pipe ØD		Wall thickness		Radius	Theoretical weight	
nominal inch	actual mm	16Bar e mm	20Bar e mm	a mm	16Bar kg/piece	20Bar kg/piece
SEAMLESS						
1	30.0	2.5	2.5	38	0.12	0.12
1 1/4	38.0	2.5	2.5	48	0.18	0.18
1 1/2	44.5	2.5	2.5	57	0.26	0.26
2	57.0	2.5	2.5	76	0.46	0.46
2 1/2	76.1	2.5	2.5	95	0.76	0.76
3	88.9	2.5	2.5	114	1.08	1.08
4	108.0	3	3.0	152	2.10	2.10
6	159.0	3	3.5	229	4.70	5.48
8	219.1	4	4.5	305	11.50	12.94
10	267.0	4.5	5.5	381	19.70	24.08
12	323.9	5.5	7.0	457	35.06	44.60
SEAMLESS or SEAM WELDED						
14	368.0	6.5	8.0	533	54.90	67.60
16	419.1	7	9.0	610	77.00	99.00
SEAM WELDED						
18	457.2	8	9.5	686	108.20	128.50
20	508.0	8.5	11.0	762	141.86	183.60
24	610.0	10.5	13.0	914	252.94	313.30
28	711.0	12	15.0	1067	392.60	490.80
32	813.0	13.5	17.0	1219	577.90	727.70
36	914.0	15.5	19.0	1372	837.20	1026.26

• Elbows 45° Short



MATERIAL : DHM 10® CuNi 90/10

DIMENSION : DIN 86090

EEMUA 146 16Bar/20Bar

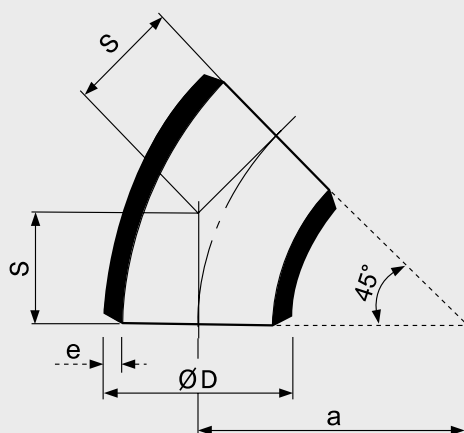
Outside diameter of pipe ØD		Wall thickness	Radius		Theoretical weight
nominal inch	actual mm	e mm	a mm	s mm	kg/ piece
SEAMLESS					
1/2	20	1	25	10.4	0.01
3/4	25	1.5	27.5	11.4	0.02
1	30	1.5	33.5	14	0.03
1 1/4	38	1.5	45	19	0.05
1 1/2	44.5	1.5	51	21	0.07
2	57	1.5	72	30	0.13
2 1/2	76.1	2	95	39	0.30
3	88.9	2/■ 2.5	114.5	47	0.43/0.54
4	108	2.5	142.5	59	0.82
5	133	2.5/■ 3	181	75	1.29/1.55
6	159	2.5	216	89	1.85/2.22
7	193.7	■ 3	270	112	2.82/3.94
8	219.1	3/■ 3.5	305	126	4.33/5.04
SEAMLESS or SEAM WELDED					
10	267	3/■ 4	378	157	6.55/8.73
12	323.9	4/■ 5	457	189	12.80/16.00
14	368	4/■ 5.5	533.5	221	17.00/23.37
16	419.1	4/■ 6	609.5	252	29.90/33.20
SEAM WELDED					
18	457.2	4/■ 6	686	284	30.70/46.05
20	508	4.5/■ 6.5	762	316	41.90/62.85
24	610	5/■ 8	915	379	60.62/97.00

Outside diameter of pipe ØD		Wall thickness	Radius		Theoretical weight
nominal inch	actual mm	e mm	a mm	s mm	kg/ piece
SEAMLESS					
1	30	2.5	38	22	0.06
1 1/4	38	2.5	48	25	0.09
1 1/2	44.5	2.5	57	29	0.13
2	57	2.5	76	35	0.23
2 1/2	76.1	2.5	95	44	0.38
3	88.9	2.5	114	51	0.54
4	108	3	152	64	1.05
6	159	3	229	95	2.35
SEAMLESS or SEAM WELDED					
8	219.1	4	305	127	5.75
10	267	4.5	381	159	9.85
12	323.9	5.5	457	190	17.53
SEAM WELDED					
14	368	6.5	533	222	27.46
16	419.1	7	610	254	38.50
18	457.2	8	686	286	54.10
20	508	8.5	762	318	70.93
24	610	10.5	914	381	126.42
28	711	12	1067	438	196.30
32	813	13.5	1219	502	288.00
36	914	13.5	1372	565	418.60

• Elbows long radius

16 BAR/20 BAR

R~1.5D - 45°



MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 146

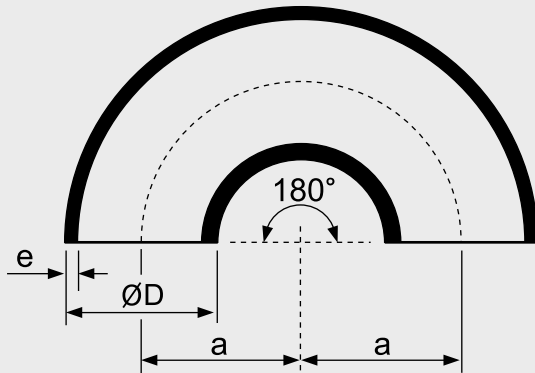
Outside diameter of pipe ØD		Wall thickness		Radius				Theoretical weight	
nominal inch	actual mm	16Bar e mm	20Bar e mm	16Bar a mm	20Bar a mm	16Bar s mm	20Bar s mm	16Bar kg/piece	20Bar kg/piece
SEAMLESS									
1	30.0	2.5	2.5	38	38	22	22	0.06	0.06
1 1/4	38.0	2.5	2.5	48	48	25	25	0.09	0.09
1 1/2	44.5	2.5	2.5	57	57	29	29	0.13	0.13
2	57.0	2.5	2.5	76	76	35	35	0.23	0.23
2 1/2	76.1	2.5	2.5	95	95	44	44	0.38	0.38
3	88.9	2.5	2.5	114	114	51	51	0.54	0.54
4	108.0	3	3.0	152	152	64	64	1.05	1.05
6	159.0	3	3.5	229	229	95	95	2.35	2.74
8	219.1	4	4.5	305	305	127	127	5.75	6.47
10	267.0	4.5	5.5	381	381	159	159	9.85	12.04
12	323.9	5.5	7.0	457	457	190	190	17.53	22.30
SEAMLESS or SEAM WELDED									
14	368.0	6.5	8.0	533	533	222	222	27.46	33.80
16	419.1	7	9.0	610	610	254	254	38.50	49.50
SEAM WELDED									
18	457.2	8	9.5	686	686	286	286	54.10	64.25
20	508.0	8.5	11.0	762	762	318	318	70.93	91.80
24	610.0	10.5	13.0	914	914	381	381	126.42	156.60
28	711.0	12	15.0	1067	1067	438	438	196.30	245.40
32	813.0	13.5	17.0	1219	1219	502	502	288.00	363.85
36	914.0	13.5	19.0	1372	1372	565	565	418.60	513.13

• Elbows long radius

10 BAR

R~1.5D - 180°

■ and 14 Bar



MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

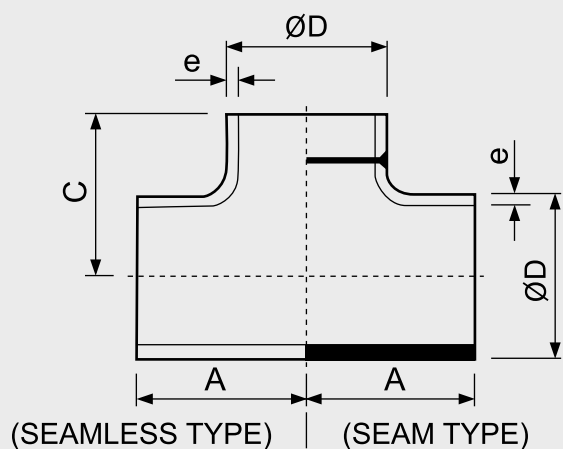
DIMENSION : DIN 86090

Outside diameter of pipe ØD		Wall thickness	Radius	Theoretical weight
nominal inch	actual mm	e mm	a mm	kg/ piece
SEAMLESS				
1/2	20.0	1.0	25.0	0.04
3/4	25.0	1.5	27.5	0.08
1	30.0	1.5	33.5	0.12
1 1/4	38.0	1.5	45.0	0.20
1 1/2	44.5	1.5	51.0	0.28
2	57.0	1.5	72.0	0.52
2 1/2	76.1	2.0	95.0	1.22
3	88.9	2.0	114.5	1.74
		■ 2.5	114.5	2.10
4	108.0	2.5	142.5	3.28
5	133.0	2.5	181.0	5.16
		■ 3.0	181.0	6.20
6	159.0	2.5	216.0	7.40
		■ 3.0	216.0	8.88
7	193.7	2.5	270.0	11.30
		■ 3.5	270.0	15.70
8	219.1	3.0	305.0	17.32
		■ 3.5	305.0	20.70
10	267.0	3.0	378.0	26.20
		■ 4.0	378.0	34.90
12	323.9	4.0	457.0	51.22
		■ 5.0	457.0	64.00
SEAMLESS or SEAM WELDED				
14	368.0	4.0	533.5	68.00
		■ 5.5	533.5	93.40
16	419.1	4.0	609.5	88.64
		■ 6.0	609.5	132.80
SEAM WELDED				
18	457.2	4.0	686.0	108.94
		■ 6.0	686.0	145.26
20	508.0	4.5	762.0	151.24
		■ 6.5	762.0	251.00
24	610.0	5.0	915.0	242.48
		■ 8.0	915.0	388.00

Other diameters, wall thicknesses and outside diameters are also available upon request.

• Equal tees

16 BAR/20 BAR



MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

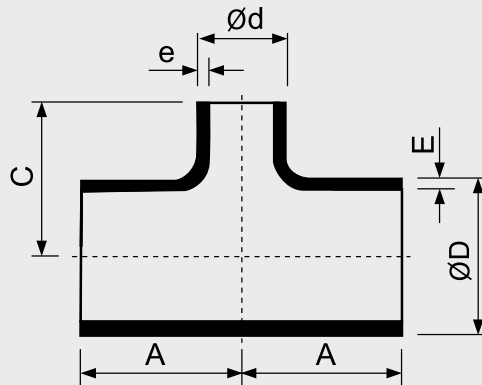
DIMENSION : EEMUA Pub. N° 146

Outside diameter of pipe $\varnothing D$		Wall thickness				Theoretical weight	
nominal inch	actual mm	16Bar e mm	20Bar e mm	A mm	C mm	16Bar kg/piece	20Bar kg/piece
SEAMLESS							
1	30.0	2.5	2.5	38	38	0.18	0.18
1 1/4	38.0	2.5	2.5	48	48	0.29	0.29
1 1/2	44.5	2.5	2.5	57	57	0.43	0.43
2	57.0	2.5	2.5	64	64	0.57	0.57
2 1/2	76.0	2.5	2.5	76	76	0.88	0.88
3	89.0	2.5	2.5	86	86	1.16	1.16
4	108.0	3	3.0	105	105	2.09	2.09
6	159.0	3	3.5	143	143	4.07	4.74
8	219.0	4	4.5	178	178	17.00	19.10
10	267.0	4.5	5.5	216	216	24.90	30.40
12	324.0	5.5	7.0	254	254	43.30	55.10
SEAMLESS or SEAM WELDED							
14	368.0	6.5	8.0	279	279	64.05	78.80
16	419.0	7	9.0	305	305	96.40	124.00
SEAM WELDED							
18	457.0	8	9.5	343	343	135.30	160.65
20	508.0	8.5	11.0	381	381	175.30	226.90
24	610.0	10.5	13.0	432	432	265.90	329.20
28	711.0	12.0	15.0	521	521	427.00	533.75
32	813.0	13.5	17.0	597	597	546.10	687.70
36	914.0	15.5	19.0	673	673	764.10	973.40

• Reducing tees

10 BAR

■ and 14 Bar



MATERIAL : NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

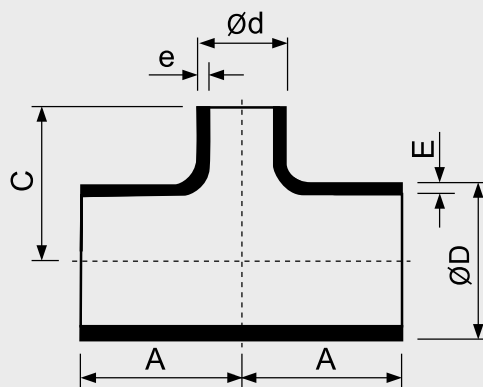
DIMENSION : DIN 86088

Outside diameter of pipe				Wall thickness		Centre to face		Theoretical weight
ØD x Ød		ØD x Ød		E	c	A	C	kg/
nominal (inch)		actual (mm)		mm	mm	mm	mm	piece
SEAMLESS								
1 1/4	x 1	38.0	x 30.0	1.5	1.5	48	42	0.10
1 1/2	x 1	44.5	x 30.0	1.5	1.5	57	45	0.21
	x 1 1/4		x 38.0	1.5	1.5		51	0.21
2	x 1	57.0	x 30.0	1.5	1.5	64	51	0.32
	x 1 1/4		x 38.0	1.5	1.5		57	0.32
	x 1 1/2		x 44.5	1.5	1.5		63	0.32
	x 2		x 57.0	1.5	1.5		76	0.65
2 1/2	x 1 1/4	76.1	x 38.0	2	1.5	76	62	0.65
	x 1 1/2		x 44.5	2	1.5		71	0.67
	x 2		x 57.0	2	1.5		73	0.67
	x 2 1/2		x 76.1	2	1.5		86	0.87
3	x 1 1/4	88.9	x 38.0	2	1.5	86	73	0.87
	x 1 1/2		x 44.5	2	1.5		76	0.87
	x 2		x 57.0	2	1.5		80	0.89
	x 2 1/2		x 76.1	2	2.0		83	0.92
	x 3		x 88.9	2	2.0		90	1.08
3	x 1 1/4	88.9	x 38.0	2.5	1.5	86	73	1.08
	x 1 1/2		x 44.5	2.5	1.5		76	1.08
	x 2		x 57.0	2.5	1.5		80	1.10
	x 2 1/2		x 76.1	2.5	2.0		83	1.15
	x 3		x 88.9	2.5	2.0		90	1.60
4	x 1 1/2	108.0	x 44.5	2.5	1.5	105	89	1.60
	x 2		x 57.0	2.5	1.5		90	1.60
	x 2 1/2		x 76.1	2.5	2.0		92	1.65
	x 3		x 88.9	2.5	2.0		96	1.65
	x 4		x 108.0	2.5	2.5		105	1.65
5	x 2	133.0	x 57.0	2.5	1.5	124	98	3.00
	x 2 1/2		x 76.1	2.5	2.0		105	3.10
	x 3		x 88.9	2.5	2.0		108	3.25
	x 4		x 108.0	2.5	2.5		117	3.30
	x 5		x 133.0	2.5	2.5		124	3.60
5	x 2	133.0	x 57.0	3	1.5	124	98	3.60
	x 2 1/2		x 76.1	3	2.0		105	3.70
	x 3		x 88.9	3	2.0		108	3.90
	x 4		x 108.0	3	2.5		117	3.95
	x 5		x 133.0	3	2.5		124	4.40
6	x 2 1/2	159.0	x 76.1	2.5	2.0	143	121	4.50
	x 3		x 88.9	2.5	2.0		121	4.50
	x 4		x 108.0	2.5	2.5		130	4.60
	x 5		x 133.0	2.5	2.5		136	4.60
	x 6		x 159.0	2.5	2.5		143	5.25
6	x 2 1/2	159.0	x 76.1	3	2.0	143	118	5.25
	x 3		x 88.9	3	2.0		121	5.40
	x 4		x 108.0	3	2.5		130	5.50
	x 5		x 133.0	3	2.5		136	5.50
	x 6		x 159.0	3	3.0		143	5.50
8	x 4	219.1	x 108.0	3	2.5	178	156	12.60
	x 5		x 133.0	3	2.5		162	12.70
	x 6		x 159.0	3	2.5		168	12.80
	x 8		x 219.1	3	3.0		178	14.75
8	x 4	219.1	x 108.0	3.5	2.5	178	156	14.75
	x 5		x 133.0	3.5	2.5		162	14.85
	x 6		x 159.0	3.5	2.5		168	14.95
	x 8		x 219.1	3.5	3.0		178	16.60
10	x 4	267.0	x 108.0	3	2.5	194	209	12.50
	x 5		x 133.0	3	2.5		217	13.50
	x 6		x 159.0	3	2.5		240	14.80
	x 7		x 193.7	3	2.5		267	15.20
	x 8		x 219.1	3	3.0		290	16.60
	x 10		x 267.0	3	3.0		324	19.75
10	x 4	267.0	x 108.0	4	2.5	194	209	16.70
	x 5		x 133.0	4	2.5		217	18.00
	x 6		x 159.0	4	2.5		229	19.75
	x 7		x 193.7	4	3.0		240	20.25
	x 8		x 219.1	4	3.0		267	22.10
	x 10		x 267.0	4	3.0		290	28.60
12	x 5	323.9	x 133.0	4	2.5	217	247	28.60
	x 6		x 159.0	4	2.5		257	30.45
	x 7		x 193.7	4	2.5		267	32.60
	x 8		x 219.1	4	3.0		290	34.60
	x 10		x 267.0	4	3.0		324	37.80
	x 12		x 323.9	4	3.0		360	45.55
12	x 5	323.9	x 133.0	5	3.0	217	247	35.75
	x 6		x 159.0	5	3.0		240	38.00
	x 7		x 193.7	5	3.5		267	40.75
	x 8		x 219.1	5	3.5		290	43.25
	x 10		x 267.0	5	4.0		324	47.25
	x 12		x 323.9	5	4.0		360	51.40
14	x 6	368.0	x 159.0	4	2.5	240	279	37.40
	x 7		x 193.7	4	2.5		294	39.85
	x 8		x 219.1	4	3.0		309	42.10
	x 10		x 267.0	4	3.0		324	45.55
	x 12		x 323.9	4	3.0		360	52.00
	x 14		x 399.1	4	3.0		400	58.40
14	x 6	368.0	x 159.0	5.5	3.0	240	279	51.40
	x 7		x 193.7	5.5	3.5		294	54.20
	x 8		x 219.1	5.5	3.5		309	57.90
	x 10		x 267.0	5.5	4.0		324	62.65
	x 12		x 323.9	5.5	4.0		360	71.50

Other dimensions, wall thicknesses and outside diameters are also available upon request.

• Reducing tees

16 BAR/20 BAR



MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

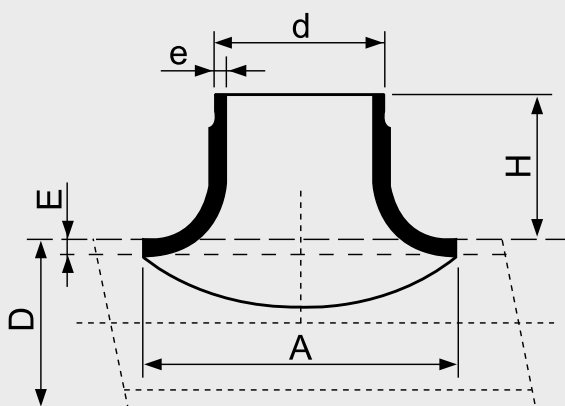
DIMENSION : EEMUA Pub. N° 146

Outside diameter of pipe				Wall thickness			Centre to face		Theoretical weight	
ØD x Ød		ØD x Ød		16Bar	20Bar	e	A	C	16Bar	20Bar
nominal (inch)		actual (mm)		E mm	E mm	mm	mm	mm	kg/piece	kg/piece
SEAMLESS										
1	x 3/4	30.0	x 25.0	2.5	2.5	2.0	38	38	0.17	0.17
1 1/4	x 3/4	38.0	x 25.0	2.5	2.5	2.0	48	48	0.28	0.28
	x 30.0		2.5			48		0.28	0.28	
1 1/2	x 3/4	41.5	x 25.0	2.5	2.5	2.0	57	57	0.37	0.37
	x 30.0		2.5			57		0.40	0.40	
	x 1 1/4		x 38.0			2.5		57	0.41	0.41
2	x 1	57.0	x 30.0	2.5	2.5	2.5	64	51	0.51	0.51
	x 1 1/4		x 38.0			2.5		57	0.54	0.54
	x 1 1/2		x 44.5			2.5		60	0.55	0.55
2 1/2	x 1 1/4	76.1	x 38.0	2.5	2.5	2.5	76	64	0.83	0.83
	x 1 1/2		x 44.5			2.5		67	0.84	0.84
	x 2		x 57.0			2.5		70	0.85	0.85
3	x 1 1/2	88.9	x 44.5	2.5	2.5	2.5	86	73	1.10	1.10
	x 2		x 57.0			2.5		76	1.12	1.12
	x 2 1/2		x 76.1			2.5		83	1.15	1.15
4	x 2	108.0	x 57.0	3.0	3.0	2.5	105	89	1.90	1.90
	x 2 1/2		x 76.1			2.5		95	1.92	1.92
	x 3		x 88.9			2.5		98	1.95	1.95
6	x 2 1/2	159.0	x 76.1	3.0	3.5	2.5	143	121	3.95	4.60
	x 3		x 88.9			2.5		124	4.00	4.65
	x 4		x 108.0			3.0		130	4.05	4.72
8	x 3	219.1	x 88.9	4.0	4.5	2.5	178	152	16.60	18.70
	x 4		x 108.0			3.0		156	16.90	19.00
	x 6		x 159.0			3.5		168	17.00	19.10
10	x 4	267.0	x 108.0	4.5	5.5	3.0	216	184	21.60	26.40
	x 6		x 159.0			3.5		194	21.75	26.60
	x 8		x 219.1			4.5		203	21.90	26.75
12	x 6	323.9	x 159.0	5.5	7.0	3.5	254	219	38.50	49.00
	x 8		x 219.1			4.5		229	39.60	50.40
	x 10		x 267.0			5.5		241	40.70	51.80
SEAMLESS or SEAM WELDED										
14	x 8	368.0	x 219.1	6.5	8.0	4.5	279	248	58.80	72.35
	x 10		x 267.0			5.5		257	59.70	73.50
	x 12		x 323.9			7.0		270	61.50	75.70
16	x 10	419.1	x 267.0	7.0	9.0	5.5	305	283	89.60	115.20
	x 12		x 323.9			7.0		295	91.40	117.50
	x 14		x 368.0			8.0		305	93.50	120.20
SEAM WELDED										
18	x 12	457.2	x 323.9	8.0	9.5	7.0	343	321	126.30	150.00
	x 14		x 368.0			8.0		330	128.30	152.35
	x 16		x 419.1			9.0		330	129.90	154.25
20	x 14	508.0	x 368.0	8.5	11.0	8.0	381	356	162.00	209.65
	x 16		x 419.1			9.0		356	164.20	212.50
	x 18		x 457.2			9.5		368	168.30	217.80
24	x 8	610.0	x 419.1	10.5	13.0	9.0	432	406	248.30	307.40
	x 10		x 457.2			9.5		419	251.70	311.60
	x 12		x 508.0			11.0		432	255.30	310.10
28	x 10	711.0	x 457.2	12.0	15.0	9.5	521	470	394.60	493.25
	x 12		x 508.0			11.0		483	398.20	497.75
	x 14		x 610.0			13.0		508	409.90	512.40
32	x 8	813.0	x 508.0	13.5	17.0	11.0	597	533	495.00	623.30
	x 10		x 610.0			13.0		559	506.80	638.20
	x 12		x 711.0			15.0		572	518.80	653.30
36	x 10	914.0	x 610.0	15.5	19.0	13.0	673	610	723.60	887.00
	x 12		x 711.0			15.0		622	735.40	901.45
	x 14		x 813.0			17.0		648	754.40	924.75

• Saddles

16 BAR/20 BAR

With equal or reduced branch



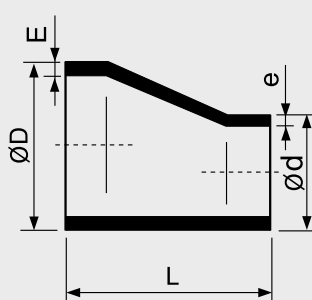
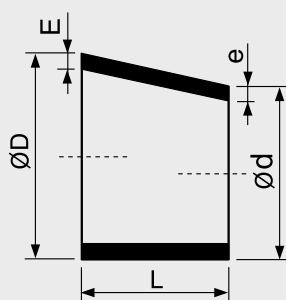
MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 146

Outside diameter of pipe				Wall thickness				Centre to face		Theoretical weight	
ØD x Ød		ØD x Ød		16Bar E mm	20Bar E mm	16Bar e mm	20Bar e mm	H mm	A mm	16Bar kg/piece	20Bar kg/piece
nominal (inch)		actual (mm)									
SEAMLESS											
1 1/4	x 1 1/4	38.0	x 38.0	2.5	2.5	2.5	2.5	35	64	0.18	0.18
1 1/2	x 1 1/4	44.5	x 38.0	2.5	2.5	2.5	2.5	35	64	0.23	0.23
	x 1 1/2		x 44.5			2.5	2.5	35	74	0.25	0.25
2	x 1 1/4	57.0	x 38.0	2.5	2.5	2.5	2.5	35	64	0.25	0.25
	x 1 1/2		x 44.5			2.5	2.5	35	74	0.28	0.28
	x 2		x 57.0			2.5	2.5	40	97	0.40	0.40
2 1/2	x 1 1/4	76.1	x 38.0	2.5	2.5	2.5	2.5	35	64	0.37	0.37
	x 1 1/2		x 44.5			2.5	2.5	35	74	0.42	0.42
	x 2		x 57.0			2.5	2.5	40	97	0.60	0.60
	x 2 1/2		x 76.1			2.5	2.5	50	126	0.65	0.65
3	x 1 1/4	88.9	x 38.0	2.5	2.5	2.5	2.5	35	64	0.45	0.45
	x 1 1/2		x 44.5			2.5	2.5	35	74	0.55	0.55
	x 2		x 57.0			2.5	2.5	40	97	0.62	0.62
	x 2 1/2		x 76.1			2.5	2.5	50	126	0.70	0.70
	x 3		x 88.9			2.5	2.5	55	149	0.95	0.95
4	x 1 1/2	108.0	x 44.5	3.0	3.0	2.5	2.5	35	74	0.38	0.38
	x 2		x 57.0			2.5	2.5	40	97	0.48	0.48
	x 2 1/2		x 76.1			2.5	2.5	50	126	0.78	0.78
	x 3		x 88.9			2.5	2.5	55	149	0.94	0.94
	x 4		x 108.0			3.0	3.0	75	188	1.56	1.56
6	x 2 1/2	159.0	x 76.1	3.0	3.5	2.5	2.5	50	126	0.78	0.91
	x 3		x 88.9			2.5	2.5	55	149	1.20	1.40
	x 4		x 108.0			3.0	3.0	75	188	1.44	1.68
	x 6		x 159.0			3.0	3.5	95	279	3.12	3.64
8	x 3	219.1	x 88.9	4.0	4.5	2.5	2.5	55	149	1.73	1.94
	x 4		x 108.0			3.0	3.0	75	188	2.40	2.70
	x 6		x 159.0			3.0	3.5	95	279	5.06	5.69
	x 8		x 219.1			4.0	4.5	125	379	7.60	8.55
10	x 4	267.0	x 108.0	4.5	5.5	3.0	3.0	75	188	2.70	3.30
	x 6		x 159.0			3.0	3.5	95	279	5.54	6.77
	x 8		x 219.1			4.0	4.5	125	379	9.14	11.17
	x 10		x 267.0			4.5	5.5	155	447	13.05	15.95
12	x 6	323.9	x 159.0	5.5	7.0	3.0	3.5	95	279	5.22	6.64
	x 8		x 219.1			4.0	4.5	125	379	10.58	13.46
	x 10		x 267.0			4.5	5.5	155	447	13.75	17.50
	x 12		x 323.9			5.5	7.0	185	560	17.87	22.74

• Eccentric reducers

16 BAR/20 BAR



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

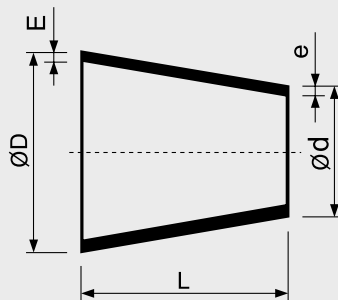
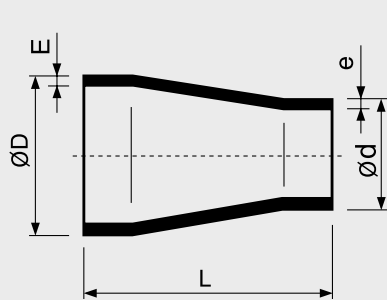
DIMENSION :

EEMUA Pub. N° 146

Outside diameter of pipe				Wall thickness				Length	Theoretical weight	
ØD x Ød		ØD x Ød		16Bar	20Bar	16Bar	20Bar	L	16Bar	20Bar
nominal (inch)		actual (mm)		E mm	E mm	e mm	e mm	mm	kg/piece	kg/piece
SEAMLESS										
1	x 3/4	30.0	x 25.0	2.5	2.5	2.0	2.0	51	0.09	0.09
1 1/4	x 3/4	38.0	x 25.0	2.5	2.5	2.0	2.0	51	0.10	0.10
	x 30.0		2.5			2.5	0.11		0.11	
1 1/2	x 3/4	44.5	x 25.0	2.5	2.5	2.0	2.0	64	0.14	0.14
	x 1		2.5			2.5	0.15		0.15	
	x 1 1/4		x 38.0			2.5	2.5		0.17	0.17
2	x 1	57.0	x 30.0	2.5	2.5	2.5	2.5	76	0.21	0.21
	x 1 1/4		x 38.0			2.5	2.5		0.23	0.23
	x 1 1/2		x 44.5			2.5	2.5		0.25	0.25
2 1/2	x 1 1/4	76.1	x 38.0	2.5	2.5	2.5	2.5	89	0.34	0.34
	x 1 1/2		x 44.5			2.5	2.5		0.36	0.36
	x 2		x 57.0			2.5	2.5		0.40	0.40
3	x 1 1/2	88.9	x 44.5	2.5	2.5	2.5	2.5	89	0.40	0.40
	x 2		x 57.0			2.5	2.5		0.44	0.44
	x 2 1/2		x 76.1			2.5	2.5		0.50	0.50
4	x 2	108.0	x 57.0	3.0	3.0	2.5	2.5	102	0.68	0.68
	x 2 1/2		x 76.1			2.5	2.5		0.76	0.76
	x 3		x 88.9			2.5	2.5		0.82	0.82
6	x 2	159.0	x 57.0	3.0	3.5	2.5	2.5	140	1.30	1.50
	x 2 1/2		x 76.1			2.5	2.5		1.35	1.56
	x 3		x 88.9			2.5	2.5		1.42	1.65
8	x 4	219.1	x 108.0	4.0	4.5	3.0	3.0	152	1.54	1.78
	x 2 1/2		x 76.1			2.5	2.5		2.45	2.74
	x 3		x 88.9			2.5	2.5		2.55	2.87
10	x 4	267.0	x 108.0	4.5	5.5	3.0	3.0	178	2.72	3.05
	x 6		x 159.0			3.0	3.5		3.16	3.54
	x 8		x 219.1			3.0	3.0		4.11	5.00
12	x 6	323.9	x 159.0	5.5	7.0	3.0	3.5	203	4.69	5.70
	x 8		x 219.1			4.0	4.5		5.36	6.53
	x 10		x 267.0			4.0	4.5		7.39	9.35
SEAMLESS or SEAM WELDED										
14	x 8	368.0	x 219.1	6.5	8.0	4.0	4.5	330	17.28	21.16
	x 10		x 267.0			4.5	5.5		18.73	22.95
	x 12		x 323.9			5.5	7.0		20.44	25.06
16	x 10	419.1	x 267.0	7.0	9.0	4.5	5.5	356	23.51	30.05
	x 12		x 323.9			5.5	7.0		25.51	32.62
	x 14		x 368.0			6.5	8.0		27.04	35.60
SEAMLESS										
18	x 12	457.2	x 323.9	8.0	9.5	5.5	7.0	381	32.72	38.85
	x 14		x 368.0			6.5	8.0		34.61	41.10
	x 16		x 419.1			7.0	9.0		36.80	43.70
20	x 14	508.0	x 368.0	8.5	11.0	6.5	8.0	508	52.07	67.38
	x 16		x 419.1			7.0	9.0		55.17	71.39
	x 18		x 457.2			8.0	9.5		57.48	74.38
24	x 16	610.0	x 508.0	10.5	13.0	7.0	9.0	508	75.49	93.46
	x 18		x 457.2			8.0	9.5		78.34	96.99
	x 20		x 508.0			8.5	11.0		82.15	101.70
28	x 18	711.0	x 457.2	12.0	15.0	8.0	9.5	610	117.58	146.97
	x 20		x 508.0			8.5	11.0		122.82	153.52
	x 24		x 610.0			10.5	13.0		133.30	166.62
32	x 24	813.0	x 610.0	13.5	17.0	10.5	13.0	610	161.42	203.26
	x 28		x 711.0			12.0	15.0		173.09	217.96
	x 24		x 610.0			10.5	13.0		274.48	336.45
36	x 28	914.0	x 711.0	15.5	19.0	12.0	15.0	610	287.89	352.89
	x 32		x 813.0			13.5	17.0		301.43	369.49

• Concentric reducers

16 BAR



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

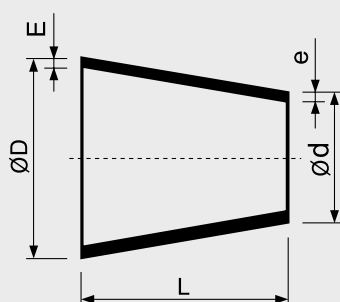
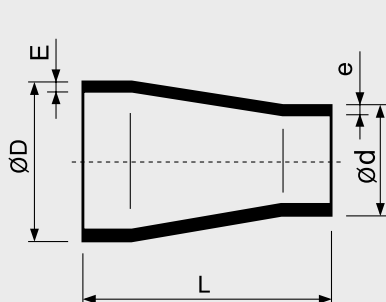
DIMENSION :

EEMUA Pub. N° 146

Outside diameter of pipe				Wall thickness		Length	Theoretical weight
ØD x Ød		ØD x Ød		E mm	e mm	L mm	kg/ piece
nominal (inch)		actual (mm)					
SEAMLESS							
1	x 3/4	30.0	x 25.0	2.5	2.0	51	0.09
1 1/4	x 3/4	38.0	x 25.0	2.5	2.0	51	0.10
	x 30.0		2.5		0.11		
1 1/2	x 3/4	44.5	x 25.0	2.5	2.0	64	0.14
	x 30.0		2.5		0.15		
	x 1 1/4		x 38.0		2.5		0.17
	x 1		2.5		0.21		
2	x 1 1/4	57.0	x 38.0	2.5	2.5	76	0.23
	x 1 1/2		2.5		0.25		
	x 1 1/4		x 38.0		2.5		0.34
	x 1 1/2		2.5		0.36		
2 1/2	x 2	76.1	x 44.5	2.5	2.5	89	0.40
	x 1 1/2		2.5		0.40		
3	x 1 1/2	88.9	x 44.5	2.5	2.5	89	0.44
	x 2		2.5		0.50		
	x 2 1/2		x 76.1		2.5		0.68
	x 2		2.5		0.76		
4	x 2 1/2	108.0	x 76.1	3	2.5	102	0.82
	x 3		2.5		1.30		
	x 2		x 57.0		2.5		1.35
	x 2 1/2		2.5		1.42		
6	x 3	159.0	x 88.9	3	2.5	140	1.54
	x 4		3.0				
SEAMLESS or SEAM WELDED							
8	x 2 1/2	219.1	x 76.1	4	2.5	152	2.45
	x 3		2.5		2.55		
	x 4		x 88.9		3.0		2.72
	x 6		3.0		3.16		
10	x 4	267.0	x 108.0	4.5	3.0	178	4.11
	x 6		3.0		4.69		
	x 8		x 219.1		4.0		5.36
	x 6		3.0		7.39		
12	x 8	323.9	x 159.0	5.5	3.0	203	8.33
	x 8		4.0		9.09		
	x 10		x 267.0		4.5		71.28
	x 8		4.0		18.73		
13	x 10	368.0	x 219.1	6.5	4.0	330	20.44
	x 12		5.5		23.51		
	x 10		x 267.0		4.5		25.51
	x 12		5.5		27.04		
16	x 14	419.1	x 323.9	7	6.5	356	
	x 14		6.5				
SEAM WELDED							
18	x 12	457.2	x 323.9	8	5.5	381	32.72
	x 14		6.5		34.61		
	x 16		x 368.0		7.0		36.80
	x 14		6.5		52.07		
20	x 16	508.0	x 368.0	8.5	6.5	508	55.17
	x 18		7.0		57.48		
	x 16		x 457.2		8.0		75.49
	x 18		7.0		78.34		
24	x 18	610.0	x 419.1	10.5	8.0	508	82.15
	x 20		8.5		117.58		
	x 18		x 457.2		8.0		122.82
	x 20		8.5		133.30		
28	x 24	711.0	x 508.0	12	10.5	610	161.42
	x 24		10.5		173.09		
32	x 24	813.0	x 610.0	13.5	12.0	610	247.48
	x 28		10.5		287.89		
	x 24		x 711.0		12.0		301.43
	x 28		13.5				
36	x 32	914.0	x 813.0	15.5	13.5	610	
	x 32		13.5				

• Concentric reducers

20 BAR



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

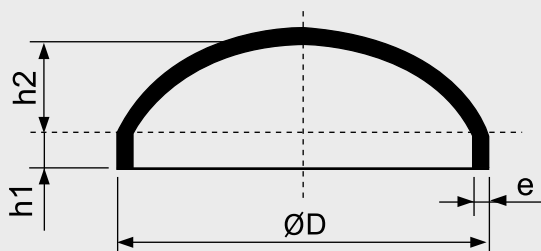
DIMENSION :

EEMUA Pub. N° 146

Outside diameter of pipe				Wall thickness		Length	Theoretical weight
ØD x Ød		ØD x Ød		E	e	L	kg/
nominal (inch)		actual (mm)		mm	mm	mm	piece
SEAMLESS							
1	x 3/4	30.0	x 25.0	2.5	2.0	51	0.09
1 1/4	x 3/4	38.0	x 25.0	2.5	2.0	51	0.10
	x 1		x 30.0		2.5		0.11
1 1/2	x 3/4	44.5	x 25.0	2.5	2.0	64	0.14
	x 1		x 30.0		2.5		0.15
	x 1 1/4		x 38.0		2.5		0.17
2	x 1	57.0	x 30.0	2.5	2.5	76	0.21
	x 1 1/4		x 38.0		2.5		0.23
	x 1 1/2		x 44.5		2.5		0.25
2 1/2	x 1 1/4	76.1	x 38.0	2.5	2.5	89	0.34
	x 1 1/2		x 44.5		2.5		0.36
	x 2		x 57.0		2.5		0.40
3	x 1 1/2	88.9	x 44.5	2.5	2.5	89	0.40
	x 2		x 57.0		2.5		0.44
	x 2 1/2		x 76.1		2.5		0.50
4	x 2	108.0	x 57.0	3.0	2.5	102	0.68
	x 2 1/2		x 76.1		2.5		0.76
	x 3		x 88.9		2.5		0.82
6	x 2	159.0	x 57.0	3.5	2.5	140	1.50
	x 2 1/2		x 76.1		2.5		1.56
	x 3		x 88.9		2.5		1.65
8	x 4	219.1	x 108.0	4.5	3.0	152	1.78
	x 6		x 159.0		3.5		2.74
	x 8		x 219.1		3.0		2.87
10	x 6	267.0	x 159.0	5.5	3.5	178	3.05
	x 8		x 219.1		4.5		3.54
	x 10		x 267.0		3.0		5.00
12	x 8	323.9	x 219.1	7.0	3.5	203	5.70
	x 10		x 267.0		4.5		6.53
	x 12		x 323.9		3.5		9.35
SEAMLESS or SEAM WELDED							
14	x 8	368.0	x 219.1	8.0	4.5	330	21.16
	x 10		x 267.0		5.5		22.95
	x 12		x 323.9		7.0		25.06
16	x 10	419.1	x 267.0	9.0	5.5	356	30.05
	x 12		x 323.9		7.0		32.62
	x 14		x 368.0		8.0		35.60
SEAM WELDED							
18	x 12	457.2	x 323.9	9.5	7.0	381	38.85
	x 14		x 368.0		8.0		41.10
	x 16		x 419.1		9.0		43.70
20	x 14	508.0	x 368.0	11.0	8.0	508	67.38
	x 16		x 419.1		9.0		71.39
	x 18		x 457.2		9.5		74.38
24	x 16	610.0	x 419.1	13.0	9.0	508	93.46
	x 18		x 457.2		9.5		96.99
	x 20		x 508.0		11.0		101.70
28	x 18	711.0	x 457.2	15.0	9.5	610	146.97
	x 20		x 508.0		11.0		153.52
	x 24		x 610.0		13.0		166.62
32	x 24	813.0	x 610.0	17.0	13.0	610	203.26
	x 28		x 711.0		15.0		217.96
	x 32		x 813.0		13.0		336.45
36	x 28	914.0	x 711.0	19.0	15.0	610	352.89
	x 32		x 813.0		17.0		369.49

• End caps

16 BAR/20 BAR



MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 146

Outside diameter of pipe ØD		Wall thickness		Heigh	Theoretical weight	
nominal inch	actual mm	16Bar e mm	20Bar e mm	h1 + h2 mm	16Bar kg/piece	20Bar kg/piece
SEAMLESS						
1 1/2	44.5	2.5	2.5	19.6	0.13	0.13
2	57.0	2.5	2.5	22.0	0.19	0.19
2 1/2	76.1	2.5	2.5	25.7	0.31	0.31
3	88.9	2.5	2.5	28.2	0.40	0.40
4	108.0	3.0	3.0	31.7	0.75	0.75
6	159.0	3.0	3.5	44.0	1.50	1.75
8	219.1	4.0	4.5	60.0	2.75	3.10
10	267.0	4.5	5.5	69.0	4.90	5.96
12	323.9	5.5	7.0	85.0	9.17	11.68
14	368.0	6.5	8.0	103.0	14.05	17.30
16	449.1	7.0	9.0	112.0	18.60	23.90
18	457.2	8.0	9.5	119.0	22.75	27.00
20	508.0	8.5	11.0	139.0	31.70	41.00
24	610.0	10.5	13.0	163.0	56.16	68.30
28	711.0	12.0	15.0	191.0	85.55	106.90
32	813.0	13.5	17.0	210.0	125.40	157.90
36	914.0	15.5	19.0	231.0	175.40	215.00

DSPF
The World Best Donghwa Special Pipe & Fitting

FLANGES



• Composite Flanges



Materials	Applied Code	
Cu-Ni 90/10	EEMUA 7060x ASTM B151 C70600 BS 2872 CN102	Din CuNi10Fe1Mn JIS H3300 C7060
Cu-Ni 70/10	ASTM B51 C71500 BS 2872 CN107	Din CuNi30Mn1Fe JIS H3300 C7150
Cast bronze	ASTM B61, B62 JIS H5111 BC1~BC7	BS 1400LG, C
Leaded yellow brass	ASTM B584 C85400	JIS H5101 YBSC, (CAC202)
Steel	ASTM A105	JIS G3101 SS400

Composite Flanges

Composite weld-neck and composite slip-on flanges are made up from two components, an internal flanges (welding collar) in Cu-Ni 90/10, Cu-Ni 70/30 and an external flange in carbon steel. Composite blind flanges are made up from a carbon steel blind flange overlayed-on, and machined disc in Cu-Ni 90/10 or Cu-Ni 70/30.

Solid Flanges

Solid flanges in Cu-Ni 90/10 or Cu-Ni 70/30 are produced from bar by hot forging and machining, Solid flanges in bronze are produced by casting and machining. Solid flanges in Leaded yellow brass are produced by extrusion bar and machining. Solid Silver-Brazing Flanges Solid silver brazing flanges incorporate integral silver-brazing alloy rings and under normal circumstances. There is generally no need to socket feed with additional brazing alloy. The silver brazing alloy to AWS A5.8(BAG1, BAG7), JIS E3261 (BAG1, BAG7) or BS1845 (AG1, AG7).

Product Range

Composite and solid flanges are available in standard sizes machining those of the relevant pipe and butt welding fittings. Non-standard size flanges are produced to certain minimum quantity limitations, availability on application.

Joint facing

All flange jointing faces are machine finished according to ASME B16.5 including smooth finish.

Inspection and Testing

Series of stringent quality-control inspections and tests are performed throughout the entire manufacturing process, from melting and alloying to the finished product to ensure product quality which complies with the customer's requirements. Final inspection generally includes visual and dimensional control as well as chemical and mechanical tests to ensure chemical, physical and dimensional accuracy.

Certification

All flanges are supplied with a certificate listing the tests which have been performed in accordance with relevant specifications and / or customer requests.

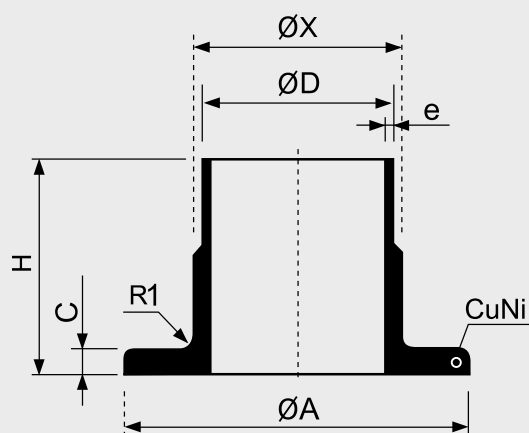
Packing

The utmost care is taken to ensure that butt-welding fittings are fully protected against damage during transit.

• Composite weld neck flanges

16Bar

Short inner flanges type EEMUA



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

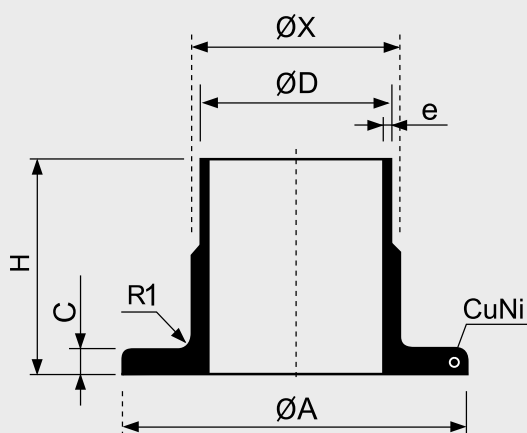
DIMENSION : EEMUA Pub. N° 145

Outside diameter of pipe ØD		Wall thickness	ØA mm	H mm	C mm	ØX mm	R1 mm	Theoretical weight
nominal inch	actual mm	e mm						kg/ piece
1/2	16	2	40	35	4	18	2	0.07
3/4	25	2	50	40	5	27	3	0.16
1	30	2.5	60	40	5	32	4	0.20
1 1/4	38	2.5	70	40	5	40	4	0.25
1 1/2	44.5	2.5	80	45	6	46.5	4	0.42
2	57	2.5	99	45	6	59	5	0.50
2 1/2	76.1	2.5	120	45	6	78	5	0.67
3	88.9	2.5	130	50	7	91	5	0.86
4	108	3	158	50	7	110	5	1.18
6	159	3	212	50	9	161.5	5	2.20
8	219.1	4	270	50	9	222	5	3.20
10	267	4.5	320	50	9	270	5	3.90
12	323.9	5.5	370	50	11	327	7	6.50
14	368	6.5	430	50	11	371	7	7.45
16	419.1	7	482	50	12	422	7	9.20
18	457.2	8	530	50	12	460	7	11.45
20	508	8.5	585	50	12	511	7	13.40
24	610	10.5	685	60	14	613	9	20.75
28	711	12	800	60	19	719	9	33.35
32	813	13.5	905	60	20.5	827	9	42.25
36	914	15.5	1000	60	22	922	9	49.35

• Composite weld neck flanges

20 BAR

Short inner flanges type EEMUA



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

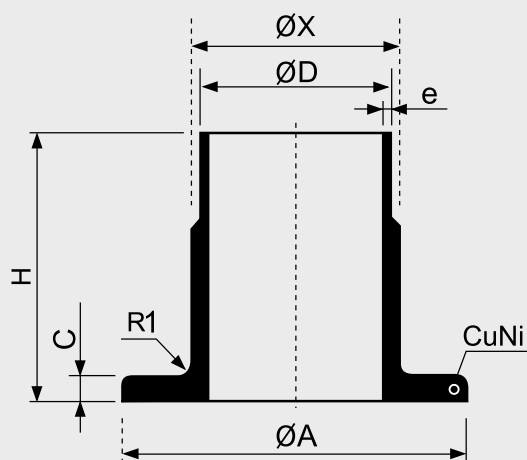
DIMENSION : EEMUA Pub. N° 145

Outside diameter of pipe ØD		Wall thickness	ØA mm	H mm	C mm	ØX mm	R1 mm	Theoretical weight
nominal inch	actual mm	e mm						kg/ piece
1/2	16.0	2.0	40	35	4.0	18.0	2	0.07
3/4	25.0	2.0	50	40	5.0	27.0	3	0.16
1	30.0	2.5	60	40	5.0	32.0	4	0.20
1 1/4	38.0	2.5	70	40	5.0	40.0	4	0.25
1 1/2	44.5	2.5	80	45	6.0	46.5	4	0.42
2	57.0	2.5	99	45	6.0	59.0	5	0.50
2 1/2	76.1	2.5	120	45	6.0	78.0	5	0.67
3	88.9	2.5	130	50	7.0	91.0	5	0.86
4	108.0	3.0	158	50	7.0	110.0	5	1.20
6	159.0	3.5	212	50	9.0	161.5	5	2.20
8	219.1	4.5	270	50	9.0	222.0	5	3.30
10	267.0	5.5	320	50	9.0	270.0	5	4.20
12	323.9	7.0	370	50	11.0	327.0	7	6.80
14	368.0	8.0	430	50	11.0	371.0	7	8.20
16	419.1	9.0	482	50	12.0	422.0	7	10.35
18	457.2	9.5	530	50	12.0	460.0	7	12.40
20	508.0	11.0	585	50	12.0	511.0	7	15.10
24	610.0	13.0	685	60	14.0	613.0	9	23.25
28	711.0	15.0	800	60	19.0	719.0	9	36.80
32	813.0	17.0	905	60	20.5	821.0	9	46.85
36	914.0	19.0	1000	60	22.0	922.0	9	54.55

• Composite weld neck flanges

16 BAR

Long inner flanges type EEMUA



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

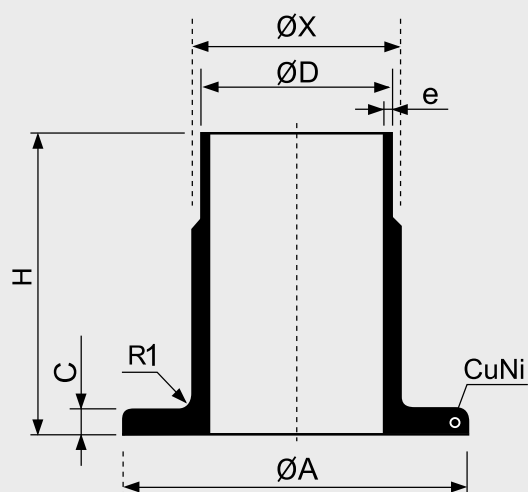
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 145

Outside diameter of pipe ØD		Wall thickness	ØA mm	H mm	C mm	ØX mm	R1 mm	Theoretical weight
nominal inch	actual mm	e mm						kg/ piece
1/2	16	2	40	51	4	18	2	0.09
3/4	25	2	50	51	5	27	3	0.19
1	30	2.5	60	51	5	32	4	0.23
1 1/4	38	2.5	70	51	5	40	4	0.29
1 1/2	44.5	2.5	80	64	6	46.5	4	0.44
2	57	2.5	99	64	6	59	5	0.61
2 1/2	76.1	2.5	120	64	6	78	5	0.80
3	88.9	2.5	130	64	7	91	5	0.97
4	108	3	158	76	7	110	5	1.50
6	159	3	212	89	9	161.5	5	2.90
8	219.1	4	270	102	9	222	5	5.10
10	267	4.5	320	127	9	270	5	8.90
12	323.9	5.5	370	152	11	327	7	13.80
14	368	6.5	430	152	11	371	7	16.60
16	419.1	7	482	152	12	422	7	20.25
18	457.2	8	530	152	12	460	7	23.60
20	508	8.5	585	152	12	511	7	28.65
24	610	10.5	685	152	14	613	9	39.25
28	711	12	800	190	19	719	9	75.30
32	813	13.5	905	190	20.5	827	9	94.60
36	914	15.5	1000	190	22	922	9	115.55

• Composite weld neck flanges

20 BAR



Long inner flanges type EEMUA

MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

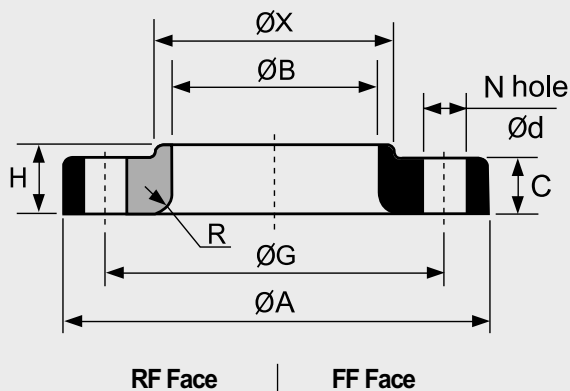
DIMENSION : EEMUA Pub. N° 145

Outside diameter of pipe ØD		Wall thickness	ØA mm	H mm	C mm	ØX mm	R1 mm	Theoretical weight
nominal inch	actual mm	e mm						kg/ piece
1/2	16.0	2.0	40	51	4.0	18.0	2	0.09
3/4	25.0	2.0	50	51	5.0	27.0	3	0.19
1	30.0	2.5	60	51	5.0	32.0	4	0.23
1 1/4	38.0	2.5	70	51	5.0	40.0	4	0.29
1 1/2	44.5	2.5	80	51	6.0	46.5	4	0.44
2	57.0	2.5	99	64	6.0	59.0	5	0.61
2 1/2	76.1	2.5	120	64	6.0	78.0	5	0.80
3	88.9	2.5	130	64	7.0	91.0	5	0.97
4	108.0	3.0	158	76	7.0	110.0	5	1.50
6	159.0	3.5	212	89	9.0	161.5	5	2.90
8	219.1	4.5	270	102	9.0	222.0	5	5.20
10	267.0	5.5	320	127	9.0	270.0	5	9.80
12	323.9	7.0	370	152	11.0	327.0	7	15.40
14	368.0	8.0	430	152	11.0	371.0	7	19.00
16	419.1	9.0	482	152	12.0	422.0	7	23.95
18	457.2	9.5	530	152	12.0	460.0	7	26.40
20	508.0	11.0	585	152	12.0	511.0	7	33.85
24	610.0	13.0	685	152	14.0	613.0	9	45.50
28	711.0	15.0	800	190	19.0	719.0	9	86.20
32	813.0	17.0	905	190	20.5	821.0	9	100.15
36	914.0	19.0	1000	190	22.0	922.0	9	131.95

• Composite weld neck flanges

150 Lbs

Outer flanges



MATERIAL : Carbon steel A105
(Galvanised or epoxy coated upon request)

DIMENSION : ANSI B16.5

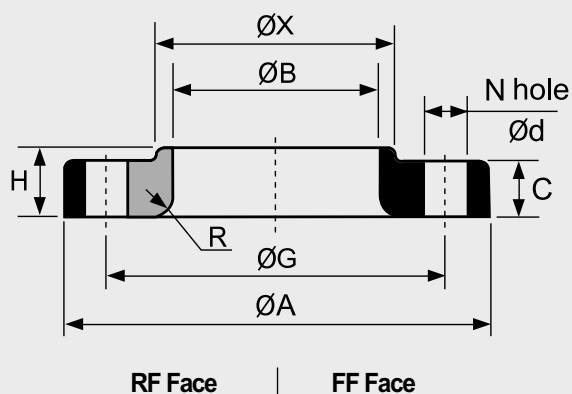
Outside diameter of pipe ØD		ØA mm	H mm	C mm	ØX mm	ØB mm	R mm	Drilling			Theoretical weight
nominal inch	actual mm							ØG mm	N mm	Ød mm	kg/ piece
1/2	20.0	88.9	15.9	11.1	30.2	22	3.2	60.3	4	15.9	0.80
3/4	25.0	98.4	15.9	12.7	38.1	28	3.2	69.8	4	15.9	0.90
1	30.0	107.9	17.5	14.3	49.2	33	3.2	79.4	4	15.9	1.00
1 1/4	38.0	117.5	20.6	15.9	58.8	41	4.8	88.9	4	15.9	1.30
1 1/2	44.5	127.0	22.2	17.5	65.1	48	6.4	98.4	4	15.9	1.40
2	57.0	152.4	25.4	19.0	77.8	62	7.9	120.6	4	19.0	2.30
2 1/2	76.1	177.8	28.6	22.2	90.5	81	7.9	139.7	4	19.0	3.20
3	88.9	190.5	30.2	23.8	107.9	94	9.5	152.4	4	19.0	3.60
4	108.0	228.6	33.3	23.8	134.9	113	11.1	190.5	8	19.0	5.90
5	133.0	254.0	36.5	23.8	163.5	138	11.1	215.9	8	22.2	6.80
6	159.0	279.4	39.7	25.4	192.1	164	12.70	241.3	8	22.2	8.60
8	219.1	342.9	44.4	28.6	246.1	225	12.70	298.4	8	22.2	13.60
10	267.0	406.4	49.2	30.2	304.8	273	12.70	361.9	12	25.4	19.50
12	323.9	482.6	55.6	31.7	365.1	330	12.70	431.8	12	25.4	29.00
14	368.0	533.4	79.4	34.9	400.0	374	12.70	476.2	12	28.6	45.00
16	419.1	596.9	87.3	36.5	457.2	426	12.70	539.7	16	28.6	58.00
18	457.2	635.0	96.8	39.7	504.8	465	12.70	577.8	16	31.7	66.00
20	508.0	698.5	103.2	42.9	558.8	517	12.70	635.0	20	31.7	84.00
24	610.0	812.8	111.1	47.6	663.6	618	12.70	749.3	20	34.9	118.00

Other diameters, wall thicknesses and outside diameters are also available upon request.

• Composite weld neck flanges

300 Lbs

Outer flanges



MATERIAL : Carbon steel A105
(Galvanised or epoxy coated upon request)

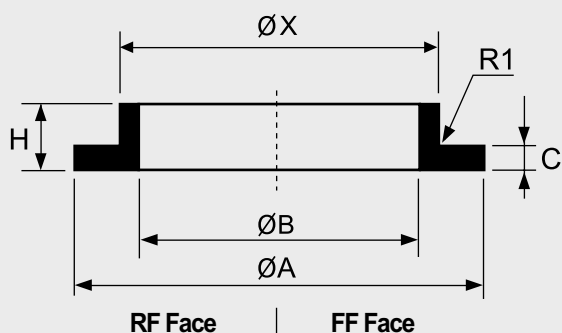
DIMENSION : ANSI B16.5

Outside diameter of pipe ØD		ØA mm	H mm	C mm	ØX mm	ØB mm	R mm	Drilling			Theoretical weight
nominal inch	actual mm							ØG mm	N mm	Ød mm	kg/ piece
1/2	20.0	95.2	22.2	14.3	38.1	22	3.2	66.7	4	15.9	1.20
3/4	25.0	117.5	25.4	15.9	47.6	28	3.2	82.5	4	19.0	1.30
1	30.0	123.8	27.0	17.5	54.0	33	3.2	88.9	4	19.0	1.40
1 1/4	38.0	133.3	27.0	19.0	63.5	41	4.8	98.4	4	19.0	1.80
1 1/2	44.5	155.6	30.2	20.6	69.8	48	6.4	114.3	4	22.2	2.70
2	57.0	165.1	33.3	22.2	84.1	62	7.9	127.0	8	19.0	3.20
2 1/2	76.1	190.5	38.1	25.4	100.0	81	7.9	149.2	8	22.2	4.50
3	88.9	209.5	42.9	28.6	117.5	94	9.5	168.3	8	22.2	5.90
4	108.0	254.0	47.6	31.7	146.0	113	11.1	200.0	8	22.2	10.00
5	133.0	279.4	50.8	34.9	177.8	138	11.1	234.9	8	22.2	12.70
6	159.0	317.5	52.4	36.5	206.4	164	12.7	269.9	12	22.2	17.70
8	219.1	381.0	61.9	41.3	260.3	225	12.7	330.2	12	25.4	26.30
10	267.0	444.5	95.2	47.6	320.7	273	12.7	387.3	16	28.6	41.00
12	323.9	520.7	101.6	50.8	374.6	330	12.7	450.8	16	31.7	63.00
14	368.0	584.2	111.1	54.0	425.4	374	12.7	514.3	20	31.7	86.00
16	419.1	647.7	120.6	57.1	482.6	426	12.7	571.5	20	34.9	109.00
18	457.2	711.2	130.2	60.3	533.4	465	12.7	628.6	24	34.9	138.00
20	508.0	774.7	139.7	63.5	587.4	517	12.7	685.8	24	34.9	170.00
24	610.0	914.4	152.4	69.8	701.7	618	12.7	812.8	24	41.3	241.00

Other diameters, wall thicknesses and outside diameters are also available upon request.

• Composite slip on flanges

16 Bar/20 Bar

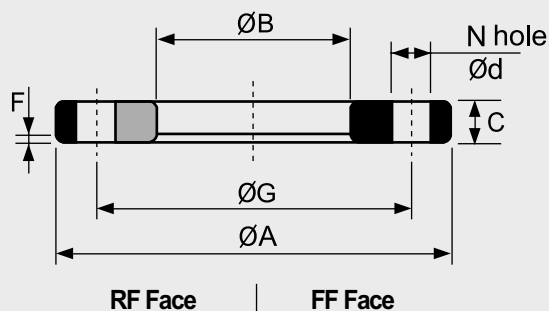


INNER FLANGES

MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 145

Outside diameter of pipe ØD		ØA mm	H mm	C mm	ØX mm	ØB mm	R1 mm	Theoretical weight
nominal inch	actual mm							kg/ piece
1/2	16.0	40	16	5	21	16.07	1	0.06
3/4	25.0	53	16	5	31	25.08	1	0.10
1	30.0	60	18	5	36	30.08	1	0.14
1 1/4	38.0	70	18	5	45	38.10	1	0.20
1 1/2	44.5	80	19	5	51	44.60	1	0.30
2	57.0	99	19	6	67	57.23	1	0.40
2 1/2	76.1	120	19	6	87	76.33	1	0.50
3	88.9	130	21	7	100	89.18	1	0.70
4	108.0	158	23	7	120	108.38	1	0.90



OUTER FLANGES

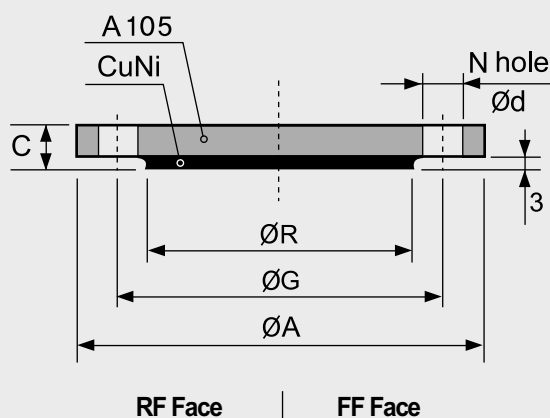
MATERIAL : Carbon steel A105
(Galvanised or epoxy coated upon request)

DIMENSION : ASTM B16.5

Outside diameter of pipe ØD		ØA mm	C mm	ØB mm	F mm	Drilling			Theoretical weight
nominal inch	actual mm					ØG mm	N bolt holes	Ød mm	kg/ piece
1/2	16.0	89	14	23	3	60.3	4	15.9	0.75
3/4	25.0	98	14	33	3	69.8	4	15.9	0.80
1	30.0	108	14	38	3	79.4	4	15.9	0.95
1 1/4	38.0	117	14	47	3	88.9	4	15.9	1.10
1 1/2	44.5	127	14	53	3	98.4	4	15.9	1.15
2	57.0	152	18	69	3	120.6	4	19.0	2.10
2 1/2	76.1	178	18	89	3	139.7	4	19.0	2.60
3	88.9	190	19	103	3	152.4	4	19.0	2.90
4	108.0	229	24	123	3	190.5	4	19.0	5.90

• Composite blind flanges

150 Lbs



DISCS

MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

FLANGES

MATERIAL : Carbon steel A105
(Galvanised or epoxy coated upon request)

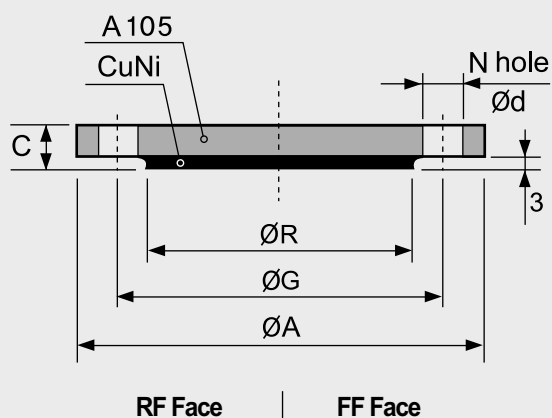
DIMENSION : ANSI B16.5

Outside diameter of pipe ØD		ØA mm	C mm	ØR mm	Drilling			Theoretical weight
nominal inch	actual mm				ØG mm	N bolt holes	Ød mm	kg/ piece
1/2	20.0	88.9	12.5	34.9	60.3	4	15.9	0.80
3/4	25.0	98.4	14.1	42.9	69.8	4	15.9	0.90
1	30.0	108.0	15.7	50.8	79.4	4	15.9	1.00
1 1/4	38.0	117.5	17.3	63.5	88.9	4	15.9	1.30
1 1/2	44.5	127.0	20.5	73.0	98.4	4	15.9	1.40
2	57.0	152.4	22.5	92.1	120.6	4	19	1.80
2 1/2	76.1	177.8	23.7	104.8	139.7	4	19	3.20
3	88.9	190.5	25.2	127.0	152.4	4	19	4.00
4	108.0	228.6	25.2	157.2	190.5	8	19	8.00
5	133.0	254.0	25.2	185.7	215.9	8	22.2	9.00
6	159.0	279.4	26.8	215.9	241.3	8	22.2	12.00
8	219.1	342.9	30.0	269.9	298.4	8	22.2	20.00
10	267.0	406.4	31.6	323.8	361.9	12	25.4	32.00
12	323.9	482.6	33.2	381.0	431.8	12	25.4	50.00
14	368.0	533.4	36.3	425.1	476.2	12	28.6	59.00
16	419.1	596.9	37.9	482.6	539.7	16	28.6	77.00
18	457.2	635.0	41.1	533.4	577.8	16	31.7	95.00
20	508.0	698.5	44.3	584.2	635.0	20	31.7	123.00
24	610.0	812.8	49.0	692.1	749.3	20	34.9	186.00

Other diameters, wall thicknesses and outside diameters are also available upon request.

• Composite blind flanges

300 Lbs



DISCS

MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

FLANGES

MATERIAL : Carbon steel A105
(Galvanised or epoxy coated upon request)

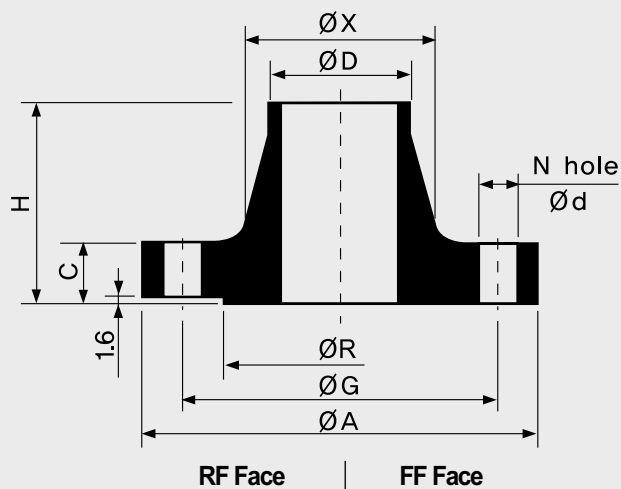
DIMENSION : ANSI B16.5

Outside diameter of pipe ØD		ØA mm	C mm	ØR mm	Drilling			Theoretical weight
nominal inch	actual mm				ØG mm	N bolt holes	Ød mm	kg/ piece
1/2	20.0	95.2	15.6	34.9	66.7	4	15.9	1.00
3/4	25.0	117.5	17.3	42.9	82.5	4	19.0	1.50
1	30.0	123.8	18.9	50.8	88.9	4	19.0	2.00
1 1/4	38.0	133.3	20.4	63.5	98.4	4	19.0	2.50
1 1/2	44.5	155.6	22.0	73.0	114.3	4	22.2	3.00
2	57.0	165.1	23.6	92.1	127.0	8	19.0	3.50
2 1/2	76.1	190.5	26.8	104.8	149.2	8	22.2	5.50
3	88.9	209.5	30.0	127.0	168.3	8	22.2	7.00
4	108.0	254.0	33.2	157.2	200.0	8	22.2	12.00
5	133.0	279.4	36.3	185.7	234.9	8	22.2	16.00
6	159.0	317.5	37.9	215.9	269.9	12	22.2	23.00
8	219.1	381.0	42.7	269.9	330.2	12	25.4	36.50
10	267.0	444.5	49.0	323.8	387.3	16	28.6	57.50
12	323.9	520.7	52.2	381.0	450.8	16	31.7	83.00
14	368.0	584.2	55.4	425.1	514.3	20	31.7	107.00
16	419.1	647.7	58.6	482.6	571.5	20	34.9	139.00
18	457.2	711.2	61.7	533.4	628.6	24	34.9	177.00
20	508.0	774.7	64.9	584.2	685.8	24	34.9	223.00
24	610.0	914.4	71.2	692.1	812.8	24	41.3	342.00

Other diameters, wall thicknesses and outside diameters are also available upon request.

• Soild welding neck flanges

150 Lbs



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

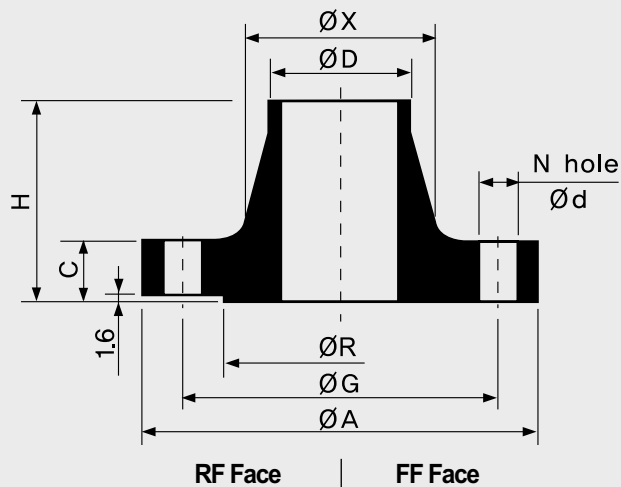
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : ANSI B16.5

Outside diameter of pipe ØD		ØA mm	H mm	C mm	ØX mm	ØR mm	Drilling			Theoretic- al weight
nominal inch	actual mm						ØG mm	N bolt holes	Ød mm	kg/ piece
1/2	20.0	88.9	47.6	11.1	30.2	34.9	60.3	4	15.9	0.68
3/4	25.0	98.4	52.4	12.7	38.1	42.9	69.8	4	15.9	0.91
1	30.0	107.9	55.6	14.3	49.2	50.8	79.4	4	15.9	1.25
1 1/4	38.0	117.5	57.1	15.9	58.7	63.5	88.9	4	15.9	1.58
1 1/2	44.5	127.0	61.9	17.5	65.1	73.0	98.4	4	15.9	2.05
2	57.0	152.4	63.5	19.1	77.8	92.10	120.6	4	19	3.05
2 1/2	76.1	177.8	69.8	22.2	90.5	104.8	139.7	4	19	5.10
3	88.9	190.5	69.8	23.8	107.9	127.0	152.4	4	19	5.20
4	108.0	228.6	76.2	23.8	134.9	157.2	190.5	8	19	7.90
5	133.0	254.0	88.9	23.8	163.5	185.7	215.9	8	22.2	10.10
6	159.0	279.4	88.9	25.4	192.1	215.9	241.3	8	22.2	12.20
8	219.1	342.9	101.6	28.6	246.1	269.9	298.4	8	22.2	20.00
10	267.0	406.4	101.6	30.2	304.8	323.8	361.9	12	25.4	27.00
12	323.9	482.6	114.3	31.8	365.1	381.0	431.8	12	25.4	42.00
14	368.0	533.4	127	34.9	400.0	425.1	476.2	12	28.6	53.00
16	419.1	596.9	127	36.5	457.2	482.6	539.7	16	28.6	66.00
18	457.2	635.0	139.7	39.7	504.8	533.4	577.8	16	31.7	72.00
20	508.0	698.5	144.5	42.9	558.8	584.2	635.0	20	31.7	87.00
24	610.0	812.8	152.4	47.6	663.6	692.1	749.3	20	34.9	134.00

• Soild welding neck flanges

300 Lbs



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

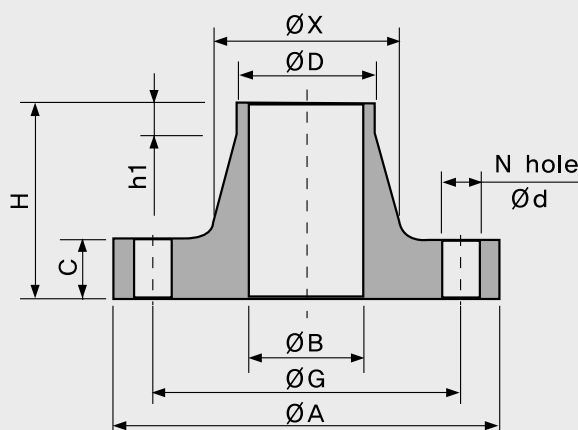
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : ANSI B16.5

Outside diameter of pipe ØD		ØA mm	H mm	C mm	ØX mm	ØR mm	Drilling			Theoretic- al weight
nominal inch	actual mm						ØG mm	N bolt holes	Ød mm	kg/ piece
1/2	20.0	95.2	52.4	14.3	38.1	34.9	66.7	4	15.9	1.72
3/4	25.0	117.5	57.1	15.9	47.6	42.9	82.5	4	19	2.06
1	30.0	123.8	61.9	17.5	54.0	50.8	88.9	4	19	2.29
1 1/4	38.0	133.3	65.1	19.0	63.5	63.5	98.4	4	19	2.86
1 1/2	44.5	155.6	68.3	20.6	69.8	73.0	114.3	4	22.2	4.01
2	57.0	165.1	69.8	22.2	84.1	92.1	127.0	8	19	4.58
2 1/2	76.1	190.5	76.2	25.4	100.0	104.8	149.2	8	22.2	5.73
3	88.9	209.5	79.4	28.6	117.5	127.0	168.3	8	22.2	8.02
4	108.0	254.0	85.7	31.8	146.1	157.2	200.0	8	22.2	12.60
5	133.0	279.4	98.4	34.9	177.8	185.7	234.9	8	22.2	17.90
6	159.0	317.5	98.4	36.5	206.4	215.9	269.9	12	22.2	21.76
8	219.1	381.0	111.1	41.3	260.4	269.9	330.2	12	25.4	34.35
10	267.0	444.5	117.5	47.6	320.7	323.8	387.3	16	28.6	46.95
12	323.9	520.7	130.2	50.8	374.6	381.0	450.8	16	31.7	70.99
14	368.0	584.2	142.9	54.0	425.4	425.1	514.3	20	31.7	96.18
16	419.1	647.7	146.1	57.2	482.6	482.6	571.5	20	34.9	127.10
18	457.2	711.2	158.7	60.3	533.3	533.4	626.6	24	34.9	158.01
20	508.0	774.7	161.9	63.5	587.4	584.2	685.8	24	34.9	195.80
24	610.0	914.4	168.3	69.8	701.7	692.1	812.8	24	41.3	283.00

• Soild welding neck flanges

16 Bar/20 Bar



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

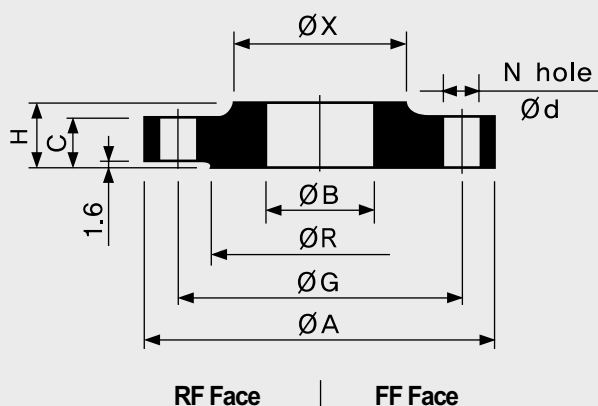
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 145

Outside diameter of pipe ØD		ØA mm	H mm	C mm	ØX mm	16Bar ØB mm	20Bar ØB mm	H1 mm	Drilling			Theoretical weight	
nominal inch	actual mm								ØG mm	N bolt holes	Ød mm	16Bar kg/piece	20Bar kg/piece
1/2	16	89	48	14	23	12.00	12.00	8	60.3	4	15.9	15.9	0.74
3/4	25	98	52	16	32	21.00	21.00	7	69.8	4	15.9	15.9	1.04
1	30	108	56	16	42	25.00	25.00	8	79.4	4	15.9	15.9	1.36
1 1/4	38	117	57	17	51	33.03	33.03	8	88.9	4	15.9	15.9	1.70
1 1/2	44.5	127	62	20	61	39.53	39.53	7	98.4	4	15.9	15.9	2.38
2	57	152	64	25	73	52.16	52.16	9	120.6	4	19	19	3.93
2 1/2	76.1	178	70	27	91	71.23	71.23	8	139.7	4	19	19	5.62
3	88.9	190	70	27	105	84.08	84.08	8	152.4	4	19	19	6.27
4	108	229	76	27	135	102.13	102.13	8	190.5	8	19	19	9.53
6	159	279	89	27	192	153.75	152.38	8	241.3	8	22.2	22.2	13.99
8	219.1	343	98	27	246	211.10	210.10	8	298.4	8	22.2	22.2	21.57
10	267	406	98	31	305	257.97	255.93	8	362.0	12	25.4	25.4	30.47
12	323.9	483	98	31	365	312.83	309.74	8	431.8	12	25.4	25.4	46.56
14	368	533	99	35	400	354.22	351.00	8	476.2	12	28.6	28.6	59.49
16	419.1	597	106	41	457	404.17	399.84	8	539.8	16	28.6	28.6	78.03
18	457.2	635	113	43	505	441.50	438.50	8	577.8	16	31.8	31.8	91.08
20	508	698	118	45	559	490.50	486.50	8	635.0	20	31.8	31.8	110.65
24	610	813	137	45	664	589.50	584.50	8	749.3	20	34.9	34.9	160.79
28	711	927	145	49	748	687.50	681.50	8	864.0	28	34.9	34.9	249.09
32	813	1060	160	72	876	786.50	779.50	8	978.0	28	41.1	41.1	303.95
36	914	1168	175	72	984	883.50	876.50	8	1086.0	32	41.1	41.1	371.80

• Soild slip on flanges

150 Lbs



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

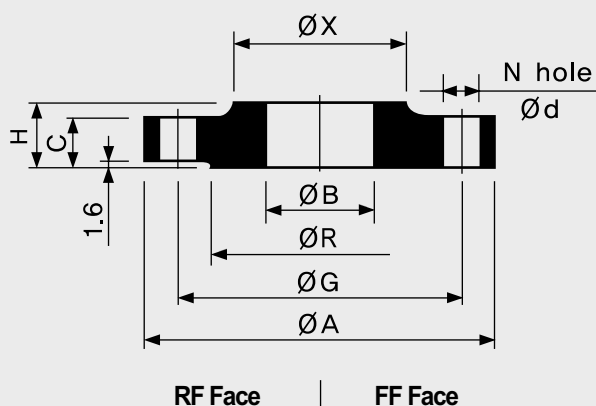
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : ANSI B16.5

Outside diameter of pipe ØD		ØA mm	H mm	C mm	ØX mm	ØR mm	ØB mm	Drilling			Theoretic- al weight
nominal inch	actual mm							ØG mm	N bolt holes	Ød mm	kg/ piece
1/2	20	88.9	15.9	11.1	30.2	34.9	20.2	60.3	4	15.9	0.90
3/4	25	98.4	15.9	12.7	38.1	42.9	25.2	69.8	4	15.9	1.10
1	30	107.9	17.5	14.3	49.2	50.8	30.2	79.4	4	15.9	1.20
1 1/4	38	117.5	20.6	15.9	58.7	63.5	38.3	88.9	4	15.9	1.50
1 1/2	44.5	127.0	22.2	17.5	65.1	73.0	44.8	98.4	4	15.9	1.60
2	57	152.4	25.4	19.1	77.8	92.1	57.4	120.6	4	19.0	2.70
2 1/2	76.1	177.8	28.6	22.2	90.5	104.8	76.5	139.7	4	19.0	4.10
3	88.9	190.5	30.2	23.8	107.9	127.0	89.4	152.4	4	19.0	4.10
4	108	228.6	33.3	23.8	134.9	157.2	108.5	190.5	8	19.0	7.00
5	133	254.0	36.5	23.8	163.5	185.7	133.8	215.9	8	22.2	8.00
6	159	279.4	39.7	25.4	192.1	215.9	159.8	241.3	8	22.2	9.90
8	219.1	342.9	44.4	28.6	246.1	269.9	220.3	298.4	8	22.2	15.70
10	267	406.4	49.2	30.2	304.8	323.8	268.4	361.9	12	25.4	22.80
12	323.9	482.6	55.6	31.8	365.1	381.0	325.4	431.8	12	25.4	33.90
14	368	533.4	57.1	34.9	400.0	425.1	369.5	476.2	12	28.6	45.00
16	419.1	596.9	63.5	36.5	457.2	482.6	420.5	539.7	16	28.6	49.00
18	457.2	635.0	68.3	39.7	504.8	533.4	458.7	577.8	16	31.7	63.00
20	508	698.5	73.0	42.9	558.8	584.2	509.5	635.0	20	31.7	81.50
24	610	812.8	82.5	47.6	663.6	692.1	611.5	749.3	20	34.9	105.55

• Soild slip on flanges

300 Lbs



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

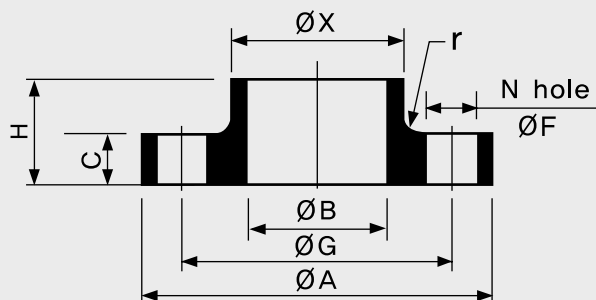
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : ANSI B16.5

Outside diameter of pipe ØD		ØA mm	H mm	C mm	ØX mm	ØR mm	ØB mm	Drilling			Theoretic- al weight
nominal inch	actual mm							ØG mm	N bolt holes	Ød mm	kg/ piece
1/2	20	95.2	22.2	14.3	38.1	34.9	20.2	66.7	4	15.9	0.90
3/4	25	117.5	25.4	15.9	47.6	42.9	25.2	82.5	4	19	1.40
1	30	123.8	27.0	17.5	54.0	50.8	30.2	88.9	4	19	1.70
1 1/4	38	133.3	27.0	19.0	63.5	63.5	38.3	98.4	4	19	2.00
1 1/2	44.5	155.6	30.2	20.6	69.8	73.0	44.8	114.3	4	22.2	3.00
2	57	165.1	33.3	22.2	84.1	92.1	57.4	127.0	8	19	3.40
2 1/2	76.1	190.5	38.1	25.4	100.0	104.8	76.5	149.2	8	22.2	5.10
3	88.9	209.5	42.9	28.6	117.5	127.0	89.4	168.3	8	22.2	6.80
4	108	254.0	47.6	31.8	146.0	157.2	108.5	200.0	8	22.2	11.30
5	133	279.4	50.8	34.9	177.8	185.7	133.8	234.9	8	22.2	14.20
6	159	317.5	52.4	36.5	206.4	215.9	159.8	269.9	12	22.2	18.30
8	219.1	381.0	61.9	41.3	260.3	269.9	220.3	330.2	12	25.4	28.20
10	267	444.5	66.7	47.6	320.7	323.8	268.4	387.3	16	28.6	39.50
12	323.9	520.7	73.0	50.8	374.6	381.0	325.4	450.8	16	31.7	57.70
14	368	584.2	76.2	54.0	425.4	425.1	369.5	514.3	20	31.7	80.60
16	419.1	647.7	82.5	57.2	482.6	482.6	420.5	571.5	20	34.9	102.10
18	457.2	711.2	88.9	60.3	533.4	533.4	458.7	628.5	24	34.9	125.20
20	508	774.7	95.2	63.5	587.4	584.2	509.5	685.8	24	34.9	154.70
24	610	914.4	106.4	69.8	701.7	692.1	611.5	812.8	24	41.3	240.65

• Soild slip on flanges

16 BAR/20 BAR



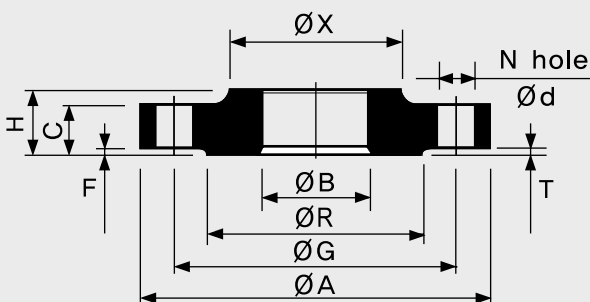
MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 145

Outside diameter of pipe ØD		ØA mm	H mm	C mm	ØX mm	ØB mm	r mm	Drilling			Theoretical weight
nominal inch	actual mm							ØG mm	N bolt holes	Ød mm	kg/ piece
1/2	16	89	20	14	23	16.07	4	60.3	4	15.9	1.15
3/4	25	98	24	16	32	25.08	4	69.8	4	15.9	1.20
1	30	108	24	16	47	30.08	4	79.4	4	15.9	1.30
1 1/4	38	117	26	17	51	38.10	6	88.9	4	15.9	1.70
1 1/2	44.5	127	26	20	61	44.60	6	98.4	4	15.9	1.80
2	57	152	28	25	73	57.23	6	120.6	4	19	2.90
2 1/2	76.1	178	32	27	91	76.33	6	139.7	4	19	4.30
3	88.9	190	34	27	105	89.18	6	152.4	4	19	4.40
4	108	229	40	27	135	108.38	8	190.5	8	19	7.30



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

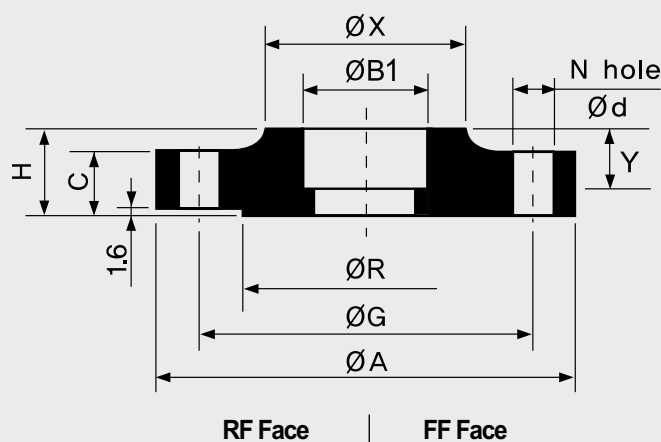
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : DIN 86033

Outside diameter of pipe ØD		ØA mm	H mm	C mm	ØX mm	ØR mm	ØB mm	F mm	T mm	Drilling			Theoretical weight
nominal inch	actual mm									ØG mm	N bolt holes	Ød mm	kg/ piece
3/8	16	90	18	12	26	40	16.20	2	NO APPLICABLE	60	4	14	0.52
1/2	20	95	18	12	30	45	20.20	2		65	4	14	0.57
3/4	25	105	18	12	35	58	25.20	2		75	4	14	0.71
1	30	115	18	12	40	68	30.20	2		85	4	14	0.86
1 1/4	38	140	20	14	49	78	38.25	2		100	4	18	1.47
1 1/2	44.5	150	20	14	56	88	44.75	3		110	4	18	1.60
2	57	165	22	16	69	102	57.30	3		125	4	18	2.20
2 1/2	76.1	185	22	16	88	122	76.30	3		145	4	18	2.66
3	88.9	200	24	18	101	138	89.40	3		160	8	18	3.32
4	108	220	28	20	120	158	108.40	5		180	8	18	4.31
5	133	250	28	20	146	188	133.65	5	7	210	8	18	5.37
6	159	285	30	22	172	212	159.65	5	7	240	8	23	6.37
7	193.7	315	32	22	209	242	195.00	5	7	270	8	23	7.22
8	219.1	340	32	24	234	268	220.00	5	7	295	8	23	9.12
10	267	395	34	26	284	320	268.20	6	7	350	12	23	12.10
12	323.9	445	36	26	343	370	325.35	6	7	400	12	23	13.70
14	368	505	38	28	389	430	369.35	6	7	460	16	23	19.30
16	419.1	565	40	28	442	482	420.50	6	7	515	16	27	23.20
18	457.2	615	42	28	482	530	458.50	6	7	565	20	27	27.90
20	508	670	47	31	553	585	509.50	7	8	620	20	27	35.00
24	610	780	49	31	640	685	612.00	8	8	725	20	30	42.90

• Solid socket welding flanges

150 Lbs/300 Lbs



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

DIMENSION : ANSI B 16-5

150 Lbs

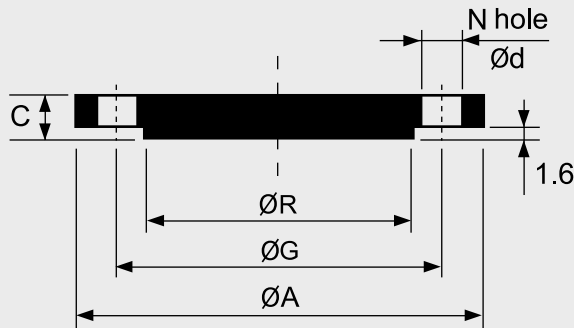
Outside diameter of pipe $\varnothing D$		$\varnothing A$ mm	H mm	C mm	$\varnothing X$ mm	$\varnothing R$ mm	$\varnothing B1$ mm	Y mm	Drilling			Theoretical weight
nominal inch	actual mm								$\varnothing G$ mm	N bolt holes	$\varnothing d$ mm	kg/ piece
1/2	20.0	88.9	15.9	11.1	30.2	34.9	20.2	9.5	60.3	4	15.9	0.80
3/4	25.0	98.4	15.9	12.7	38.1	42.9	25.2	11.1	69.8	4	15.9	1.10
1	30.0	107.9	17.5	14.3	49.2	50.8	30.2	12.7	79.4	4	15.9	1.20
1 1/4	38.0	117.5	20.6	15.9	58.7	63.5	38.3	14.3	88.9	4	15.9	1.50
1 1/2	44.5	127.0	22.2	17.5	65.1	73.0	44.8	15.9	98.4	4	15.9	1.60
2	57.0	152.4	25.5	19.1	77.8	92.1	57.4	17.5	120.6	4	19.0	2.70
2 1/2	76.1	177.8	28.6	22.2	90.5	104.8	76.5	19.0	139.7	4	19.0	4.10
3	88.9	190.5	30.2	23.8	107.9	127.0	89.4	20.6	152.4	4	19.0	4.10
4	108.0	228.6	33.3	23.8	134.9	157.2	108.5	23.8	190.5	8	19.0	7.00

300 Lbs

Outside diameter of pipe $\varnothing D$		$\varnothing A$ mm	H mm	C mm	$\varnothing X$ mm	$\varnothing R$ mm	$\varnothing B1$ mm	Y mm	Drilling			Theoretical weight
nominal inch	actual mm								$\varnothing G$ mm	N bolt holes	$\varnothing d$ mm	kg/ piece
1/2	20.0	95.2	22.2	14.3	38.1	34.9	20.2	9.5	66.7	4	15.9	0.90
3/4	25.0	117.5	25.4	15.9	47.6	42.9	25.2	11.1	82.5	4	19.0	1.40
1	30.0	123.8	27.0	17.5	54.0	50.8	30.2	12.7	88.9	4	19.0	1.70
1 1/4	38.0	133.3	27.0	19.0	63.5	63.5	38.3	14.3	98.4	4	19.0	2.00
1 1/2	44.5	155.6	30.2	20.6	69.8	73.0	44.8	15.9	114.3	4	22.2	3.00
2	57.0	165.1	33.3	22.2	84.1	92.1	57.4	17.5	127.0	8	19.0	3.40
2 1/2	76.1	190.5	38.1	25.4	100.0	104.8	76.5	19.0	149.2	8	22.2	5.10
3	88.9	209.5	42.9	28.6	117.5	127.0	89.4	20.6	168.3	8	22.2	6.80
4	108.0	254.0	47.6	31.8	146.0	157.2	108.5	23.8	200.0	8	22.2	11.30

• Solid blind flanges

150 Lbs



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

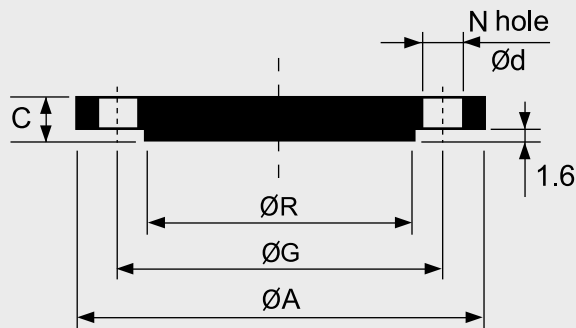
DIMENSION : ANSI B 16.5

Outside diameter of pipe ØD		ØA mm	C mm	ØR mm	Drilling			Theoretical weight
nominal inch	actual mm				ØG mm	N bolt holes	Ød mm	kg/ piece
1/2	20.0	88.9	11.1	34.9	60.3	4	15.9	0.90
3/4	25.0	98.4	12.7	42.9	69.8	4	15.9	1.05
1	30.0	108.0	14.3	50.8	79.4	4	15.9	1.15
1 1/4	38.0	117.5	15.9	63.5	88.9	4	15.9	1.50
1 1/2	44.5	127.0	17.5	73.0	98.4	4	15.9	1.60
2	57.0	152.4	19.1	92.1	120.6	4	19	2.05
2 1/2	76.1	177.8	22.3	104.8	139.7	4	19	3.65
3	88.9	190.5	23.8	127.0	152.4	4	19	4.55
4	108.0	228.6	23.8	157.2	190.5	8	19	9.10
5	133.0	254.0	23.8	185.7	215.9	8	22.2	10.25
6	159.0	279.4	25.4	215.9	241.3	8	22.2	13.70
8	219.1	342.9	28.6	269.9	298.4	8	22.2	22.80
10	267.0	406.4	30.2	323.8	361.9	12	25.4	36.45
12	323.9	482.6	31.8	381.0	431.8	12	25.4	57.00
14	368.0	533.4	34.9	425.1	476.2	12	28.6	67.25
16	419.1	596.9	36.5	482.6	539.7	16	28.6	87.80
18	457.2	635.0	39.7	533.4	577.8	16	31.7	108.30
20	508.0	698.5	42.9	584.2	635.0	20	31.7	140.25
24	610.0	812.8	47.6	692.1	749.3	20	34.9	212.05

Other diameters, wall thicknesses and outside diameters are also available upon request.

• Solid blind flanges

300 Lbs



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

DIMENSION : ANSI B 16.5

Outside diameter of pipe ØD		ØA mm	C mm	ØR mm	Drilling			Theoretical weight
nominal inch	actual mm				ØG mm	N bolt holes	Ød mm	kg/ piece
1/2	20.0	95.2	14.3	34.9	66.7	4	15.9	1.15
3/4	25.0	117.5	15.9	42.9	82.5	4	19.0	1.70
1	30.0	123.8	17.5	50.8	88.9	4	19.0	2.30
1 1/4	38.0	133.3	19.0	63.5	98.4	4	19.0	2.85
1 1/2	44.5	155.6	20.6	73.0	114.3	4	22.2	3.40
2	57.0	165.1	22.2	92.1	127.0	8	19.0	4.00
2 1/2	76.1	190.5	25.4	104.8	149.2	8	22.2	6.30
3	88.9	209.5	28.6	127.0	168.3	8	22.2	8.00
4	108.0	254.0	31.8	157.2	200.0	8	22.2	13.70
5	133.0	279.4	34.9	185.7	234.9	8	22.2	18.25
6	159.0	317.5	36.5	215.9	269.9	12	22.2	26.20
8	219.1	381.0	41.3	269.9	330.2	12	25.4	41.60
10	267.0	444.5	47.6	323.8	387.3	16	28.6	65.55
12	323.9	520.7	50.8	381.0	450.8	16	31.7	94.60
14	368.0	584.2	54.0	425.1	514.3	20	31.7	122.00
16	419.1	647.7	57.2	482.6	571.5	20	34.9	158.45
18	457.2	711.2	60.3	533.4	628.6	24	34.9	201.80
20	508.0	774.7	63.5	584.2	685.8	24	34.9	254.20
24	610.0	914.4	69.8	692.1	812.8	24	41.3	389.90

Other diameters, wall thicknesses and outside diameters are also available upon request.

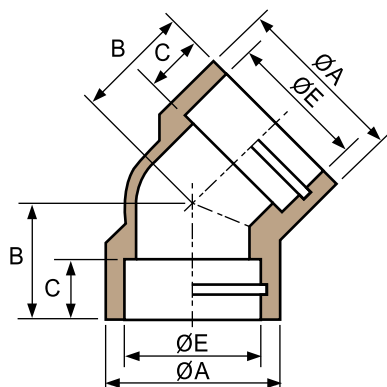


MACHINED FITTINGS



• Elbows

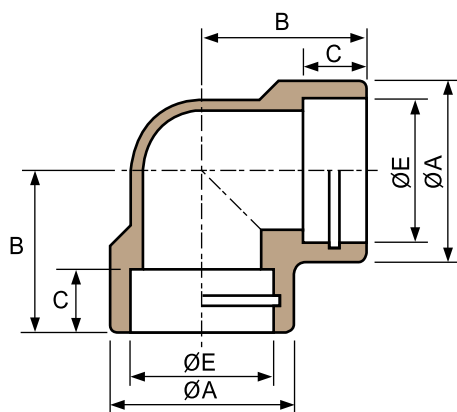
Socket welding or capillary ends



MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

Elbows 45°

Outside diameter of pipe ØD		ØA mm	B mm	C mm	ØE mm	Theoretical weight
nominal inch	actual mm					kg/ piece
3/8	16.0	22.20	19.0	10	16.1	0.07
1/2	20.0	26.05	19.0	10	20.1	0.10
3/4	25.0	33.00	22.5	13	25.1	0.26
1	30.0	38.00	25.5	13	30.1	0.41
1 1/4	38.0	46.00	28.5	13	38.1	0.64
1 1/2	44.5	56.00	33.0	13	44.6	0.69
2	57.0	63.50	36.0	16	57.3	1.09

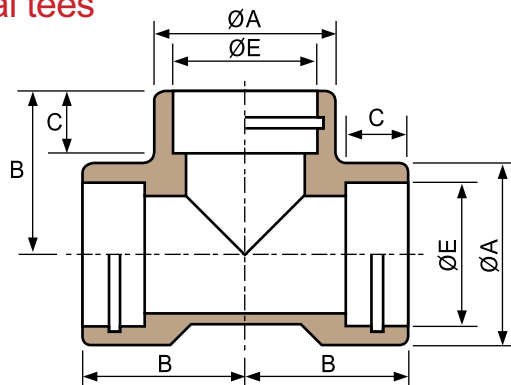


Elbows 90°

Outside diameter of pipe ØD		ØA mm	B mm	C mm	ØE mm	Theoretical weight
nominal inch	actual mm					kg/ piece
3/8	16.0	22.20	20	10	16.1	0.07
1/2	20.0	26.05	25	10	20.1	0.10
3/4	25.0	33.00	29	13	25.1	0.26
1	30.0	38.00	34	13	30.1	0.41
1 1/4	38.0	46.00	38	13	38.1	0.64
1 1/2	44.5	56.00	44	13	44.6	1.01
2	57.0	63.50	50	16	57.3	1.31

• Socket welding or capillary ends

Equal tees



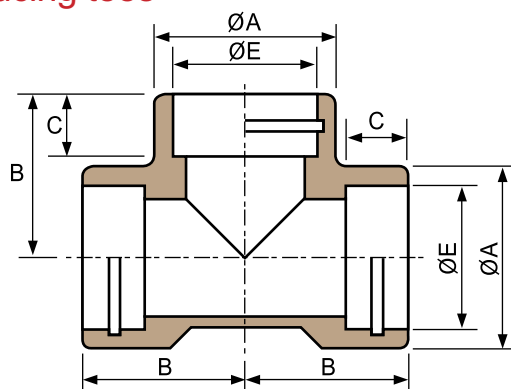
MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

Outside diameter of pipe ØD		ØA mm	B mm	C mm	ØE mm	Theoretical weight
nominal inch	actual mm					kg / piece
3/8	16.0	22.20	20	10	16.1	0.09
1/2	20.0	26.05	25	10	20.1	0.12
3/4	25.0	33.00	29	13	25.1	0.31
1	30.0	38.00	34	13	30.1	0.37
1 1/4	38.0	46.00	38	13	38.1	0.65
1 1/2	44.5	56.00	44	13	44.6	1.08
2	57.0	63.50	50	16	57.3	1.43

Reducing tees



MATERIAL :

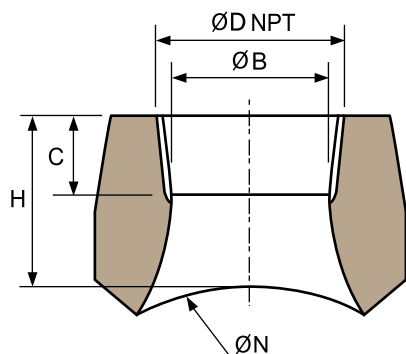
NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

Outside diameter of pipe ØD		ØA mm	B mm	ØE mm	C mm	ØG mm	H mm	Theoretical weight
nominal inch	actual mm							kg/piece
1/2	x 1/8	20	x 16	26.5	25	20.1	10	0.14
3/4	x 1/8	25	x 16	33.0	29	25.1	13	0.37
	x 1/2		x 20					0.35
1	x 1/8	30	x 16	38.0	34	30.1	13	0.47
	x 1/2		x 20					0.45
	x 3/4		x 25					0.41
1 1/4	x 1/8	38	x 16	46.0	38	38.1	13	0.83
	x 1/2		x 20					0.81
	x 3/4		x 25					0.77
	x 1		x 30					0.73
1 1/2	x 1/8	44.5	x 16	56.0	44	44.6	13	1.35
	x 1/2		x 20					1.33
	x 3/4		x 25					1.29
	x 1		x 30					1.25
	x 1 1/4		x 38					1.17
2	x 1/8	57	x 16	63.5	50	57.3	16	1.89
	x 1/2		x 20					1.87
	x 3/4		x 25					1.83
	x 1		x 30					1.79
	x 1 1/4		x 38					1.71
	x 1 1/2		x 44.5					1.62

• Socket welding or capillary ends 16 BAR/20 BAR

Threadolets



MATERIAL :

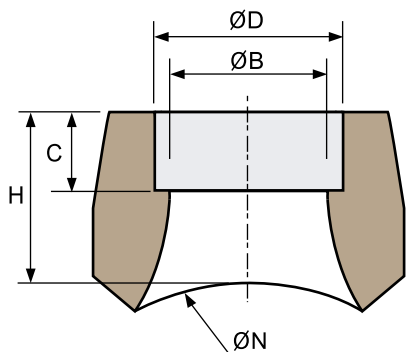
NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 146

Outside diameter of branch pipe ØD		Outside diameter of branch pipe ØN		ØB (bore) mm	H mm	C mm	Theoretical weight
nominal inch	actual NPT	nominal inch	actual mm				kg / piece
1/2	1/2"	3/4 to 1 1/2	25 to 44.5	11.74	25.4	13.5	0.10
		2 to 36	57 to 914	11.74	23.8	13.5	0.10
3/4	3/4"	1 to 1 1/2	30 to 44.5	15.58	26.9	14.0	0.13
		2 to 36	57 to 914	15.58	25.4	14.0	0.13
1	1"	1 1/4 to 1 1/2	38 to 44.5	20.70	33.3	17.5	0.22
		2 to 36	57 to 914	20.70	28.6	17.5	0.22
1 1/4	1 1/4"	2 to 36	57 to 914	29.50	33.3	18.0	0.35
1 1/2	1 1/2"	2 to 36	57 to 914	34.02	30.2	18.5	0.50
2	2"	2 1/2 to 36	76.1 to 914	42.82	38.1	19.0	0.90

Socketlets



MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

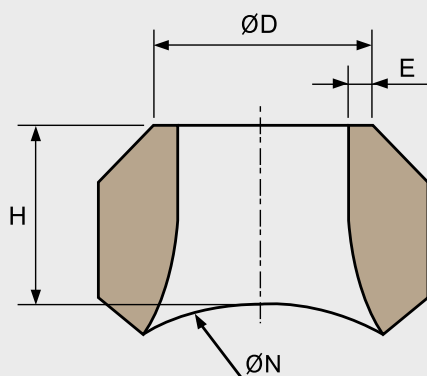
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 146

Outside diameter of branch pipe ØD		Outside diameter of branch pipe ØN		ØB (bore) mm	H mm	C mm	Theoretical weight
nominal inch	actual NPT	nominal inch	actual mm				kg / piece
1/2	16	3/4 to 1 1/2	25 to 44.5	12.0	25.4	10	0.10
		2 to 36	57 to 914	12.0	23.8	10	0.10
3/4	25	1 to 1 1/2	30 to 44.5	21.0	26.9	13	0.13
		2 to 36	57 to 914	21.0	25.4	13	0.13
1	30	1 1/4 to 1 1/2	38 to 44.5	25.0	33.3	13	0.22
		2 to 36	57 to 914	25.0	28.6	13	0.22
1 1/4	38	2 to 36	57 to 914	33.0	33.3	13	0.35
1 1/2	44.5	2 to 36	57 to 914	39.5	30.2	13	0.50
2	57	2 1/2 to 36	76.1 to 914	52.0	38.1	16	0.90

• Weldolets

16 BAR/20 BAR



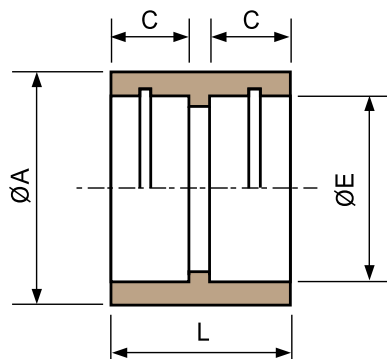
MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 146

Outside diameter of branch pipe ØD		Outside diameter of branch pipe ØN					Theoretical weight
nominal inch	actual mm	nominal inch	actual mm				kg/ piece
1/2	16.0	1/2 to 1 1/2	16 to 44.5	2.0		19.05	0.07
		2 to 24	57 to 610	2.0		17.50	0.07
3/4	25.0	3/4 to 1 1/2	25 to 44.5	2.0		22.20	0.11
		2 to 24	57 to 610	2.0		20.60	0.11
1	30.0	1 to 1 1/2	30 to 44.5	2.5		27.00	0.18
		2 to 24	57 to 610	2.5		22.20	0.18
1 1/4	38.0	1/4 to 1 1/2	38 to 44.5	2.5		30.20	0.32
		2 to 24	57 to 610	2.5		25.40	0.32
1 1/2	44.5	1 1/2	44.5	2.5		33.30	0.36
		2 to 24	57 to 610	2.5		28.60	0.36
2	57.0	2 to 2 1/2	57 to 76.1	2.5		38.10	0.68
		3 to 24	88.9 to 610	2.5		33.30	0.68
2 1/2	76.1	3 to 4	76.1 to 108	2.5		47.60	1.40
		6 to 24	159 to 610	2.5		44.50	1.40
3	88.9	3 to 4	88.9 to 108	2.5		47.60	1.70
		6 to 24	159 to 610	2.5		44.50	1.70
4	108.0	4	108	3.0		46.80	3.00
		6	159	3.0		52.40	3.00
		8 to 24	219.1 to 610	3.0		49.20	6.40
				16 Bar	20 Bar		
6	159.0	6 to 24	159 to 610	3.0	3.5	60.30	6.40
8	219.1	8 to 24	219 to 610	4.0	4.5	69.90	12.70
10	267.0	10 to 24	267 to 610	4.5	5.5	77.80	17.70
12	323.9	12 to 24	323.9 to 610	5.5	7.0	85.70	29.50
14	368.0	14 to 24	368 to 610	6.5	8.0	88.90	31.80
16	419.1	16 to 24	419.1 to 610	7.0	9.0	93.70	41.70
18	457.2	18 to 24	457.2 to 610	8.0	9.5	96.80	53.20
20	508.0	20 to 24	508 to 610	8.5	11.0	115.90	68.30
24	610.0	24	610	10.5	13.0	115.90	91.20

• Couplings

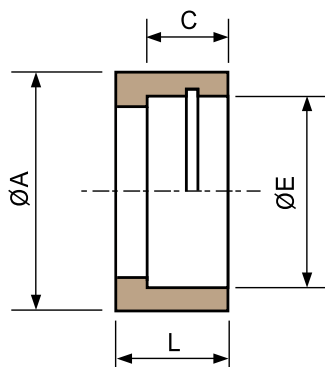
Socket welding or capillary ends



MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

Straight Couplings

Outside diameter of pipe ØD		ØA mm	L mm	ØE mm	C mm	Theoretical weight
nominal inch	actual mm					kg/ piece
3/8	16.0	23	23	16.1	10	0.04
1/2	20.0	27	23	20.1	10	0.06
3/4	25.0	32	30	25.1	13	0.08
1	30.0	37	30	30.1	13	0.10
1 1/4	38.0	45	30	38.1	13	0.12
1 1/2	44.5	52	31	44.6	13	0.17
2	57.0	64	38	57.3	16	0.22

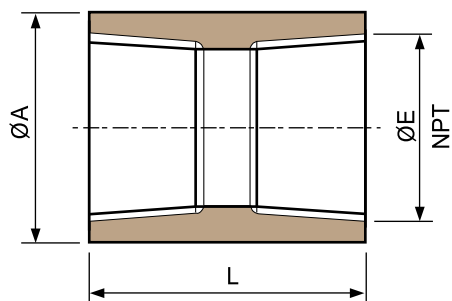


Half Couplings

Outside diameter of pipe ØD		ØA mm	B mm	ØE mm	C mm	Theoretical weight
nominal inch	actual mm					kg/ piece
3/8	16.0	23	13	16.1	10	0.02
1/2	20.0	27	13	20.1	10	0.03
3/4	25.0	32	17	25.1	13	0.04
1	30.0	37	17	30.1	13	0.05
1 1/4	38.0	45	17	38.1	13	0.06
1 1/2	44.5	52	18	44.6	13	0.08
2	57.0	64	22	57.3	16	0.11

• Couplings

Threaded

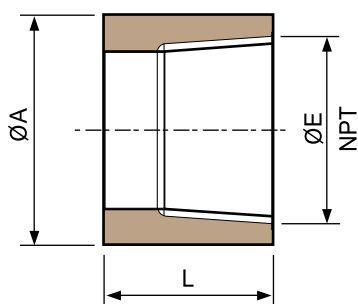


MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

DIMENSION : EEMUA Pub. N° 146

Straight Couplings

Outside diameter of pipe ØD		ØA mm	L mm	ØA Thread (NPT)	Theoretical weight
nominal inch	actual mm				kg/ piece
1/2	16.0	29	48	1/2"	0.16
3/4	25.0	35	51	3/4"	0.28
1	30.0	44	60	1"	0.38
1 1/4	38.0	57	67	1" 1/4	0.58
1 1/2	44.5	64	79	1" 1/2	0.78
2	57.0	76	86	2"	1.42

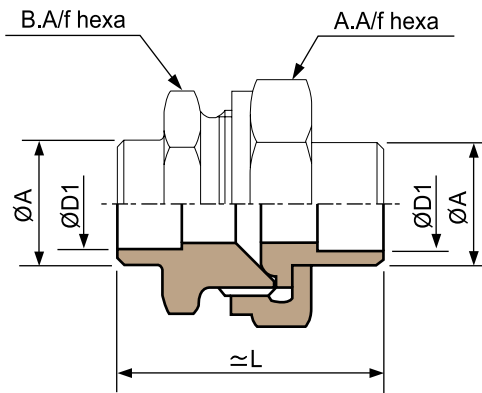


Half Couplings

Outside diameter of pipe ØD		ØA mm	L mm	ØA Thread (NPT)	Theoretical weight
nominal inch	actual mm				kg/ piece
1/2	16.0	29	24.0	1/2"	0.8
3/4	25.0	35	25.5	3/4"	0.14
1	30.0	44	30.0	1"	0.19
1 1/4	38.0	57	33.5	1" 1/4	0.29
1 1/2	44.5	64	39.5	1" 1/2	0.39
2	57.0	76	43.0	2"	0.71

Other threads than NPT are also available upon request.

• Union connectors



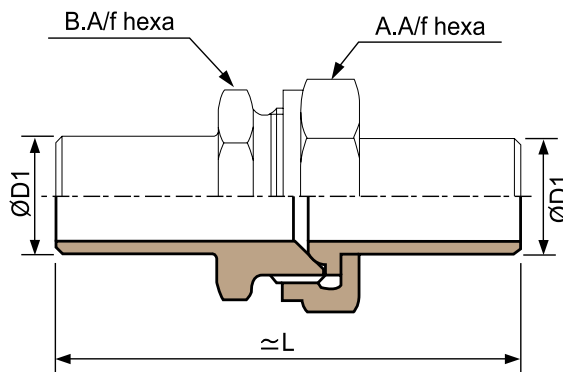
MATERIAL :

NAVINIC 10® CuNi10Fe1Mn

NAVINIC 30® CuNi30Mn1Fe

Socket welding or capillary ends

Outside diameter of pipe		ØA mm	≈ L mm	A.A / f mm	B.a / f mm	Theoretical weight
nominal inch	ØD actual mm					kg/ piece
3/8	16.0	23	62	42	36	0.24
1/2	20.0	27	62	42	36	0.31
3/4	25.0	32	73	50	46	0.44
1	30.0	37	73	60	50	0.55
1 1/4	38.0	45	79	70	65	0.73
1 1/2	44.5	52	84	70	65	1.08
2	57.0	64	84	85	80	1.54

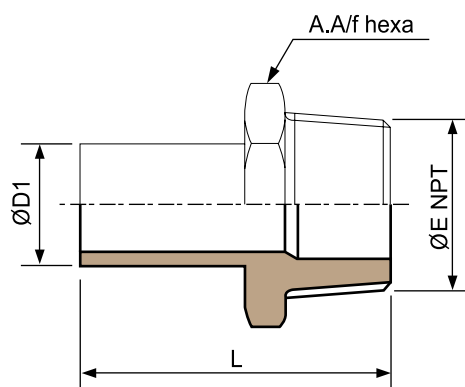


Butt welding ends

Outside diameter of pipe		≈ L mm	A.A / f mm	B.a / f mm	Theoretical weight
nominal inch	ØD actual mm				kg/ piece
3/8	16.0	95	42	36	0.35
1/2	20.0	99	42	36	0.45
3/4	25.0	101	50	46	0.59
1	30.0	105	60	50	0.88
1 1/4	38.0	110	70	65	1.15
1 1/2	44.5	113	70	65	1.54
2	57.0	120	85	80	2.30

Other diameters, wall thicknesses and outside diameters are also available upon request.

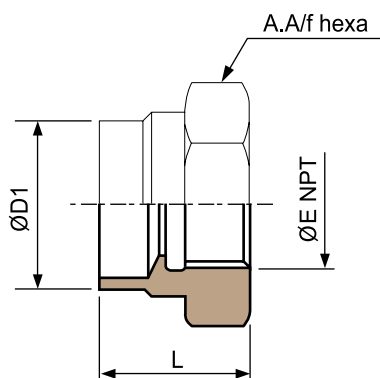
• Adaptors



MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

Butt welding ends x Male thread

Outside diameter of pipe			ØE Thread NPT	L mm	A.A / f mm	Theoretical weight
nominal inch		ØD1 x ØDE actual mm				kg/ piece
3/8	x 1/2	16 x 20.0	1/2"	40	27	0.15
1/2	x 1/2	20 x 20.0	1/2"	40	27	0.16
3/4	x 3/4	25 x 25.0	3/4"	45	32	0.22
1	x 3/4	30 x 25.0	3/4"	48	32	0.28
	x 1	30 x 30.0	1"	53	38	0.32
1 3/4	x 1 1/2	38 x 44.5	1" 1/2	60	50	0.50
1 1/2	x 1 1/2	44.5 x 44.5	1" 1/2	60	50	0.60
2	x 1 1/2	57 x 44.5	1" 1/2	65	65	0.85
	x 2	57 x 57.0	2"	70	65	0.98



Butt welding ends x Female thread

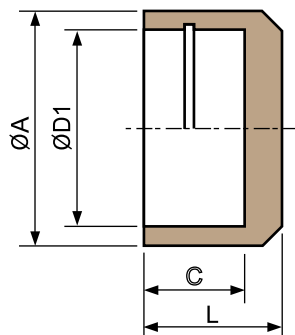
Outside diameter of pipe			ØE Thread NPT	L mm	A.A / f mm	Theoretical weight
nominal inch		ØD1 x ØDE actual mm				kg/ piece
3/8	x 1/2	16 x 20.0	1/2"	34	27	0.07
1/2	x 3/4	20 x 25.0	3/4"	37	32	0.10
3/4	x 3/4	25 x 25.0	3/4"	34	32	0.15
1	x 1	30 x 30.0	1"	41	41	0.19
	x 1	30 x 30.0	1"	39	41	0.25
1 3/4	x 1 1/2	38 x 44.5	1" 1/2	50	55	0.35
1 1/2	x 1 1/2	44.5 x 44.5	1" 1/2	47	55	0.40
2	x 1 1/2	57 x 44.5	1" 1/2	47	70	0.50
	x 2	57 x 57.0	2"	51	70	0.50

Other threads than NPT are also available upon request.

Other diameters, wall thicknesses and outside diameters are also available upon request.

• End caps

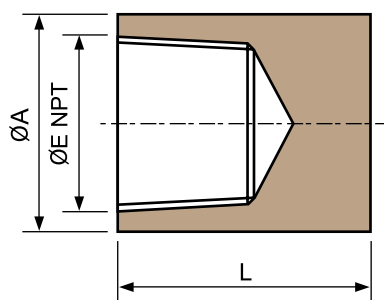
16 BAR/20 BAR



MATERIAL : NAVINIC 10® CuNi10Fe1Mn
NAVINIC 30® CuNi30Mn1Fe

Socket welding or capillary ends

Outside diameter of pipe		ØA mm	L mm	C mm	Theoretical weight
nominal inch	actual mm				kg/ piece
3/8	16.0	23	14.0	10	0.04
1/2	20.0	27	14.5	10	0.05
3/4	25.0	32	15.0	13	0.07
1	30.0	37	16.0	13	0.08
1 1/4	38.0	45	20.0	13	0.13
1 1/2	44.5	52	20.5	13	0.19
2	57.0	64	20.5	16	0.22



DIMENSION : EEMUA Pub. N° 146

Female threaded

Outside diameter of pipe		ØA Thread (NPT)	ØA mm	L mm	Theoretical weight
nominal inch	actual mm				kg/ piece
1/2	16.0	1/2"	29	32	0.17
3/4	25.0	3/4"	35	37	0.30
1	30.0	1"	44	38	0.55
1 1/4	38.0	1" 1/4	57	41	0.95
1 1/2	44.5	1" 1/2	64	41	1.10
2	57.0	2"	76	42	1.85

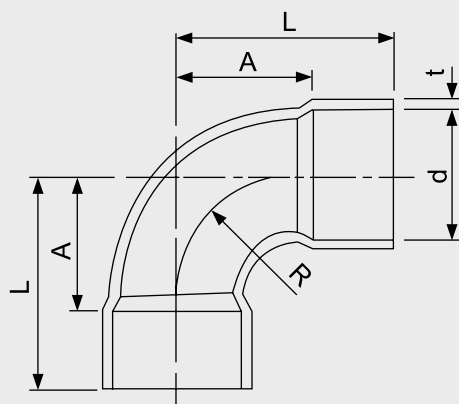
Other threads than NPT are also available upon request.



COPPER BRAZING FITTINGS



• Fittings for Copper



SOLDER BRAZING TYPE

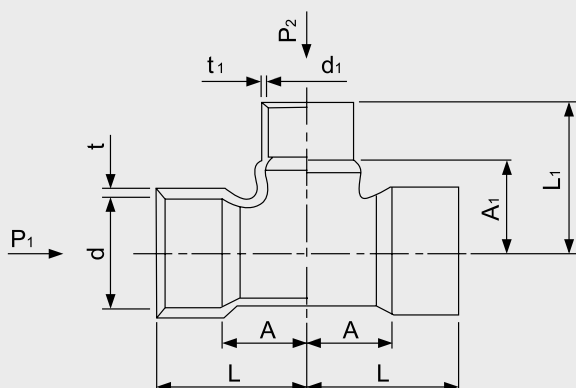
SCOPE : N/D 125A AND BELOW N.P : 10K

MATERIAL : JIS H3300 C1220T-1/2H

Elbows 90° Copper Solder Brazing Type 90° Short Elbow

N/D	Dimension						Weight (kg)
	O.D	D ^{+0.2} ₋₀	A ±1.0	R	L ±1.0	t -0	
10	15	15.1	20	15	32	1.4	0.04
15	20	20.1	20	20	35	1.6	0.06
20	25	25.1	25	20	40	1.6	0.09
25	30	30.1	25	25	40	1.6	0.14
32	35	35.1	32	32	50	1.6	0.20
40	45	45.1	40	40	60	2.0	0.27
50	55	55.1	50	50	75	2.0	0.60
65	70	70.1	65	65	95	2.0	1.12
80	85	85.1	80	80	110	2.5	1.60
100	110	110.1	100	100	135	3.0	2.80
125	140	140.1	125	125	165	3.0	3.90

• Fittings for Copper



SOLDER BRAZING TYPE

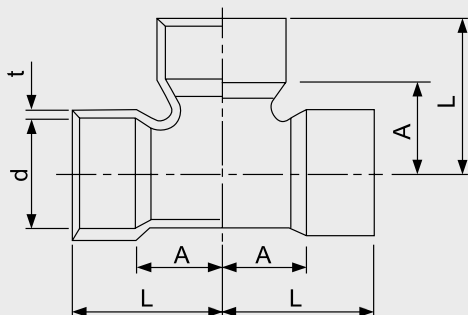
SCOPE : N/D 125A AND BELOW N.P : 10K

MATERIAL : JIS H3300 C1220T-1/2H

REDUCING TEE Copper Solder Brazing Type Reducing Tee

N/D	Pipe O.D		Dimension								Weight (kg)
	P ₁	P ₂	d ₀ ^{+0.2/-0}	d ₁ ±1.0	L ±1.0	L ₁ ±1.0	A ±1.0	A ₁ ±1.0	t -0	t ₁ -0	
10 x 6	15	10	15.1	10.1	27	31	15	21	1.4	1.2	0.06
15 x 6	20	10	20.1	10.1	29	32	15	22	1.6	1.2	0.07
15 x 10	20	15	20.1	15.1	29	32	15	20	1.6	1.4	0.08
20 x 10	25	15	25.1	15.1	32	36	17	24	1.6	1.4	0.12
20 x 15	25	20	25.1	20.1	32	34	17	20	1.6	1.6	0.14
25 x 10	30	15	30.1	15.1	36	44	20	32	1.6	1.4	0.18
25 x 15	30	20	30.1	20.1	36	42	20	28	1.6	1.6	0.21
25 x 20	30	25	30.1	25.1	36	40	20	25	1.6	1.6	0.23
32 x 15	35	20	35.1	20.1	42	52	24	38	1.6	1.6	0.25
32 x 20	35	25	35.1	25.1	42	50	24	35	1.6	1.6	0.27
32 x 25	35	30	35.1	30.1	42	47	24	31	1.6	1.6	0.29
40 x 20	45	25	45.1	25.1	50	58	30	43	2.0	1.6	0.37
40 x 25	45	30	45.1	30.1	50	56	30	42	2.0	1.6	0.40
40 x 32	45	35	45.1	35.1	50	56	30	38	2.0	1.6	0.42
50 x 25	55	30	55.1	30.1	57	70	35	54	2.0	1.6	0.56
50 x 32	55	35	55.1	35.1	57	68	35	50	2.0	1.6	0.58
50 x 40	55	45	55.1	45.1	57	65	35	45	2.0	2.0	0.61
65 x 32	70	35	70.1	35.1	69	90	43	74	2.0	2.0	0.95
65 x 40	70	45	70.1	45.1	69	84	43	64	2.0	2.0	0.97
65 x 50	70	55	70.1	55.1	69	80	43	58	2.0	2.0	0.99
80 x 40	85	45	85.1	45.1	81	100	51	86	2.5	2.0	1.47
80 x 50	85	55	85.1	55.1	81	95	51	73	2.5	2.0	1.51
80 x 65	85	70	85.1	70.1	81	90	51	64	2.5	2.0	1.63
100 x 40	110	45	110.1	45.1	100	132	66	112	3.0	2.0	2.24
100 x 65	110	70	110.1	70.1	100	126	66	100	3.0	2.0	2.31
100 x 80	110	85	110.1	85.1	100	122	66	92	3.0	2.5	2.49
125 x 80	140	85	140.1	85.1	125	143	85	113	3.0	2.5	4.20
125 x 100	140	110	140.1	110.1	125	135	85	100	3.0	3.0	4.30

• Fittings for Copper



SOLDER BRAZING TYPE

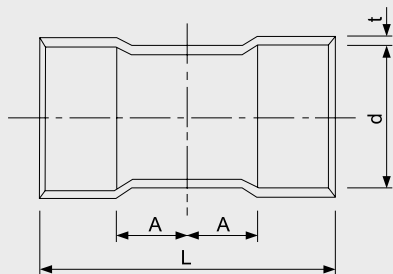
SCOPE : N/D 125A AND BELOW N.P : 10K

MATERIAL : JIS H3300 C1220T-1/2H

EQUAL TEE Copper Solder Brazing Type Equal Tee

N/D	Pipe O.D	Dimension				Weight (kg)
		$d \begin{smallmatrix} +0.2 \\ -0 \end{smallmatrix}$	$A \pm 1.0$	$L \pm 1.0$	$t -0$	
6	10	10.1	7.5	15	1.0	0.05
10	15	15.1	15	27	1.4	0.07
15	20	20.1	15	29	1.6	0.10
20	25	25.1	17	32	1.6	0.16
25	30	30.1	20	36	1.6	0.25
32	35	35.1	24	42	1.6	0.32
40	45	45.1	30	50	2.0	0.46
50	55	55.1	35	57	2.0	0.66
65	70	70.1	43	69	2.0	1.16
80	85	85.1	51	81	2.5	1.86
100	110	110.1	66	100	3.0	2.86
125	140	140.1	85	125	3.0	4.20

• Fittings for Copper



SOLDER BRAZING TYPE

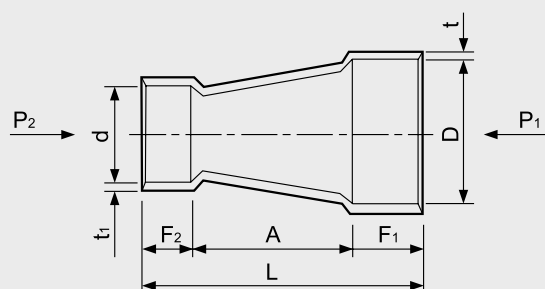
SCOPE : N/D 125A AND BELOW N.P : 10K

MATERIAL : JIS H3300 C1220T-1/2H

SOCKET Copper Solder Brazing Type Sleeve

N/D	Pipe O.D	Dimension				Weight (kg)
		$d^{+0.2}_{-0}$	$A_{\pm 1.0}$	$L_{\pm 1.0}$	t_{-0}	
6	10	10.1	6	32	1.4	0.02
8	12	12.1	6	36	1.4	0.03
10	15	15.1	6	36	1.4	0.03
15	20	20.1	7	42	1.6	0.05
20	25	25.1	8	46	1.6	0.07
25	30	30.1	8	48	1.6	0.11
32	35	35.1	9	54	1.6	0.15
40	45	45.1	10	60	2.0	0.26
50	55	55.1	11	66	2.0	0.33
65	70	70.1	13	78	2.0	0.60
80	85	85.1	15	90	2.5	0.72
100	110	110.1	17	102	3.0	1.10
125	140	140.1	20	120	3.0	1.40

• Fittings for Copper



SOLDER BRAZING TYPE

SCOPE : N/D 125A AND BELOW N.P : 10K

MATERIAL : JIS H3300 C1220T-1/2H

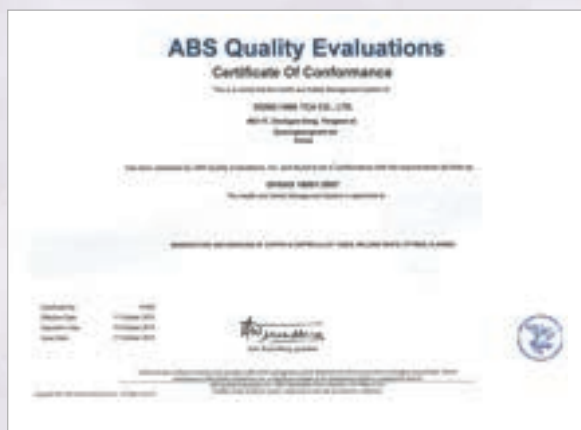
REDUCER Copper Solder Brazing Type Reducer

N/D	Pipe O.D		Dimension								Weight (kg)
	P ₁	P ₂	D ^{+0.2} ₋₀	d ±1.0	A±1.0	L±1.0	F ₁ ±1.0	F ₂ ±1.0	t -0	t 1-0	
10 x 6	15	10	15.1	10.1	7	29	12	10	1.6	1.4	0.02
15 x 6	20	10	20.1	10.1	11	35	14	10	1.6	1.4	0.03
15 x 10	20	15	20.1	15.1	9	35	14	12	1.6	1.4	0.04
20 x 6	25	10	25.1	10.1	14	38	15	10	1.6	1.4	0.05
20 x 10	25	15	25.1	15.1	9	36	15	12	1.6	1.4	0.06
20 x 15	25	20	25.1	20.1	6	35	15	14	1.6	1.6	0.08
25 x 10	30	15	30.1	15.1	22	50	16	12	1.6	1.4	0.09
25 x 15	30	20	30.1	20.1	17	47	16	14	1.6	1.6	0.10
25 x 20	30	25	30.1	25.1	12	43	16	15	1.6	1.6	0.12
32 x 15	35	20	35.1	20.1	19	51	18	14	1.6	1.6	0.17
32 x 20	35	25	35.1	25.1	18	51	18	15	1.6	1.6	0.15
32 x 25	35	30	35.1	30.1	10	44	18	16	2.0	1.6	0.17
40 x 15	45	20	45.1	20.1	38	72	20	14	2.0	1.6	0.18
40 x 25	45	30	45.1	30.1	26	62	20	16	2.0	1.6	0.22
40 x 32	45	35	45.1	35.1	12	50	20	18	2.0	1.6	0.20
50 x 20	55	25	55.1	25.1	38	75	22	15	2.0	1.6	0.22
50 x 25	55	30	55.1	30.1	39	75	22	16	2.0	1.6	0.23
50 x 32	55	35	55.1	35.1	37	77	22	18	2.0	1.6	0.25
50 x 40	55	45	55.1	45.1	18	60	22	20	2.0	2.0	0.31
65 x 32	70	35	70.1	35.1	31	75	26	18	2.0	1.6	0.50
65 x 40	70	45	70.1	45.1	44	90	26	20	2.0	2.0	0.63
65 x 50	70	55	70.1	55.1	26	74	26	22	2.0	2.0	0.58
80 x 40	85	45	85.1	45.1	49	99	30	20	2.5	2.0	0.75
80 x 50	85	55	85.1	55.1	47	99	30	22	2.5	2.0	0.80
80 x 65	85	70	85.1	70.1	26	82	30	26	2.5	2.0	0.90
100 x 50	110	55	110.1	55.1	70	126	34	22	3.0	2.0	1.35
100 x 65	110	70	110.1	70.1	89	129	34	26	3.0	2.0	1.50
100 x 80	110	85	110.1	85.1	45	107	34	30	3.0	2.5	1.34
125 x 80	140	85	140.1	85.1	78	148	40	30	3.0	2.5	2.20
125 x 100	140	110	140.1	110.1	35	109	40	34	3.0	3.0	2.10

Certification by the customers



Certification by the customers



Pipe Division (Head Office)			
Division	Position	Name	Direct Line
Executive	Chairman/CEO	Tae-Ho, SON	
	Director/CFO	Mee-Bong, HA	
Secretary's Office	Staff	Nam-Jeong, KIM	055-367-0033
Executive	Managing Director	In-Chan, BAE	070-8894-0602
General Affairs Dept.	Team Manager	Seung-Soo, JUNG	070-8894-0605
	Assistant Manager	Yeong-Mi, KIM	055-367-0034
	Staff	A-Ran, LEE	070-8894-0608
Sales Dept. 1Team (Domestic Operations)	Team Manager	Daniel, Son	070-8894-0611
	Manager	Hyo-Sun, HA	055-367-0035
	Assistant Manager	Jong-Ho, MUN	055-367-0036
	Assistant Manager	Jhon, LEE	070-8894-0618
Purchasing Dept.	Team Manager	Jae-Seon, JEON	055-367-0044
Sales Dept. 2Team (Overseas Sales)	Team Manager	Su, JEON	055-367-0037
	Assistant Manager	Serena, LEE	070-8894-0616
	Staff	Stella, KIM	070-8894-0617
Manufacturing Management	Team Assistant Director	Cheol-Hoan, OH	070-8894-0621
	Staff	Jeong-Min, PARK	070-8894-0622
Quality Control Dept.	Managing Director	Jin-Whang, CHUNG	070-8894-0625
	Team Manager	Jong-Ho, SONG	055-367-0043
	Manager	Min-Jae, LEE	070-8894-0627
	Manager	Jin-Jae, JI	070-8894-0628
Address	27, Green gongdan 2-gil, Yangsan-si, Gyeongsangnam-do, South Korea.		FAX 055-367-0039

Fitting Division (Factory 3 Office)			
Division	Position	Name	Direct Line
Executive	Head Manager	Im-Jong, CHOI	070-8894-1910
Domestic Operations	Team Manager	Won-Ho, SON	070-8894-1911
Manufacturing Management Team	Assistant Manager	Kyoung-Hwan, SON	070-8894-1912
General Affairs Dept.	Assistant Manager	Sun-Hee, JEON	055-363-0038
Address	28, Green gongdan 2-gil, Yangsan-si, Gyeongsangnam-do, South Korea.		FAX 055-363-4466

Fitting Division (Factory 4 Office)			
Division	Position	Name	Direct Line
Management Support Team	General manager/CFA	Sean, SON	070-4264-8810
Management Support Dept.	Staff	Mi-Hui, CHANG	070-4264-8811
	Staff	Mun-Hui, KIM	055-351-4820
Sales Dept. 1Team (Domestic Operations)	Team Manager	In-Hyeon, RYU	055-351-4821
	Staff	Mi-Ya, JEON	070-4264-8817
	Staff	Hyeong-Sik, YANG	070-4264-8820
Sales Dept. 2Team (Overseas Sales)	Team Manager	Ho-Tae, KANG	070-4264-8815
Manufacturing Management Team	Plant Manager	Hak-Yeol, LEE	055-351-4822
	Team Manager	Bok-Rak, CHOI	070-4264-8822

Fitting Division (Factory 4 Manufacturing Office)			
Division	Position	Name	Direct Line
Quality Control Dept.	Managing Director	Ki-Dae, KIM	070-4264-9801
	Team Manager	Chang-Ho, LEE	055-351-4823
	Staff	Je-Min, BANG	070-4264-9805
Manufacturing Management Team	Team Manager	Ju-Man, KIM	070-4264-9802
	Assistant Manager	Seong-Hwa, YUN	070-4264-8823
Address	465-38, Samnangjin-ro, Samnangjin-Eup, Miryang-si, Gyeongsangnam-do, South Korea.		FAX 055-351-0105

Fitting Division (SEOUL Sales Branch Office)			
Division	Position	Name	Direct Line
Sales Dept. 1Team (Domestic Operations)	Team Manager	Gyeong-Cheol, KIM	031-768-2926
	Manager	Sun-Cheol, YANG	031-768-2927
Address	81, Munhyeon-ro, Opo-eup, Gwangju-si, Gyeonggi-do, South Korea.		FAX 031-768-2928



DongHwa *TCA*

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http : //www.dspf.co.kr E-mail : dspipe@dspf.co.kr

Meltion Division (Factory 2)

28, Green gongdan 2-gil, Yangsan-si, Gyeongsangnam-do, South Korea.

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Fitting Division (Factory 3)

28, Green gongdan 2-gil, Yangsan-si, Gyeongsangnam-do, South Korea.

TEL : +82-55-363-0038 FAX : +82-55-363-4466

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Fitting Division (Factory 4)

465-38, Samnangjin-ro, Samnangjin-eup, Miryang-si, Gyeongsangnam-do, South Korea.

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Fitting Division (SEOUL OFFICE)

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