



**GENEL KATALOG
GENERAL CATALOGUE**



SAYTEK METAL SANAYİ VE TİCARET A.Ş.

Saytek Metal, boru bağlantı parçaları konusundaki 30 yılı aşan uzmanlığı ve geniş kapsamlı stok tutabilme kapasitesi ile sektörün en saygın markaları arasında bulunmaktadır. Stoklarında, 44 ana başlık altında tamamı 3.1.B sertifikalı 1400'ün üzerinde çeşit bulunduran Saytek Metal; Avrupa, Güney Kore, Malezya ve yerli stokların yanı sıra müşteri ihtiyacına özel imalat ve ithalatları da en hızlı şekilde yapabilmektedir. Saytek Metal kendi alanında dünyanın lider üreticilerinin distribütörlüğünü yapmaktadır. Kusursuz hizmet sunmayı her zaman diğer öğelerden önde tutan Saytek Metal sipariştten teslimata kadar geçen sürede müşteri memnuniyetine büyük özen göstermektedir. Saytek Metal uzun yılların verdiği bilgi birikimi, tecrübe ve hizmet anlayışından taviz vermeyerek, konusunda en güvenilir firma olma özelliğini gelecek yıllarda da koruma arzusundadır.

Misyon

Müşterilerine kattığı değeri sürekli olarak artıran, uluslararası bilinirliğe erişirken, müşteri memnuniyetini ön planda tutan bir şirket olmak.

Vizyon

Sunduğu hizmetler ve tedarik ettiği ürünler konusunda uzman ve güvenilir, müşteri memnuniyetini ön planda tutan, yenilikçi kimliğiyle tanınan öncü bir şirket olmak.

Değerler

- Uzmanlığımız ve tedarik olanaklarımızla kusursuz hizmet sunmak.
- Satış öncesi ve sonrası müşteri memnuniyetine öncelik vermek.
- Müşterilerimize en iyi sunabilmek için her zaman araştırmacı ve yenilikçi olmak.
- Etkin ve ekonomik çözümler sunmak.

Saytek Metal is one of the most respected companies among fittings suppliers by its' stock range and capacity besides more than 30 years of experience in the market. Saytek Metal stocks 44 main types of items, total of 1400 different products, which are all 3.1.B certificated. European, South Korean, Malaysian and Turkish products are being stocked as well as customized materials which can be supplied quickly with high quality. Saytek metal holds the distributorship of the world's leader manufacturers on their fields. Holding the service quality on top of other aspects, Saytek Metal values the customer satisfaction at the most, from the point of order until the delivery. Saytek Metal aims to be as the most experienced, trusted and respected in the future, as it is today.

Mission

While holding the customer satisfaction on top of everything else, Saytek Metal aims to be an internationally known and respected company.

Vision

Being a trusted, expert and innovator company which holds the customer satisfaction as its most important value.

Values

- Presenting a precise service by our expertise and strong supplying channels.
- Giving priority to customer satisfaction before and after the sale.
- Always being innovative and inquisitive to be able to serve our customer better.
- Providing efficient and economic solutions to our customers.

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KISALTMALAR

ANSI	Amerikan National Standards Institute	(Amerikan Ulusal Standartlar Enstitüsü)
BS	British Standards	(İngiliz Standartları)
CSN	Czech State Norm	(Çek Devlet Standardı)
DIN	Deutsches Institute für Normung	(Alman Standartlar Enstitüsü)
EN	European Norm	(Avrupa Standardı)
GOST	Gosudarstvennyj Standart	(Rus Devlet Standardı)
ISO	International Standardization Organization	(Uluslararası Standartlar Organizasyonu)
JIS	Japanese Industrial Standards	(Japon Endüstriyel Standardı)
AFNOR	Association Française de Normalisation	(Fransa Devlet Standardı)
TSE	Turkish Standards Institute	(Türk Standartları Enstitüsü)
API	American Petroleum Institute	(Amerikan Petrol Enstitüsü)
ASME	American Society of Mechanical Engineers	(Amerikan Makine Mühendisleri Birliği)
ASTM	American Society of Testing and Materials	(Amerikan Test ve Malzemeler Birliği)
CE	Conformite Europeene	(Avrupa Uygunluk Belgesi)
MSS	Manufacturers Standardization Society	(Üreticiler Standardizasyon Derneği)
NACE	National Association of Corrosion Engineers	(Korozyon Mühendisleri Ulusal Birliği)
SAE	Society of Automotive Engineers	(Otomotive Mühendisleri Derneği)
NPS	Nominal Pipe Size	(Nominal Boru Boyutu)
OD	Outside Diameter	(Dış Çapı)
WT	Wall Thickness	(Et Kalınlığı)
NDE	Non Destructive Examination	(Tahribatsız Muayene)
EFW	Electric Fusion Welding	(Elektrik Füzyon Kaynağı)
EIW	Electric Induction Welding	(Elektrik İndüksiyon Kaynağı)
ERW	Electric Resistance Welding	(Elektrik Direnç Kaynağı)
PWHT	Post Weld Heat Treatment Services	(Kaynak Öncesi Isıl İşlemler)

KAYNAK AĞIZLI BORU BAĞLANTILARI İÇİN MALZEME ÖZELLİKLERİ
MATERIAL SPECIFICATION FOR BUTT - WELDING FITTINGS

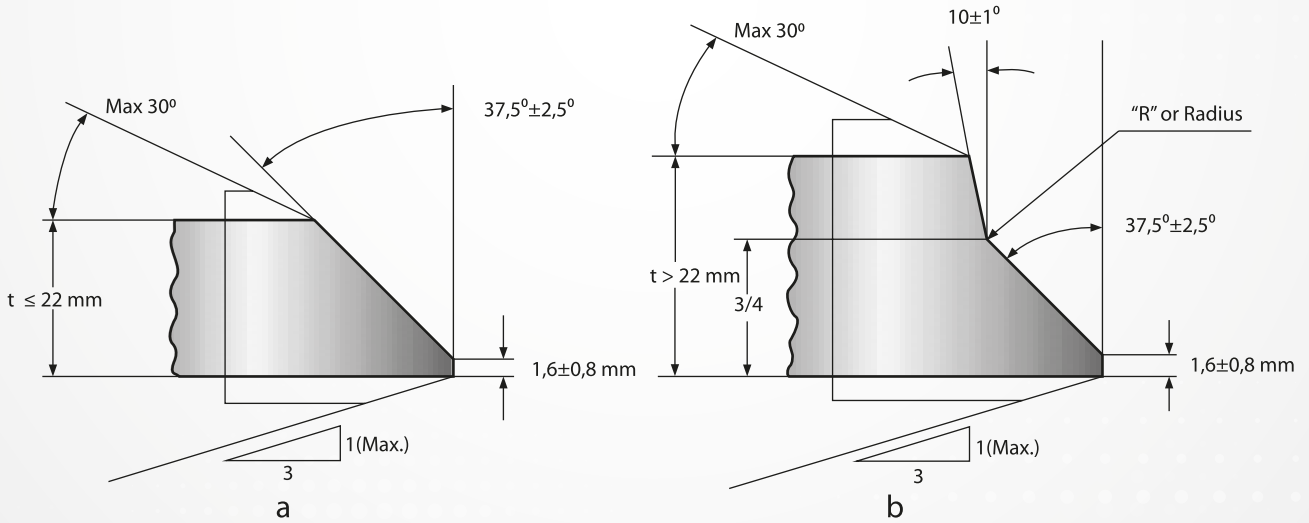
Markalama Marking	Malzeme / Material		FORM	Maksimum - Aralık / Maximum or Range					
	Kalite / Grade	Kalınlık / Thickness		C	Si	Mn	P	S	Ni
WPB	A106 Gr. B		P	-	0,10 min	0,29-1,06	0,048	0,058	-
	A515 Gr. 65	0-25 mm 26-50 50-100	PL	0,28 0,31 0,33	0,13-0,45	0,90	0,035	0,040	-
	A515 Gr. 70			0,31 0,33 0,35	0,13-0,45	1,30	0,035	0,040	-
WPC	A106 GR. C		P	0,35	0,10 min	0,29-1,06	0,048	0,058	-
WP1	A335 Gr. P1 A204 Gr. B		P	0,10-0,20	0,10-0,50	0,30-0,80	0,045	0,045	-
			PL	0,20-0,27	0,13-0,45	0,90	0,035	0,040	-
WP12	A335 Gr. P12 A387 Gr. 12		P	0,15	0,50	0,30-0,61	0,045	0,045	-
			PL	0,17	0,13-0,45	0,40-0,65	0,035	0,040	-
WP11	A335 Gr. P11 A387 Gr. 11		P	0,15	0,50-1,00	0,30-0,60	0,030	0,030	-
			PL	0,17	0,44-0,86	0,35-0,73	0,035	0,040	-
WP22	A335 Gr. P22 A387 Gr.22		P	0,15	0,50	0,30-0,60	0,030	0,030	-
			PL	0,15-0,17	0,50	0,25-0,66	0,035	0,035	-
WP23	A335 P23		P	0,04-0,10	0,50	0,10-0,60	0,030	0,010	-
WP5	A335 Gr. P5 A387 Gr. 5		P	0,15	0,50	0,30-0,60	0,030	0,030	-
			PL	0,15	0,50	0,25-0,66	0,040	0,030	-
WP9	A335 P9 A387 Gr.9		P	0,15	0,25-1,00	0,30-0,60	0,025	0,025	-
			PL	0,15	1,00	0,30-0,60	0,030	0,030	-
WP91	A335 P91 A387 Gr. 91		P	0,08-0,12	0,20-0,50	0,30-0,60	0,020	0,010	0,40
			PL						
WP92	A335 P92		P	0,07-0,13	0,50	0,30-0,60	0,020	0,010	0,40
WP304	A312 Gr. TP304 A240 Type 304		P	0,08	0,75	2,00	0,040	0,030	8,00-11,00
			PL	0,08	1,00	2,00	0,045	0,030	8,00-10,50
WP304H	A312 Gr. TP304H A240 Type 304H		P	0,04-0,10	0,75	2,00	0,040	0,030	8,00-11,00
			PL	0,04-0,10	1,00	2,00	0,045	0,030	8,00-10,50
WP304L	A312 Gr. TP304L A240 Type 604L		P	0,035	0,75	2,00	0,040	0,030	8,00-13,00
			PL	0,030	1,00	2,00	0,045	0,030	8,00-12,00
WP309	A312 Gr. TP309 A240 Type 309S		P	0,15	0,75	2,00	0,040	0,030	12,00-15,00
			PL	0,08	1,00	2,00	0,045	0,030	12,00-15,00
WP310	A312 Gr. TP 310 A240 Type 310S		P	0,15	0,75	2,00	0,040	0,030	19,00-22,00
			PL	0,08	1,00	2,00	0,045	0,030	19,00-22,00
WP347	A312 Gr. TP347 A240 Type 347		P	0,08	0,75	2,00	0,040	0,030	9,00-13,00
			PL	0,08	1,00	2,00	0,045	0,030	9,00-13,00
WP316	A312 Gr. TP316 A240 Type316		P	0,08	0,75	2,00	0,040	0,030	11,00-14,00
			PL	0,08	1,00	2,00	0,045	0,030	10,00-14,00
WP316H	A312 Gr. TP316H A240 Type 316H		P	0,04-0,10	0,75	2,00	0,040	0,030	11,00-14,00
			PL	0,40-1,10	1,00	2,00	0,045	0,030	10,00-14,00
WP316L	A312 Gr. TP316L		P	0,035	0,75	2,00	0,040	0,030	10,00-15,00
			PL	0,030	1,00	2,00	0,045	0,030	10,00-14,00
WP321	A312 Gr. TP321 A240 Type 321		P	0,08	0,75	2,00	0,040	0,030	9,00-13,00
			PL	0,08	1,00	2,00	0,045	0,030	9,00-12,00
WP321H	A312 Gr. TP321H A240 Type321H		P	0,04-0,10	0,75	2,00	0,040	0,030	9,00-13,00
			PL	0,04-0,10	1,00	2,00	0,045	0,030	9,00-13,00
WP347H	A312 Gr. TP347H A240 Type 347H		P	0,04-0,10	0,75	2,00	0,040	0,030	9,00-13,00
			PL	0,04-0,10	1,00	2,00	0,045	0,030	9,00-13,00
WPS31254	A312 S31254 A240 S31254		P	0,020	0,80	1,00	0,030	0,010	17,5-18,5
			PL						
WPL6	A333 and A334 Gr.6 A516 Gr. 60	0-25 mm 26-50 50-100	P	0,30	0,30	0,29-1,06	0,048	0,058	-
			PL	0,21 0,23 0,25	0,13-0,45	0,60-1,30	0,035	0,040	-
WPL3	A333 and A334 Gr.3 A203 Gr.D	0-50 mm 50-100	P	0,19	0,18-0,37	0,31-0,64	0,050	0,050	3,18-3,82
			PL	0,17 0,20	0,13-0,45	0,70-0,80	0,035	0,040	3,18-3,82
WPL9	A333 and A334 Gr.8 A 203 Gr.A		P	0,20	-	0,40-1,06	0,025	0,025	11,60-2,24
			PL	0,17	0,15-0,40	0,70	0,035	0,040	2,10-2,50
S31803	A790 S31803 A240 S31803		P	0,03	1,00	2,00	0,030	0,020	4,50-6,50
			PL						
S32750	A790 S32750 A240 S32750		P	0,03	0,8	1,20	0,035	0,020	6,00-8,00
			PL						
S32760	A790 S32760 A240 S32760		P	0,05	1,00	1,00	0,030	0,010	6,00-8,00
			PL	0,30					
WPHY42	AP15L Gr.X42 A572 Gr.42		P	0,28	-	1,25	0,04	0,050	-
			PL						
WPHY60	AP15LGr.X60 A572 Gr.60		P	0,26	-	1,35	0,04	0,050	-
			PL						
WPHY65	AP15 Gr.X65 A572 Gr.65		P	0,26	-	1,40	0,04	0,050	-
			PL						

Cr	Mo	Ti	Diğer Elementler Other Elements	Çekme Mukavemeti Tensile Strength Min.- Aralık Min or Range Ksi (Mpa)	Akma Mukavemeti Yield Strength Min.-Aralık Min. or Range Ksi (Mpa)	50 mm'de Boyuna Uzama Longitudinal Elongation in 50mm Min. %	
-	-	-	-	60 (415)	35 (240)	30	WPB
-	-	-	-	65-85 (450-585)	35 (240)	23	
-	-	-	-	70-90 (485-620)	38 (260)	21	
-	-	-	-	70 (485)	40 (275)	30	WPC
-	0,44-0,65 0,41-0,64	-	-	55 (380) 70-90 (485-620)	30 (205) 40 (275)	30 21	WP1
0,80-1,25 0,74-1,21	0,44-0,65 0,40-0,65	-	-	60 (415) 65-85 (450-585)	30 (205) 40 (275)	30 22	WP12
1,00-1,50 0,94-1,56	0,44-0,65 0,40-0,70	-	-	60 (415) 70-100 (515-690)	30 (205) 45 (310)	30 22	WP11
1,90-2,60 1,88-2,62	0,87-1,13 0,85-1,15	-	-	60 (415) 75-100 (515-690)	30 (205) 45 (310)	30 18	WP22
1,90-2,60	0,05-0,30	-	V:0,20-0,30 Cb:0,02-0,08 B:0,0005-0,006 N:0,030 Al:0,030 W:1,45-1,75	74 (508)	58 (398)	20	WP23
4,00-6,00 4,00-6,00	0,45-0,65 0,40-0,70	-	-	60 (415) 75-100 (515-690)	30 (205) 45 (310)	30 18	WP5
8,00-10,00	0,90-1,10	-	-	60 (415) 60-85 (415-585)	30 (205) 30 (205)	30 18	WP9
8,00-9,50	0,85-1,05	-	V:0,18-0,25 Cb:0,06-0,10 N:0,030-0,70 Al:0,04	85 (585) 85-110 (585-755)	60 (415) 60 (415)	20 18	WP91
8,50-9,50	0,30-0,60	-	V:0,15-0,25 Cb:0,04-0,09 B:0,001-0,006 N:0,03-0,07 Al:0,04 W:1,50-2,00	90 (620)	64 (440)	20	WP92
18,00-20,00 18,00-20,00	-	-	-	75 (515) 75 (515)	30 (205) 30 (205)	35 40	WP304
18,00-20,00 18,00-20,00	-	-	-	75 (515) 75 (515)	30 (205) 30 (205)	35 40	WP304H
18,00-20,00 18,00-20,00	-	-	-	70 (485) 70 (485)	25 (170) 25 (170)	35 40	WP304L
22,00-24,00 22,00-24,00	-	-	-	75 (515) 75 (515)	30 (205) 30 (205)	35 40	WP309
24,00-26,00 24,00-26,00	-	-	-	75 (515) 75 (515)	30 (205) 30 (205)	35 40	WP310
17,00-20,00 17,00-19,00	-	-	Cb+Ta10XC-1,00 Cb+Ta10XC-1,10	75 (515) 75 (515)	30 (205) 30 (205)	35 40	WP347
16,00-18,00 16,00-18,00	2,00-3,00 2,00-3,00	-	-	75 (515) 75 (515)	30 (205) 30 (205)	35 40	WP316
16,00-18,00 16,00-18,00	2,00-3,00 2,00-3,00	-	-	75 (515) 75 (515)	30 (205) 30 (205)	35 40	WP316H
16,00-18,00 16,00-18,00	2,00-3,00 2,00-3,00	-	-	70 (485) 70 (485)	25 (170) 25 (170)	35 40	WP316L
17,00-20,00 17,00-19,00	-	5XC-0,60 5X1-0,70	-	75 (515) 75 (515)	30 (205) 30 (205)	35 40	WP321
17,00-20,00 17,00-19,00	-	4XC-0,60 4XC-0,70	-	75 (515) 75 (515)	30 (205) 30 (205)	35 40	WP321H
17,00-20,00 17,00-19,00	-	-	Cb+Ta8XC-1,00 Cb+Ta8XC-1,00	75 (515) 75 (515)	30 (205) 30 (205)	35 40	WP347H
19,5-20,5	6,00-6,50	-	N:0,18-0,22 Cu:0,50-1,00	94 (650)	44 (300)	35	WP S31254
-	-	-	-	60 (415) 60-80 (415-550)	35 (241) 32 (220)	30 25	WPL6
-	-	-	-	65 (448) 65-85 (450-585)	35 (241) 37 (255)	30 23	WPL3
-	-	-	Cu:0,75-1,25	63 (435) 65-85 (450-585)	46 (315) 37 (255)	28 23	WPL9
21,0-23,0	2,50-3,50	-	N:0,08-0,20	90 (620)	65 (450)	25	S31803
24,0-26,0	3,00-5,00	-	N:0,24-0,32 Cu:0,5	116 (765)	80 (550)	15	S32750
24,0-26,0	3,00-4,00	-	N:0,20-0,30 Cu:0,50-1,00 W:0,50-1,00 Cr+3,3 Mo+16N=40 min	108 (750) 109-130 (750-895)	80 (550)	25	S32760
-	-	-	-	60 (414)	42 (289)	- 24	WPHY42
-	-	0,03 min	Cb:0,005 min V:0,02 min	75 (517)	60 (413)	- 18	WPHY60
-	-	-	Cb:0,005 min V:0,02 min	77 (530) 80 (550)	65 (448)	- 17	WPHY65

Grade	Boru Pipe	Tube	Fittings	Flanş Flanges	Sac Plate	Çubuk Bar	Dövme Forgings	UNS No.
Chome Alloy P1	A335	A213 T1	A234 WP1	A182 F1		A387 GRADE 1	A182 F1	
Chome Alloy P5	A335	A213 T5	A234 WP5	A182 F5		A387 GRADE 5	A182 F5	
Chome Alloy P9	A335	A213 T9	A234 WP9	A182 F9		A387 GRADE 9	A182 F9	
Chome Alloy P11	A335	A213 T11	A234 WP11	A182 F11		A387 GRADE 11	A182 F11	
Chome Alloy P22	A335	A213 T22	A234 WP22	A182 F22		A387 GRADE 22	A182 F22	
Chome Alloy P91	A335	A213 T91	A234 WP91	A182 F91		A387 GRADE 91	A182 F91	
Stainless 304	A312	A213/249/269	A403	A182 F304	A240	A276/479	A182	S30400
Stainless 309	A312	A213/249/269	A403	A182 F309	A240	A276/479	A182	S30900
Stainless 310	A312	A213/249/269	A403	A182 F310	A240	A276/479	A182	S31000
Stainless 316	A312	A213/249/269	A403	A182 F316	A240	A276/479	A182	S31600
Stainless 317	A312	A213/249/269	A403	A182 F317	A240	A276/479	A182	S31700
Stainless 321	A312	A213/249/269	A403	A182 F321	A240	A276/479	A182	S32100
Stainless 347	A312	A213/249/269	A403	A182 F347	A240	A276/479	A182	S34700
Stainless 410	A268	A213/249/269	A815	A182 F410	A240	A276/479	A182	S41000
Alloy 20			SB-462					N08020
Carbon Steel	A53		A234 WPB	A105	A36		A105	
Carbon Steel	A106B		A234 WPB	A105	A36		A105	
Carbon Steel	A106C		A234 WPC	A105	A36		A105	
Low Temp C.S. Gr.1	A333GR. 1	A334 GR. 1	A420 WPL1/6	A305 LF2		A516	A350 LF2	
Low Temp C.S. Gr.3	A333GR. 3	A334 GR. 3	A420 WPL3	A305 LF3		A516	A350 LF3	
Low Temp C.S. Gr.6	A333GR. 6	A334 GR. 6	A420 WPL6	A305 LF2		A516	A350 LF2	
Dublex 2205	A790	A789	A815	A305 LF2	A240	A276/A479	A182	S31803/S3225
6 Moly Alloy &AL6XN	SB-312/SB-358		SB-269/SB-270	SB-688	SB-691	N08367		
Monel 400	SB-165/SB-829/ SB-725/SB-775	SB-165/SB-163/ SB-730/SB-751		SB-366	SB-127	SB-164/QQ-N-281	SB-564	N04400
Inconel 600	SB-167/SB-829/ SB-517/SB-775	SB-163/SB-516/ SB-751/SB-5580	SB-366		SB-168/AMS 5540	SB-168/AMS-5665	SB-564/AMS-5665	
Inconel 625	SB-444/SB-829/ SB-775/SB-705	SB-444/SB-829/ SB-775/SB-5581	SB-366		SB-443/AMS 5599/ AMS-5869	SB-446/AMS 5666/ AMS-5837	SB-564/AMS-5666	N06625
Inconloy 800H	SB-407/SB-829/ SB-514/SB-775	SB-407/SB-829/ SB-515/SB-751	SB-366		SB-409/AMS -5877	SB-408/AMS 5766	SB-564/AMS-5766	N08810
Inconloy 800Ht	SB-407/SB-829/ SB-514/SB-775	SB-407/SB-829/ SB-515/SB-751	SB-366		SB-409/AMS -5877	SB-408/AMS 5766	SB-564/AMS-5766	N08811
Titanium Grade 2	SB-337/SB-338	SB-337/SB-338	SB-363		SB-265/AMS - 4902	SB-348/F-67/ AMS-4921	SB-381	
Hastelloy C276	SB-622/SB-619/ SB-775	SB-622/SB-516/ SB-626	SB-366		SB-575	SB-6574	SB-564	
Stainless 254 SMO								S31254
Yoloy A714			A234WPR	A182 FR				

Tüm Fittingsler All Fittings				90° ve 45° Dirsek 90° and 45° Elbows	Tee	Redüksiyon Reducers Stub Ends	Kep Caps	180° Dirsek 180° Returns		
NPS	Dış Çap OD	İç Çap ID	Et Kalınlığı T	Merkezden Sona A,B	Merkezden Sona C,M	Yükseklik H	Yükseklik E	Merkezden Merkeze P	Sırttan Yüzeğe K	Uçların Hizası U
1/2 - 2 1/2	+1.6 -0.8	±0.8	Nominal et kalınlığının %87,5'inden az olmamalı	±2.0	±2.0	±2.0	±3.0	±6.0	±6.0	±1.0
3 - 4	± 1.6	±1.6								
5 - 8	+2.4 -1.6						±3.2	±6.0	±10.0	±2.0
10 - 18	+4.0 -3.2									
20 - 24	+ 6.4 -4.8	±4.8		±3.0	±3.0	±5.0	±10.0	-	-	-
26 - 30				±5.0	±5.0					
32 - 48				±5.0	±5.0					

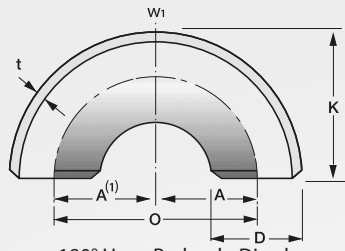
Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



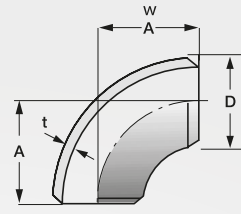
Nominal Boru Et Kalınlığı Nominap Pipe Wall Thicknes	Kaynak ağızı End Preparation
t* değerinden az / Less than t*	Dik açılı ya da hafif pah / Cut square or slightly chamfer
t ≤ 22 mm	Şekil a'daki gibi tek açılı / Plain bevel as in sketch "a" above
t > 22 mm	Şekil b'deki gibi çift açılı / Compound bevel as in sketch "b" above

*t= 5 mm Karbon çeliği, ferritik çelik ve dövme çelik için, 3 mm Östenitik alaşımlı çelik için

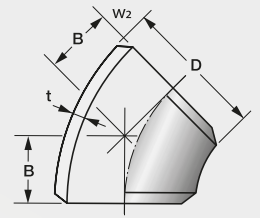
*t= 5 mm for carbon steel, ferritic alloy steel or wrought iron, 3 mm for austenitic alloy steel



180° Uzun Radyuslu Dirsek
180° Long Radius Elbow



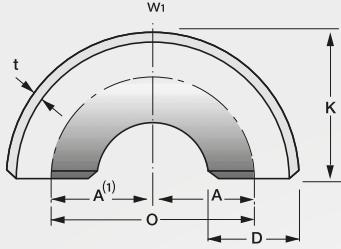
90° Uzun Radyuslu Dirsek
90° Long Radius Elbow



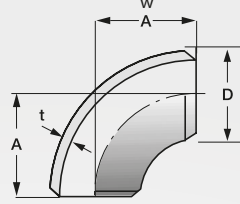
45° Uzun Radyuslu Dirsek
45° Long Radius Elbow

Nominal Boru Ölçüsü	Dış Çap	Merkezden Merkeze	Sırttan Yüzeve	Merkezden Sona	Merkezden Sona	STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	
Nominal Pipe Size (NPS)	Outside Diameter at bevel	Center to center	Back to face	Center to end	Center to end														
Inches	D-mm	O-mm	K-mm	A-mm	B-mm	t Et Kalınlığı / W.T. (mm)													
						w Ağırlık / Weight (Kg)													
1/2	21	76	48	38	16	2.77	3.73	7.47				2.41							4.78
						0.08	0.17												
3/4	27	76	51	38	19	2.87	3.91	7.82				2.41							5.56
						0.08	0.17												
1	33	76	56	38	22	3.38	4.55	9.09				2.90							6.35
						0.15	0.20	0.34											
1 1/4	42	95	70	48	25	3.56	4.85	9.70				2.97							6.35
						0.25	0.35	0.61											
1 1/2	48	114	83	57	29	3.68	5.08	10.16				3.18							7.13
						0.36	0.60	0.90											
2	60	152	106	76	35	3.91	5.54	11.07				3.18							8.74
						0.65	0.94	1.70											
2 1/2	73	191	132	95	44	5.16	7.01	14.02				4.78							9.52
						1.26	1.70	3.20											
3	89	229	159	114	51	5.49	7.62	15.24				4.78							11.13
						2.30	2.70	5.18											
3 1/2	102	267	184	133	57	5.74	8.08					4.78							
						2.87	3.90												
4	114	305	210	152	64	6.02	8.56	17.12				4.78							11.13
						3.90	5.40	10.30											
5	141	381	262	190	79	6.55	9.52	19.05											12.70
						6.50	8.85	18.11											
6	168	457	313	229	95	7.11	10.97	21.95											14.27
						10.20	15.35	29.75											
8	219	610	414	305	127	8.18	12.70	22.23		6.35	7.03								15.09
						20.30	29.90	54.50		16.57	17.50								
10	273	762	518	381	159	9.27	12.70	25.40		6.35	7.80								18.26
12	324	914	619	457	190	9.52	12.70	25.40		6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32	
						54.00	70.00	140.00		37.23	46.06	58.15	82.62	99.50	123.00	140.00	157.00	180.00	
14	356	1067	711	533	222	9.52	12.70		6.35	7.92		11.13	15.09	19.05	23.83	27.79	31.75	35.71	
						68.00	94.35		57.47	59.93		79.96	111.20	135.00	188.00	190.00	224.00	247.50	
16	406	1219	813	610	254	9.52	12.70		6.35	7.92		11.13	15.09	19.05	23.83	27.79	31.75	35.71	
						89.20	124.75		82.62	78.10		111.20	135.00	188.00	190.00	224.00	247.50		
18	457	1372	914	686	286	9.52	12.70		6.35	7.92	11.13	14.27	19.05	23.83	29.36	34.93	39.67	45.24	
						112.90	157.54		82.00	99.43	139.80	177.10	231.50	290.50	390.00	405.00	422.00	545.00	
20	508	1524	1016	762	318	9.52	12.70		6.35		12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01	
						142.40	194.31		100.00		194.30	230.00	311.44	390.50	476.00	508.00	607.00	770.00	
22	559	1676	1118	838	343	9.52	12.70		6.35		12.70		22.22	28.58	34.92	41.27	47.62	53.97	
						173.00	233.00		120.00		255.20		412.70	523.00	658.00	700.00	850.00	1020.00	
24	610	1829	1219	914	381	9.52	12.70		6.35		14.27	17.48	24.61	30.96	38.89	46.02	52.37	59.54	
						205.90	282.39		146.00		318.70	384.10	533.90	667.50	820.00	954.00	1085.00	1270.00	

A⁽¹⁾'in ölçüsü O ölçüsünün yarısıdır. Dimension "A" equal to 1/2 of dimension "O" w1 = 2 w w2 = w/2
Ağırlıklar yaklaşık olarak verilmiştir. Weights are approximate. Ölçüler mm olarak verilmiştir. Dimensions in mm.



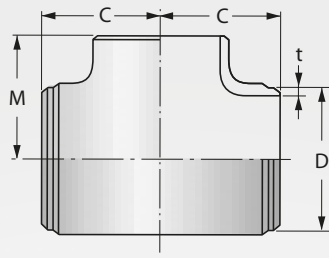
180° Kısa Radyuslu Dirsek
180° Short Radius Elbow



90° Kısa Radyuslu Dirsek
90° Short Radius Elbow

Nominal Boru Ölçüsü	Dış Çap	Merkezden Merkeze	Sırttan Yüzeğe	Merkezden Sona	STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	
Nominal Pipe Size (NPS)	Outside Diameter at bevel	Center-to-center	Back-to-face	Center-to-end														
Inches	D-mm	O-mm	K-mm	A-mm	t Et Kalınlığı / W.T. (mm)													
					w Ağırlık / Weight (Kg)													
1	33	51	41	25	3.38	4.55	9.09											6.35
					0.10	0.14	0.23											0.18
1 1/4	42	64	52	32	3.56	4.85	9.70											6.35
					0.16	0.25	0.41											0.29
1 1/2	48	76	62	38	3.68	5.08	10.16											7.13
					0.24	0.30	0.60											0.45
2	60	102	81	51	3.91	5.54	11.07											8.74
					0.43	0.60	1.13											0.93
2 1/2	73	127	100	64	5.16	7.01	14.02											9.52
					0.82	1.15	2.00											1.56
3	89	152	121	76	5.49	7.62	15.24											11.13
					1.35	1.85	3.47											2.68
3 1/2	102	178	140	89	5.74	8.08												
					1.90	2.60												
4	114	203	159	102	6.02	8.56	17.12											13.50
					2.60	3.55	6.86											5.62
5	141	254	197	127	6.55	9.52	19.05											15.87
					4.35	6.20	12.00											10.28
6	168	305	237	152	7.11	10.97	21.95											18.26
					6.45	10.20	20.00											16.97
8	219	406	313	203	8.18	12.70	22.23		6.35	7.03								23.01
					16.50	22.50	36.12		11.10	12.26								37.00
10	273	508	391	254	9.27	12.70	25.40		6.35	7.80								28.57
					31.15	31.15	65.00		17.35	21.25								72.00
12	324	610	467	305	9.52	12.70	25.40		6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32	120.00
					45.00	49.00	94.00		25.00	32.90	39.60	54.45	66.28	81.00	92.00	99.00		
14	356	711	533	356	9.52	12.70		6.35	7.92		11.12	15.09	19.05	23.83	27.79	31.75	35.71	165.00
					52.50	63.11		30.50	39.50		55.39	74.00	93.07	120.00	124.00	139.00		
16	406	813	610	406	9.52	12.70		6.35	7.92		11.12	15.09	19.05	23.83	27.79	31.75	35.71	165.00
					71.25	82.63		39.00	52.20		55.39	74.00	93.07	120.00	124.00	139.00		
18	457	914	686	457	9.52	12.70		6.35	7.92	11.13	14.27	19.05	23.83	29.36	34.92	39.67	45.24	165.00
					90.00	104.87		48.50	65.35	93.07	117.59	154.36	191.60	257.00	283.00	387.00	346.00	
20	508	1016	762	508	9.52	12.70		6.35		12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01	165.00
					110.00	129.54		67.50		129.84	153.45	207.48	260.14	332.00	376.00	430.00	478.00	
22	559	1118	838	559	9.52	12.70		6.35		12.70		22.22	28.58	34.92	41.27	47.62	53.97	165.00
					132.00	157.00		84.50		171.50		281.50	350.50	430.00	497.00	555.00	627.00	
24	610	1219	914	610	9.52	12.70		6.35		14.27	17.48	24.61	30.96	38.89	46.02	52.37	59.54	165.00
					165.00	188.41		96.50		213.38	256.00	355.48	443.55	530.00	621.00	680.00	835.00	

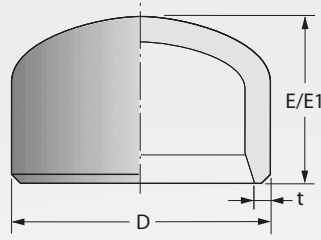
A⁽¹⁾'in ölçüsü O ölçüsünün yarısıdır. Dimension "A" equal to 1/2 of dimension "O" w1 = 2 w
Ağırlıklar yaklaşık olarak verilmiştir. Weights are approximate. Ölçüler mm olarak verilmiştir. Dimensions in mm.



Eşit Tee
Equal Tee

Nominal Boru Ölçüsü	Dış Çap	Merkezden Sonra		STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	
																	Nominal Pipe Size (NPS)	Outside Diameter at bevel	Center-to-end
Inches	D-mm	C-mm	M-mm	t Et Kalınlığı / W.T. (mm)													
				w Ağırlık / Weight (Kg)													
1/2	21	25	25	2.77	3.73	7.47				2.41							4.78
				0.16	0.25												
3/4	27	29	29	2.87	3.91	7.82				2.41							5.56
				0.20	0.27	0.38											
1	33	38	38	3.38	4.55	9.09				2.90							6.35
				0.29	0.35	0.58											
1 1/4	42	48	48	3.56	4.85	9.70				2.97							6.35
				0.53	0.65	1.05											
1 1/2	48	57	57	3.68	5.08	10.16				3.18							7.13
				0.77	0.96	1.56											
2	60	64	64	3.91	5.54	11.07				3.18							8.74
				1.88	1.90	2.69											
2 1/2	73	76	76	5.16	7.01	14.02				4.78							9.52
				2.69	3.07	4.54											
3	89	86	86	5.49	7.62	15.24				4.78							11.13
				3.82	4.50	7.63											
3 1/2	102	95	95	5.74	8.08					4.78							
				5.18	6.17												
4	114	105	105	6.02	8.56	17.12				4.78						11.13	13.50
				6.00	8.44	17.00											9.00		15.53
5	141	124	124	6.55	9.52	19.05										12.70	15.87
				9.94	12.94	25.00											18.00		23.93
6	168	143	143	7.11	10.97	21.95										14.27	18.26
				16.48	19.30	39.00											24.00		38.59
8	219	178	178	8.18	12.70	22.23		6.35	7.03								23.01
				33.00	34.50	69.00		29.00	31.00			10.31			15.09	18.26	20.62	23.01
10	273	216	216	9.27	12.70	25.40		6.35	7.80								28.57
				49.35	58.57	98.00		34.70	36.77			58.57	68.00	74.00	93.00	99.00	99.00
12	324	254	254	9.52	12.70	25.40		6.35	8.38		10.31						33.32
				65.00	84.90	150.00		59.00	61.74			70.50	102.60	115.00	136.00	150.00	177.00	184.00
14	356	279	279	9.52	12.70		6.35	7.92									35.71
				93.00	127.12		87.16	90.00				11.13	15.09	19.05	23.83	27.79	31.75	35.71
16	406	305	305	9.52	12.70		6.35	7.92									40.49
				115.00	167.52		90.80	100.00				16.66	21.44	26.19	30.96	36.53	40.49
18	457	343	343	9.52	12.70		6.35	7.92	11.13	14.27	19.05	23.83	29.36	34.93	39.67	45.24	
				135.00	190.00		94.50	127.12	181.14	238.35	277.85	322.00	380.00	450.00	500.00	590.00	
20	508	381	381	9.52	12.70		6.35										50.01
				168.00	245.00		120.00					12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01
22	559	419	419	9.52	12.70		6.35										53.97
				200.00	280.00		143.00					22.22	28.58	34.92	41.27	47.62	53.97
24	610	432	432	9.52	12.70		6.35										59.54
				240.00	350.00		170.00					14.27	17.48	24.61	30.96	38.89	46.02	52.37	59.54
																	1310.00

Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



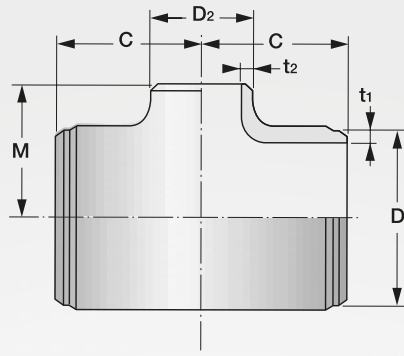
Kep
Cap

Nominal Boru Ölçüsü	Dış Çap	Yükseklik	E için Sırt Et Kalınlığı	Yükseklik	STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160		
Nominal Pipe Size (NPS)	Outside Diameter at bevel	Length (*)	Limiting W.T. for length E	Length	t Et Kalınlığı / W.T. (mm)														
Inches	D-mm	E-mm	mm	E1-mm	w Ağırlık / Weight (Kg)														
1/2	21	25	3.73	25	2.77	3.73	7.47			2.41	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	4.78
					0.03	0.05													
3/4	27	25	3.91	25	2.87	3.91	7.82			2.41	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	6.35
					0.06	0.10													
1	33	38	4.55	38	3.38	4.55	9.09			2.90	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	6.35
					0.10	0.13	0.20												
1 1/4	42	38	4.85	38	3.56	4.85	9.70			2.97	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	6.35
					0.14	0.20	0.28												
1 1/2	48	38	5.08	38	3.68	5.08	10.16			3.18	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	7.13
					0.20	0.23	0.36												
2	60	38	5.54	44	3.91	5.54	11.07			3.18	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	8.74
					0.30	0.30	0.59												
2 1/2	73	38	7.01	51	5.16	7.01	14.02			4.78	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	9.52
					0.50	0.50	1.00												
3	89	51	7.62	64	5.49	7.62	15.24			4.78	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	11.13
					0.70	0.90	1.78												
3 1/2	102	64	8.08	76	5.74	8.08				4.78	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	13.50
					1.40	1.70													
4	114	64	8.56	76	6.02	8.56	17.12			4.78	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	11.13
					1.60	2.00	3.17												
5	141	76	9.53	89	6.55	9.52	19.05				Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	15.87
					2.30	3.00	5.50												
6	168	89	10.97	102	7.11	10.97	21.95				Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	18.26
					3.60	4.00	8.10												
8	219	102	12.70	127	8.18	12.70	22.23		6.35	7.03	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	23.01
					5.50	8.40	19.50		4.50	5.00										20.00
10	273	127	12.70	152	9.27	12.70	25.40		6.35	7.80	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	28.57
					10.00	13.60	29.30		7.00	7.63										30.00
12	324	152	12.70	178	9.52	12.70	25.40		6.35	8.38	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	33.32
					15.00	22.00	41.00		9.00	13.00										44.50
14	356	165	12.70	191	9.52	12.70		6.35	7.92		Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	35.71
					17.00	27.00		14.00	15.50											60.00
16	406	178	12.70	203	9.52	12.70		6.35	7.92		Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	40.49
					23.00	30.00		18.00	20.00											79.00
18	457	203	12.70	229	9.52	12.70		6.35	7.92	11.13	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	45.24
					29.00	32.00		22.00	25.00											104.00
20	508	229	12.70	254	9.52	12.70		6.35			Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	50.01
					36.00	49.00		31.00											
22	559	254	12.70	254	9.52	12.70		6.35			Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	53.97
					42.00	51.00		35.50											
24	610	267	12.70	305	9.52	12.70		6.35			Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	Refer to STD	59.54
					52.00	60.00		40.00											

(*) E1 uzunluğu uygulanırsa sırt kalınlığı 24" ve altı için E sütunundaki sırt kalınlığından daha büyük olmalıdır.

(*) Length E1 Applies for thickness greater than that given in column "Limiting wall thickness" for sizes NPS 24 and smaller.

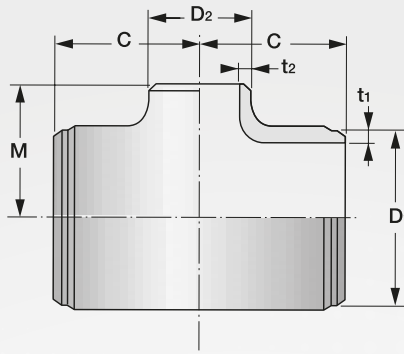
Ağırlıklar yaklaşık olarak verilmiştir. Weights are approximate. Ölçüler mm olarak verilmiştir. Dimensions in mm.



Redüksiyon Tee
Reducing Tee

Nominal Boru Ölçüsü	Dış Çap	Merkezden Sonra		STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	
Nominal Pipe Size (NPS)	Outside Diameter at bevel	Center to end															
Inches	D ₁ -mm D ₂ -mm	C -mm	M -mm	t ₁ Et Kalınlığı / W.T. (mm)													
				t ₂ Et Kalınlığı / W.T. (mm)													
				w Red. Tee Ağırlığı / Weight of Red. Tee (Kg)													
3/4 x 1/2	27	29	29	2.87	3.91	7.82				2.41							5.56
	21			2.77	3.73	7.47				2.41							4.78
				0.25	0.34	0.40											
3/4 x 3/8	27	29	29	2.87	3.91					2.41							
	17			2.31	3.20				1.85								
				0.25	0.34												
1 x 3/4	33	38	38	3.38	4.55	9.09				2.90							6.35
	27			2.87	3.91	7.82				2.41							5.56
				0.35	0.40	0.57											
1 x 1/2	33	38	38	3.38	4.55	9.09				2.90							6.35
	21			2.77	3.73	7.47				2.41							4.78
				0.34	0.40	0.55											
1 1/4 x 1	42	48	48	3.56	4.85	9.70				2.97							6.35
	33			3.38	4.55	9.09				2.90							6.35
				0.60	0.60	1.09											
1 1/4 x 3/4	42	48	48	3.56	4.85	9.70				2.97							6.35
	27			2.87	3.91	7.82				2.41							5.56
				0.60	0.59	1.02											
1 1/4 x 1/2	42	48	48	3.56	4.85	9.70				2.97							6.35
	21			2.77	3.73	7.47				2.41							4.78
				0.60	0.58	1.00											
1 1/2 x 1 1/4	48	57	57	3.68	5.08	10.16				3.18							7.13
	42			3.56	4.85	9.70				2.97							6.35
				0.80	0.99	1.62											
1 1/2 x 1	48	57	57	3.68	5.08	10.16				3.18							7.13
	33			3.38	4.55	9.09				2.90							6.35
				0.73	0.96	1.55											
1 1/2 x 3/4	48	57	57	3.68	5.08	10.16				3.18							7.13
	27			2.87	3.91	7.82				2.41							5.56
				0.73	0.94	1.50											
1 1/2 x 1/2	48	57	57	3.68	5.08	10.16				3.18							7.13
	21			2.77	3.73	7.47				2.41							4.78
				1.35	1.50	2.54											
2 x 1 1/2	60	64	60	3.91	5.54	11.07				3.18							8.74
	48			3.68	5.08	10.16				3.18							7.13
				1.50	2.05	2.73											
2 x 1 1/4	60	64	57	3.91	5.54	11.07				3.18							8.74
	42			3.56	4.85	9.70				2.97							6.35
				1.46	2.05	2.71											

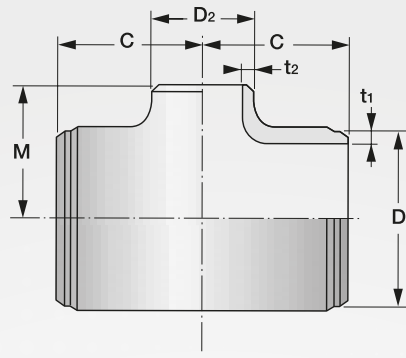
Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



Redüksiyon Tee
Reducing Tee

Nominal Boru Ölçüsü	Dış Çap	Merkezden Sonra		STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160		
																	Nominal Pipe Size (NPS)	Outside Diameter at bevel	Center to end
Inches	D ₁ –mm D ₂ –mm	C –mm	M –mm	t ₁ Et Kalınlığı / W.T. (mm)														
				t ₂ Et Kalınlığı / W.T. (mm)														
				w Red. Tee Ağırlığı / Weight of Red. Tee (Kg)														
2 x 1	60	64	51	3.91	5.54	11.07											3.18	
	33			3.38	4.55	9.09												2.90
				1.31	2.05	2.65												
2 x 3/4	60	64	44	3.91	5.54	11.07											3.18	
	27			2.87	3.91	7.82											2.41	
				1.29	2.05	2.52												2.16
2 1/2 x 2	73	76	70	5.16	7.01	14.02											4.78	
	60			3.91	5.54	11.07											3.18	
				2.08	3.37	4.58												3.45
2 1/2 x 1 1/2	73	76	67	5.16	7.01	14.02											4.78	
	48			3.68	5.08	10.16											3.18	
				2.04	3.37	4.49												3.35
2 1/2 x 1 1/4	73	76	64	5.16	7.01	14.02											4.78	
	42			3.56	4.85	9.70											2.97	
				1.99	3.37	4.46												3.30
2 1/2 x 1	73	76	57	5.16	7.01	14.02											4.78	
	33			3.38	4.55	9.09											2.90	
				1.96	3.37	4.27												6.35
3 x 2 1/2	89	86	83	5.49	7.62	15.24											11.13	
	73			5.16	7.01	14.02											9.52	
				3.00	4.25	7.70												5.60
3 x 2	89	86	76	5.49	7.62	15.24											11.13	
	60			3.91	5.54	11.07											8.74	
				2.90	4.25	7.50												5.50
3 x 1 1/2	89	86	73	5.49	7.62	15.24											11.13	
	48			3.68	5.08	10.16											7.13	
				2.88	4.25	7.50												5.50
3 x 1 1/4	89	86	70	5.49	7.62	15.24											11.13	
	42			3.56	4.85	9.70											6.35	
				2.88	4.25	7.40												5.40
3 x 1	89	86	70	5.49	7.62	15.24											11.13	
	33			3.38	4.55	9.09											6.35	
				2.88	4.25	7.50												5.40
4 x 3	114	105	98	6.02	8.56	17.12											13.50	
	89			5.49	7.62	15.24											11.13	
				5.18	7.50	17.00												15.90
4 x 2 1/2	114	105	95	6.02	8.56	17.12											13.50	
	73			5.16	7.01	14.02											9.52	
				5.13	7.50	17.00												15.50

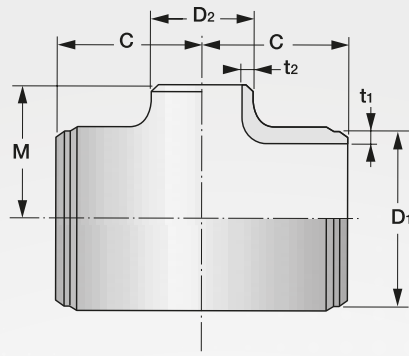
Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



Redüksiyon Tee
Reducing Tee

Nominal Boru Ölçüsü	Dış Çap	Merkezden Sonra		STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160		
Nominal Pipe Size (NPS)	Outside Diameter at bevel	Center to end																
Inches	D ₁ –mm D ₂ –mm	C –mm	M –mm	t ₁ Et Kalınlığı / W.T. (mm)														
				t ₂ Et Kalınlığı / W.T. (mm)														
				w Red. Tee Ağırlığı / Weight of Red. Tee (Kg)														
4 x 2	114	105	89	6.02	8.56	17.12											13.50	
	60			3.91	5.54	11.07												8.74
				4.99	7.50	17.00												
4 x 1 1/2	114	105	86	6.02	8.56	17.12											13.50	
	48			3.68	5.08	10.16											7.13	
				4.95	7.50	17.00												
5 x 4	141	124	117	6.55	9.52	19.05											12.70	
	114			6.02	8.56	17.12												11.13
				8.22	12.10	26.20												
5 x 3	141	124	111	6.55	9.52	19.05											15.87	
	89			5.49	7.62	15.24												11.13
				7.99	12.10	26.20												
5 x 2 1/2	141	124	108	6.55	9.52	19.05											15.87	
	73			5.16	7.01	14.02												9.52
				7.90	12.10	22.20												
5 x 2	141	124	105	6.55	9.52	19.05											15.87	
	60			3.91	5.54	11.07												8.74
				7.81	12.10	22.20												
6 x 5	168	143	137	7.11	10.97	21.95											14.27	
	141			6.55	9.52	19.05												12.70
				16.00	18.00	38.00												
6 x 4	168	143	130	7.11	10.97	21.95											14.27	
	114			6.02	8.56	17.12												11.13
				16.00	18.00	29.00												
6 x 3	168	143	124	7.11	10.97	21.95											18.26	
	89			5.49	7.62	15.24												11.13
				16.00	18.00	29.00												
6 x 2 1/2	168	143	121	7.11	10.97	21.95											18.26	
	73			5.16	7.01	14.02												9.52
				16.00	18.00	29.00												
6 x 2	168	143	121	7.11	10.97	21.95											18.26	
	60			3.91	5.54	11.07												8.74
				16.00	18.00	29.00												
8 x 6	219	178	168	8.18	12.70	22.23											18.23	
	168			7.11	10.97	21.95												14.27
				28.00	34.00	51.00												
8 x 5	219	178	162	8.18	12.70	22.23											18.26	
	141			6.55	9.52	19.05												12.70
				28.00	34.00	51.00												

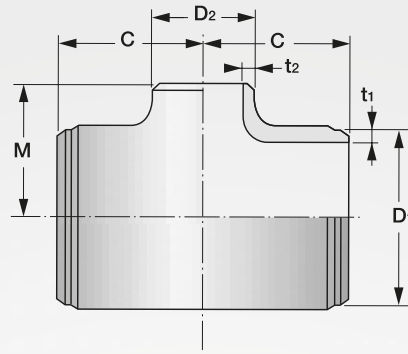
Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



Redüksiyon Tee
Reducing Tee

Nominal Boru Ölçüsü	Dış Çap	Merkezden Sonra		STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160			
Nominal Pipe Size (NPS)	Outside Diameter at bevel	Center to end																	
Inches	D ₁ -mm D ₂ -mm	C -mm	M -mm	t ₁ Et Kalınlığı / W.T. (mm)															
				t ₂ Et Kalınlığı / W.T. (mm)															
				w Red. Tee Ağırlığı / Weight of Red. Tee (Kg)															
8 x 4	219	178	156	8.18	12.70	22.23											23.01		
	114			6.02	8.56	17.12												11.13	13.50
				28.00	34.00	51.00													44.00
8 x 3	219	178	152	8.18	12.70	22.23													
	89			5.49	7.62	15.24													
				28.00	34.00	51.00													
10 x 8	273	216	203	9.27	12.70	25.40		6.35	6.35								18.26	23.01	
	219			8.18	12.70	22.23		6.35	6.35									11.13	13.50
				41.00	58.00	99.00		29.00	29.00										44.00	49.00
10 x 6	273	216	194	9.27	12.70	25.40													
	168			7.11	10.97	21.95													
				41.00	52.00	91.00													
10 x 5	273	216	191	9.27	12.70	25.40													
	141			6.55	9.52	19.05													
				41.00	52.00	80.00													
10 x 4	273	216	184	9.27	12.70	25.40													
	114			6.02	8.56	17.12													
				41.00	52.00	80.00													
12 x 10	324	254	241	9.52	12.70	25.40		6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32			
	273			9.27	12.70	25.40		6.35	7.80	9.27	12.70	15.09	18.26	21.44	25.40	28.57			
				63.00	85.00	150.00		43.00	62.00	67.00	103.00	103.00	126.00	149.00	160.00	171.00			
12 x 8	324	254	229	9.52	12.70	25.40		6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32			
	219			8.18	12.70	22.23		6.35	7.03	8.18	10.31	12.70	15.09	18.26	20.62	23.01			
				63.00	82.00	129.00		41.00	60.00	64.00	82.00	92.00	122.00	133.00	144.00	155.00			
12 x 6	324	254	219	9.52	12.70	25.40				10.31		17.48		25.40		33.32			
	168			7.11	10.97	21.95				7.11		10.97		14.27		18.26			
				63.00	82.00	120.00				64.00		82.00		111.00		144.00			
12 x 5	324	254	216	9.52	12.70	25.40				10.31		17.48		25.40		33.32			
	141			6.55	9.52	19.05				6.55		9.52		12.70		15.87			
				63.00	82.00	120.00				64.00		82.00		103.00		144.00			
14 x 12	356	279	270	9.52	12.70			7.92	9.52	11.12	15.09	19.05	23.83	27.79	31.75	35.71			
	324			9.52	12.70			6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32			
				111.00	127.00			95.00	103.00	114.00	141.00	143.00	206.00	235.00	275.00	300.00			

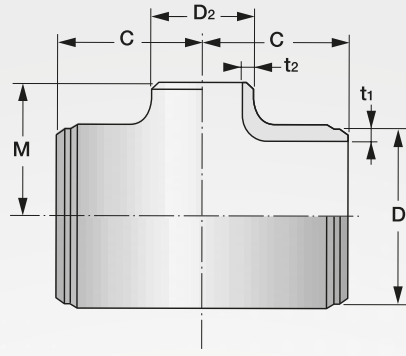
Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



Redüksiyon Tee
Reducing Tee

Nominal Boru Ölçüsü	Dış Çap	Merkezden Sonra		STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160
Nominal Pipe Size (NPS)	Outside Diameter at bevel	Center to end														
Inches	D ₁ –mm D ₂ –mm	C –mm	M –mm	t ₁ Et Kalınlığı / W.T. (mm)												
				t ₂ Et Kalınlığı / W.T. (mm)												
				w Red. Tee Ağırlığı / Weight of Red. Tee (Kg)												
14 x 10	356	279	257	9.52	12.70			7.92	9.52	11.12	15.09	19.05	23.83	27.79	31.75	35.71
	273			9.27	12.70			6.35	7.80	9.27	12.70	15.09	18.26	21.44	25.40	28.57
				107.00	127.00			90.00	99.00	109.00	136.00	141.00	195.00	230.00	265.00	285.00
14 x 8	356	279	248	9.52	12.70			7.92	9.52	11.12	15.09	19.05	23.83	27.79	31.75	35.71
	219			8.18	12.70			6.35	7.03	8.18	10.31	12.70	15.09	18.26	20.62	23.01
				107.00	122.00			90.00	99.00	109.00	136.00	122.00	195.00	220.00	250.00	270.00
14 x 6	356	279	238	9.52	12.70					11.12		19.05		27.79		35.71
	168			7.11	10.97					7.11		10.97		14.27		18.26
				107.00	122.00					109.00		122.00		205.00		270.00
16 x 14	406	305	305	9.52	12.70		6.35	7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49
	356			9.52	12.70		6.35	7.92	9.52	11.12	15.09	19.05	23.83	27.79	31.75	35.71
				119.00	167.00		84.00	100.00	119.00	167.00	208.00	200.00	260.00	320.00	360.00	410.00
16 x 12	406	305	295	9.52	12.70			7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49
	324			9.52	12.70			6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32
				119.00	167.00			100.00	110.00	161.00	181.00	181.00	250.00	310.00	340.00	385.00
16 x 10	406	305	283	9.52	12.70			7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49
	273			9.27	12.70			6.35	7.80	9.27	12.70	15.09	18.26	21.44	25.40	28.57
				116.00	160.00			98.00	150.00	160.00	163.00	163.00	210.00	295.00	310.00	360.00
16 x 8	406	305	273	9.52	12.70			7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49
	219			8.18	12.70			6.35	7.03	8.18	10.31	12.70	15.09	18.26	20.62	23.01
				116.00	160.00			98.00	107.00	160.00	161.00	163.00	210.00	280.00	295.00	295.00
18 x 16	457	343	330	9.52	12.70		6.35	7.92	11.12	14.27	19.05	23.83	29.36	34.93	39.67	45.24
	406			9.52	12.70		6.35	7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49
				135.00	190.00		105.00	127.00	164.00	238.00	257.00	279.00	380.00	440.00	475.00	550.00
18 x 14	457	343	330	9.52	12.70		6.35	7.92	11.12	14.27	19.05	23.83	29.36	34.93	39.67	45.24
	356			9.52	12.70		6.35	7.92	9.52	11.12	15.09	19.05	23.83	27.79	31.75	35.71
				135.00	190.00		105.00	127.00	164.00	194.00	212.00	258.00	370.00	420.00	455.00	520.00
20 x 16	508	381	356	9.52	12.70		6.35	9.52	12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01
	406			9.52	12.70		6.35	7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49
				168.00	218.00		112.00	168.00	218.00	230.00	324.00	355.00	470.00	550.00	630.00	750.00
20 x 14	508	381	356	9.52	12.70		6.35	9.52	12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01
	356			9.52	12.70		6.35	7.92	9.52	11.12	15.09	19.05	23.83	27.79	31.75	35.71
				163.00	214.00		110.00	164.00	214.00	224.00	293.00	324.00	470.00	530.00	590.00	725.00
20 x 12	508	381	346	9.52	12.70			9.52	12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01
	324			9.52	12.70			6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32
				163.00	214.00			164.00	214.00	224.00	293.00	324.00	450.00	500.00	540.00	700.00

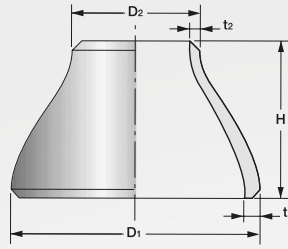
Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



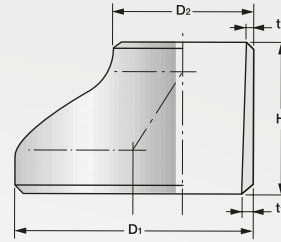
Redüksiyon Tee
Reducing Tee

Nominal Boru Ölçüsü	Dış Çap	Merkezden Sonra		STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	
Nominal Pipe Size (NPS)	Outside Diameter at bevel	Center to end															
Inches	D ₁ –mm D ₂ –mm	C –mm	M –mm	t ₁ Et Kalınlığı / W.T. (mm)													
				t ₂ Et Kalınlığı / W.T. (mm)													
				w Red. Tee Ağırlığı / Weight of Red. Tee (Kg)													
20 x 10	508	381	33	9.52	12.70			9.52	12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01	
	273			9.27	12.70			6.35	7.80	9.27	12.70	15.09	18.26	21.44	25.40	28.57	
				163.00	214.00			164.00	214.00	220	286.00	293.00	420.00	475.00	500.00	680.00	
24 x 20	610	432	432	9.52	12.70		6.35	STD Ölçüsü Geçerli Refer to STD	14.27	17.48	24.61	30.96	38.89	46.02	52.37	59.54	
	508			9.52	12.70		6.35		12.70	15.09	20.62	26.19	33.54	38.10	44.45	50.01	
				227.00	350.00		151.00		373.00	390.00	545.00	606.00	910.00	1060.00	1140.00	1270.00	
24 x 16	610	432	406	9.52	12.70		6.35	9.52	14.27	17.48	24.61	30.96	38.89	46.02	52.37	59.54	
	406			9.52	12.70		6.35	7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49	
				222.00	320.00		150.00	222.00	340.00	309.00	427.00	490.00	811.00	1010.00	1040.00	1180.00	

Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



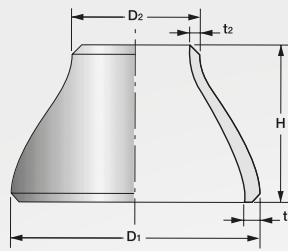
Konsantrik Redüksiyon
Concentric Reducer



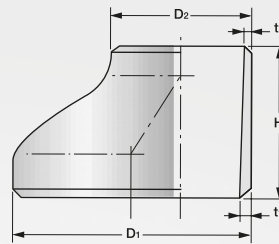
Eksantrik Redüksiyon
Eccentric Reducer

Nominal Boru Ölçüsü	Dış Çap	Yükseklik	STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	
			t ₁ Et Kalınlığı / W.T. (mm)													
Nominal Pipe Size (NPS)	Outside Diameter at bevel	Length	t ₂ Et Kalınlığı / W.T. (mm)													
Inches	D ₁ -mm D ₂ -mm	H -mm	w Redüksiyon Ağırlığı / Weight of Reducer (Kg)													
3/4 x 1/2	27	38	2.87	3.91	7.82				2.41							5.56
	21		2.77	3.73	7.47				2.41							4.78
			0.07	0.10	0.19											
3/4 x 3/8	27	38	2.87	3.91					2.41							
	17		2.31	3.20				1.85								
			0.07	0.10												
1 x 3/4	33	51	3.38	4.55	9.09				2.90							6.35
	27		2.87	3.91	7.82				2.41							5.56
			0.13	0.16	0.28											0.21
1 x 1/2	33	51	3.38	4.55	9.09				2.90							6.35
	21		2.77	3.73	7.47				2.41							4.78
			0.13	0.16	0.28											0.21
1 1/4 x 1	42	51	3.56	4.85	9.70				2.97							6.35
	33		3.38	4.55	9.09				2.90							6.35
			0.17	0.23	0.39											0.29
1 1/4 x 3/4	42	51	3.56	4.85	9.70				2.97							6.35
	27		2.87	3.91	7.82				2.41							5.56
			0.17	0.23	0.39											0.29
1 1/4 x 1/2	42	51	3.56	4.85	9.70				2.97							6.35
	21		2.77	3.73	7.47				2.41							4.78
			0.17	0.23	0.39											0.29
1 1/2 x 1 1/4	48	64	3.68	5.08	10.16				3.18							7.13
	42		3.56	4.85	9.70				2.97							6.35
			0.26	0.35	0.61											0.46
1 1/2 x 1	48	64	3.68	5.08	10.16				3.18							7.13
	33		3.38	4.55	9.09				2.90							6.35
			0.26	0.35	0.61											0.46
1 1/2 x 3/4	48	64	3.68	5.08	10.16				3.18							7.13
	27		2.87	3.91	7.82				2.41							5.56
			0.26	0.35	0.61											0.46
1 1/2 x 1/2	48	64	3.68	5.08	10.16				3.18							7.13
	21		2.77	3.73	7.47				2.41							4.78
			0.26	0.35	0.61											0.46
2 x 1 1/2	60	76	3.91	5.54	11.07				3.18							8.74
	48		3.68	5.08	10.16				3.18							7.13
			0.41	0.57	1.03											0.84
2 x 1 1/4	60	76	3.91	5.54	11.07				3.18							8.74
	42		3.56	4.85	9.70				2.97							6.35
			0.41	0.57	1.03											0.84

Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



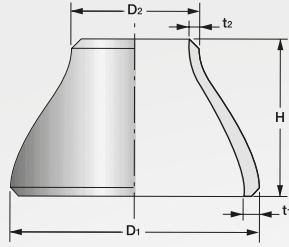
Konsantrik Redüksiyon
Concentric Reducer



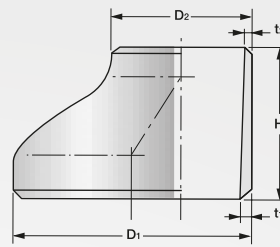
Eksantrik Redüksiyon
Eccentric Reducer

Nominal Boru Ölçüsü	Dış Çap	Yükseklik	STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	
			Nominal Pipe Size (NPS)	Outside Diameter at bevel	Length											
Inches	D ₁ –mm D ₂ –mm	H –mm	t ₁ Et Kalınlığı / W.T. (mm)													
			t ₂ Et Kalınlığı / W.T. (mm)													
			w Redüksiyon Ağırlığı / Weight of Reducer (Kg)													
2 x 1	60	76	3.91	5.54	11.07				3.18							8.74
	33		3.38	4.55	9.09				2.90							6.35
			0.41	0.57	1.03											
2 x 3/4	60	76	3.91	5.54	11.07				3.18							8.74
	27		2.87	3.91	7.82				2.41							5.56
			0.41	0.57	1.03											
2 1/2 x 2	73	89	5.16	7.01	14.02				4.78							9.52
	60		3.91	5.54	11.07				3.18							8.74
			0.77	1.01	1.81											
2 1/2 x 1 1/2	73	89	5.16	7.01	14.02				4.78							9.52
	48		3.68	5.08	10.16				3.18							7.13
			0.77	1.01	1.81											
2 1/2 x 1 1/4	73	89	5.16	7.01	14.02				4.78							9.52
	42		3.56	4.85	9.70				2.97							6.35
			0.77	1.01	1.81											
2 1/2 x 1	73	89	5.16	7.01	14.02				4.78							9.52
	33		3.38	4.55	9.09				2.90							6.35
			0.77	1.01	1.81											
3 x 2 1/2	89	89	5.49	7.62	15.24				4.78							11.13
	73		5.16	7.01	14.02				4.78							9.52
			1.00	1.36	2.47											
3 x 2	89	89	5.49	7.62	15.24				4.78							11.13
	60		3.91	5.54	11.07				3.18							8.74
			1.00	1.36	2.47											
3 x 1 1/2	89	89	5.49	7.62	15.24				4.78							11.13
	48		3.68	5.08	10.16				3.18							7.13
			1.00	1.36	2.47											
3 x 1 1/4	89	89	5.49	7.62	15.24				4.78							11.13
	42		3.56	4.85	9.70				2.97							6.35
			1.00	1.36	2.47											
3 x 1	89	89	5.49	7.62	15.24				4.78							11.13
	33		3.38	4.55	9.09				2.90							6.35
			1.00	1.36	2.47											
4 x 3	114	102	6.02	8.56	17.12				4.78							13.50
	89		5.49	7.62	15.24				4.78							11.13
			1.60	2.27	4.18											
4 x 2 1/2	114	102	6.02	8.56	17.12				4.78							13.50
	73		5.16	7.01	14.02				4.78							9.52
			1.60	2.27	4.18											

Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



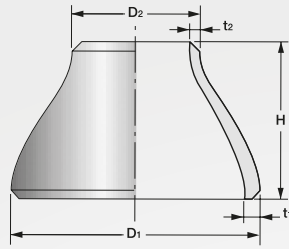
Konsantrik Redüksiyon
Concentric Reducer



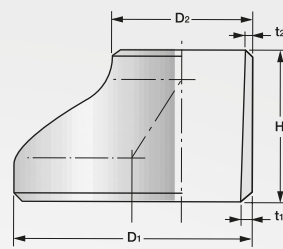
Eksantrik Redüksiyon
Eccentric Reducer

Nominal Boru Ölçüsü	Dış Çap	Yükseklik	STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	
			Nominal Pipe Size (NPS)	Outside Diameter at bevel	Length											
Inches	D ₁ –mm D ₂ –mm	H –mm	t ₁ Et Kalınlığı / W.T. (mm)													
			t ₂ Et Kalınlığı / W.T. (mm)													
			w Redüksiyon Ağırlığı / Weight of Reducer (Kg)													
4 x 2	114	102	6.02	8.56	17.12				4.78							13.50
	60		3.91	5.54	11.07				3.18							8.74
			1.60	2.27	4.18											
4 x 1 1/2	114	102	6.02	8.56	17.12				4.78							13.50
	48		3.68	5.08	10.16				3.18							7.13
			1.60	2.27	4.18											
5 x 4	141	127	6.55	9.52	19.05								12.70			15.87
	114		6.02	8.56	17.12								11.13			13.50
			2.80	3.93	7.31									5.68			6.26
5 x 3	141	127	6.55	9.52	19.05											15.87
	89		5.49	7.62	15.24											11.13
			2.80	3.93	7.31											
5 x 2 1/2	141	127	6.55	9.52	19.05											15.87
	73		5.16	7.01	14.02											9.52
			2.80	3.93	7.31											
5 x 2	141	127	6.55	9.52	19.05											15.87
	60		3.91	5.54	11.07											8.74
			2.80	3.93	7.31											
6 x 5	168	140	7.11	10.97	21.95								14.27			18.26
	141		6.55	9.52	19.05								12.70			15.87
			3.90	5.95	11.08									7.58			9.40
6 x 4	168	140	7.11	10.97	21.95								14.27			18.26
	114		6.02	8.56	17.12								11.13			13.50
			3.90	5.95	11.08									7.58			9.40
6 x 3	168	140	7.11	10.97	21.95											18.26
	89		5.49	7.62	15.24											11.13
			3.90	5.95	11.08											
6 x 2 1/2	168	140	7.11	10.97	21.95											18.26
	73		5.16	7.01	14.02											9.52
			3.90	5.95	11.08											
6 x 2	168	140	7.11	10.97	21.95											18.26
	60		3.91	5.54	11.07											8.74
			3.90	5.95	11.08											
8 x 6	219	152	8.18	12.70	22.23								18.26			23.01
	168		7.11	10.97	21.95								14.27			18.26
			6.50	9.86	18.00									13.70			16.90
8 x 5	219	152	8.18	12.70	22.23								18.26			23.01
	141		6.55	9.52	19.05								12.70			15.87
			6.50	9.86	17.00									13.70			16.90

Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



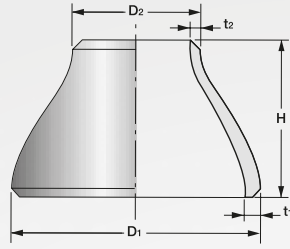
Konsantrik Redüksiyon
Concentric Reducer



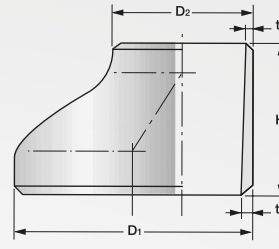
Eksantrik Redüksiyon
Eccentric Reducer

Nominal Boru Ölçüsü	Dış Çap	Yükseklik	STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	
Nominal Pipe Size (NPS)	Outside Diameter at bevel	Length														
Inches	D ₁ –mm D ₂ –mm	H –mm	t ₁ Et Kalınlığı / W.T. (mm)													
			t ₂ Et Kalınlığı / W.T. (mm)													
			w Redüksiyon Ağırlığı / Weight of Reducer (Kg)													
8 x 4	219	152	8.18	12.70	22.23											23.01
	114		6.02	8.56	17.12											13.50
			6.50	9.86	16.43											18.26	23.01
8 x 3	219	152	8.18	12.70	22.23											
	89		5.49	7.62	15.24											
			6.50	9.86	16.43											
10 x 8	273	178	9.27	12.70	25.40		6.35	7.80								
	219		8.18	12.70	22.23		6.35	7.03								
			10.70	14.50	29.00		7.50	9.00								
10 x 6	273	178	9.27	12.70	25.40											
	168		7.11	10.97	21.95											
			10.70	14.50	29.00											
10 x 5	273	178	9.27	12.70	25.40											
	141		6.55	9.52	19.05											
			10.70	14.50	28.00											
10 x 4	273	178	9.27	12.70	25.40											
	114		6.02	8.56	17.12											
			10.70	14.50	28.00											
12 x 10	324	203	9.52	12.70	25.40		6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32	
	273		9.27	12.70	25.40		6.35	7.80	9.27	12.70	15.09	18.26	21.44	25.40	28.57	
			15.00	19.80	42.00		10.16	13.20	16.30	22.20	26.80	32.40	38.00	42.30	48.60	
12 x 8	324	203	9.52	12.70	25.40		6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32	
	219		8.18	12.70	22.23		6.35	7.03	8.18	10.31	12.70	15.09	18.26	20.62	23.01	
			15.00	19.80	40.00		10.16	13.20	16.30	22.20	26.80	32.40	38.00	42.30	48.60	
12 x 6	324	203	9.52	12.70	25.40				10.31		17.48		25.40		33.32	
	168		7.11	10.97	21.95				7.11		10.97		14.27		18.26	
			15.00	19.80	39.00				16.30		26.80		38.00		48.60	
12 x 5	324	203	9.52	12.70	25.40				10.31		17.48		25.40		33.32	
	141		6.55	9.52	19.05				6.55		9.52		12.70		15.87	
			15.00	19.80	38.00				16.30		26.80		38.00		48.60	
14 x 12	356	330	9.52	12.70			7.92	9.52	11.13	15.09	19.05	23.83	27.79	31.75	35.71	
	324		9.52	12.70			6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32	
			26.90	35.50			22.60	26.80	31.10	42.00	52.20	64.00	73.00	78.00	86.00	
14 x 10	356	330	9.52	12.70			7.92	9.52	11.13	15.09	19.05	23.83	27.79	31.75	35.71	
	273		9.27	12.70			6.35	7.80	9.27	12.70	15.09	18.26	21.44	25.40	28.57	
			26.90	35.50			22.60	26.80	31.10	42.00	52.20	64.00	73.00	78.00	86.00	
14 x 8	356	330	9.52	12.70			7.92	9.52	11.13	15.09	19.05	23.83	27.79	31.75	35.71	
	219		8.18	12.70			6.35	7.03	8.18	10.31	12.70	15.09	18.26	20.62	23.01	
			26.90	35.50			22.60	26.80	31.10	42.00	52.20	64.00	73.00	78.00	86.00	

Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



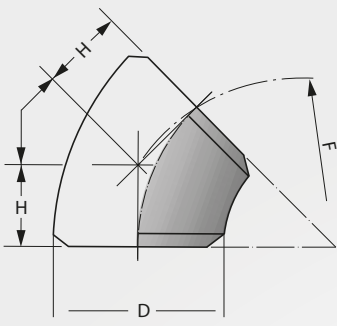
Konsantrik Redüksiyon
Concentric Reducer



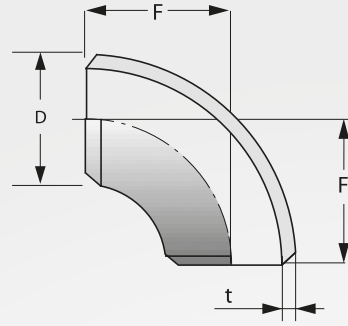
Eksantrik Redüksiyon
Eccentric Reducer

Nominal Boru Ölçüsü	Dış Çap	Yükseklik	STD	SCH X.S.	SCH X.X.S.	SCH 10	SCH 20	SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	
																Nominal Pipe Size (NPS)	Outside Diameter at bevel	Length
Inches	D ₁ –mm D ₂ –mm	H –mm	t ₁ Et Kalınlığı / W.T. (mm)													
			t ₂ Et Kalınlığı / W.T. (mm)													
w Redüksiyon Ağırlığı / Weight of Reducer (Kg)																
14 x 6	356	330	9.52	12.70					11.13			19.05		27.79		35.71
	168		7.11	10.97					7.11			10.97		14.27		18.26
			26.90	35.50					31.10			52.20		73.00		86.00
16 x 14	406	356	9.52	12.70		6.35	7.92	9.52	12.70	16.66	21.44	26.19	30.90	36.53	40.49	
	356		9.52	12.70		6.35	7.92	9.52	11.13	15.09	19.05	23.83	27.79	31.75	35.71	
			33.00	44.00		28.00	27.90	33.10	43.80	57.00	72.20	83.00	97.00	112.00	121.00	
16 x 12	406	356	9.52	12.70			7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49	
	324		9.52	12.70			6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32	
			33.00	44.00		27.90	33.10	43.80	57.00	72.20	83.00	97.00	112.00	121.00		
16 x 10	406	356	9.52	12.70			7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49	
	273		9.27	12.70			6.35	7.80	9.27	12.70	15.09	18.26	21.44	25.40	28.57	
			33.00	44.00		27.90	33.10	43.80	57.00	72.20	83.00	97.00	112.00	121.00		
16 x 8	406	356	9.52	12.70			7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49	
	219		8.18	12.70			6.35	7.03	8.18	10.31	12.70	15.09	18.26	20.62	23.01	
			33.00	44.00		27.90	33.10	43.80	57.00	72.20	83.00	97.00	112.00	121.00		
18 x 16	457	381	9.52	12.70		6.35	7.92	11.13	14.27	19.05	23.83	29.36	34.93	39.67	45.24	
	406		9.52	12.70		6.35	7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49	
			40.00	53.00		34.00	33.30	48.00	59.00	79.00	96.70	116.00	136.00	145.00	159.00	
18 x 14	457	381	9.52	12.70		6.35	7.92	11.13	14.27	19.05	23.83	29.36	34.93	39.67	45.24	
	356		9.52	12.70		6.35	7.92	9.52	11.13	15.09	19.05	23.83	27.79	31.75	35.71	
			40.00	53.00		34.00	33.30	48.00	59.00	79.00	96.70	116.00	136.00	145.00	159.00	
20 x 16	508	508	9.52	12.70		6.35	9.52	12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01	
	406		9.52	12.70		6.35	7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49	
			59.00	79.00		50.00	58.00	79.00	93.00	126.00	158.00	163.00	178.00	305.00	340.00	
20 x 14	508	508	9.52	12.70		6.35	9.52	12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01	
	356		9.52	12.70		6.35	7.92	9.52	11.13	15.09	19.05	23.83	27.79	31.75	35.71	
			59.00	79.00		50.00	58.00	79.00	93.00	126.00	158.00	163.00	178.00	305.00	340.00	
20 x 12	508	508	9.52	12.70			9.52	12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01	
	324		9.52	12.70			6.35	8.38	10.31	14.27	17.48	21.44	25.40	28.57	33.32	
			59.00	79.00		58.00	79.00	93.00	126.00	158.00	163.00	178.00	305.00	340.00		
20 x 10	508	508	9.52	12.70			9.52	12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01	
	273		9.27	12.70			6.35	7.80	9.27	12.70	15.09	18.26	21.44	25.40	28.57	
			59.00	79.00		58.00	79.00	93.00	126.00	158.00	163.00	178.00	305.00	340.00		
24 x 20	610	508	9.52	12.70		6.35	STD Ölçüsü Geçerli Refer to STD	14.27	17.48	24.61	30.96	38.89	46.02	52.37	59.54	
	508		9.52	12.70		6.35		12.70	15.09	20.62	26.18	32.54	38.10	44.45	50.01	
			72.00	95.00		63.00		107.00	129.00	180.00	228.00	241.00	295.00	540.00	610.00	
24 x 16	610	508	9.52	12.70		6.35	9.52	14.27	17.48	24.61	30.96	38.89	46.02	52.37	59.54	
	406		9.52	12.70		6.35	7.92	9.52	12.70	16.66	21.44	26.19	30.96	36.53	40.49	
			72.00	95.00		63.00	72.00	107.00	129.00	180.00	228.00	241.00	295.00	540.00	610.00	

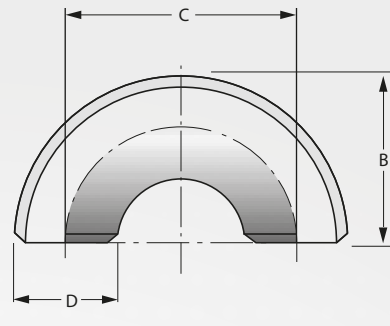
Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



45° Dirsek
45° Elbow



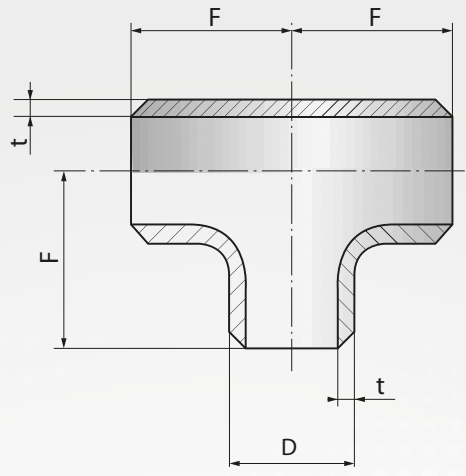
90° Dirsek
90° Elbow



180° Dirsek
Return Bend

DN	D	T	Merkezden Sona "H"		Merkezden Sona "F"			Merkezden Merkeze "C"			Sırttan Yüze "B"		
			3D	5D	2D	3D	5D	2D	3D	5D	2D	3D	5D
15	21,3	2,0	12	18		29	42,5		56	85		38	53
20	26,9	2,3	12	24	25	29	57,5	50	57	115	39	43	71
25	33,7	2,6	16	30	25	38	72,5	50	76	145	42	56	89
	38,0	2,6	19	34		45	82,5		90	165		64	101
32	42,4	2,6	20	38	32	48	92,5	64	95	185	53	70	114
	44,5	2,6	22	40		51	97,5		102	195		73	120
40	48,3	2,6	24	45	38	57	108	76	114	215	62	83	132
	54,0	2,6	28	51		68,5	123		137	245		95	149
	57,0	2,9	29	53		72	130		144	260		100	158
50	60,3	2,9	35	56	51	76	135	102	152	270	81	106	165
	70,0	2,9	38	66		92	160		184	320		127	195
65	76,1	2,9	44	73	63	95	175	127	191	350	102	132	213
80	88,9	3,2	47	86	76	114	205	152	229	410	121	159	250
	101,6	3,6	55	98		133	235		267	470		184	286
	108,0	3,6	58	105		143	253		285	506		196	306
100	114,3	3,6	63	112	102	152	270	203	305	540	159	210	327
	133,0	4,0	75	129		181	312		362	623		247	378
125	139,7	4,0	79	137	127	190	330	254	381	660	197	262	400
	159,0	4,5	90	155		216	375		432	750		295	454
150	168,3	4,5	95	162	152	229	390	305	457	780	237	313	474
	193,7	5,6	112			270			540			367	
200	219,1	6,3	127	211	203	305	510	406	610	1020	313	414	620
	244,5	6,3	141	240		340	580		680	1160		462	702
250	273,0	6,3	159	269	254	381	650	508	762	1300	391	518	786
300	323,9	7,1	190	321	305	457	775	610	914	1550	467	619	937
350	355,6	8,0	222	352	356	533	850	711	1067	1700	533	711	1026
400	406,4	8,8	254	402	406	610	970	813	1219	1940	610	813	1173

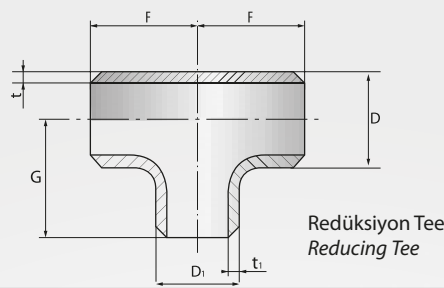
Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



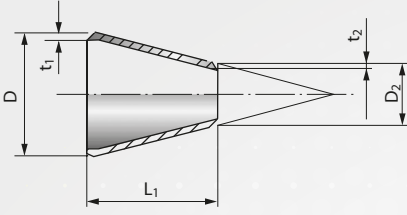
Eşit Tee
Equal Tee

DN	D	t	F
20	26,9	2,3	29
25	33,7	2,6	38
32	42,2	2,6	48
40	48,3	2,6	57
50	60,3	2,9	64
65	76,1	2,9	76
80	88,9	3,2	86
90	101,6	3,6	95
100	114,3	3,6	105
125	139,7	4,0	124
150	168,3	4,5	143
200	219,1	6,3	178
250	273,0	6,3	216
300	323,9	7,1	254
350	355,6	8,0	279
400	406,4	8,8	305

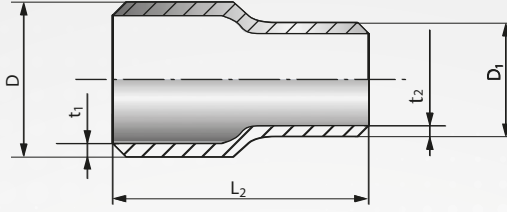
Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



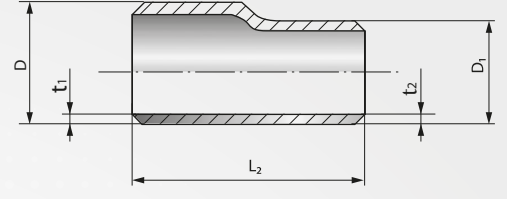
Side D			Side D ₁			F	G
DN	D	t	DN	D ₁	t ₁		
25	33,7	2,6	15	21,3	2	38	38
			20	26,9	2,3		38
			25	33,7	2,6		38
40	48,3	2,6	15	21,3	2	57	57
			20	26,9	2,3		57
			25	33,7	2,6		57
			32	42,4	2,6		57
50	60,3	2,9	20	26,9	2,3	64	44
			25	33,7	2,6		51
			32	42,4	2,6		57
			40	48,3	2,6		60
65	76,1	2,9	25	33,7	2,6	76	57
			32	42,4	2,6		64
			40	48,3	2,6		67
			50	60,3	2,9		70,0
80	88,9	3,2	25	33,7	2,6	86	67
			32	42,4	2,6		70
			40	48,4	2,6		73
			50	60,3	2,9		76
			65	76,1	2,9		83
100	114,3	3,6	40	48,3	2,6	105	86
			50	60,3	2,9		89
			65	76,1	2,9		95
			80	88,9	3,2		98
125	139,7	4,0	50	60,3	2,9	124	105
			65	76,1	2,9		108
			80	88,9	3,2		111
			100	114,3	3,6		117
150	168,3	4,5	50	60,3	2,9	143	117
			65	76,1	2,9		121
			80	88,9	3,2		124
			100	114,3	3,6		130
			125	139,7	4,0		137
200	219,1	6,3	80	88,9	3,2	178	152
			100	114,3	3,6		156
			125	139,7	4,0		162
			150	168,3	4,5		168
250	273	6,3	100	114,3	3,6	216	184
			125	139,7	4,0		191
			150	168,3	4,5		194
			200	219,1	6,3		203
300	323,9	7,1	150	168,3	4,5	254	219
			200	219,1	6,3		229
			250	273,1	6,3		241
350	355,6	8	150	168,3	4,5	279	238
			200	219,1	6,3		248
			250	273,1	6,3		257
			300	323,9	7,1		270
400	406,4	8,8	150	168,3	4,5	305	264
			200	219,1	6,3		273
			250	273,1	6,3		283
			300	323,9	7,1		295
			350	355,6	8,0		305



Konsantrik Redüksiyon Form-1
Concentric Reducer Form-1



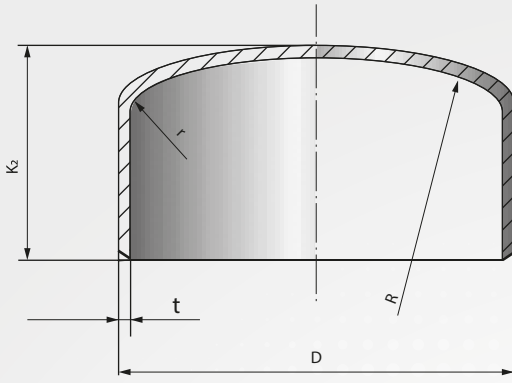
Konsantrik Redüksiyon Form-2
Concentric Reducer Form-2



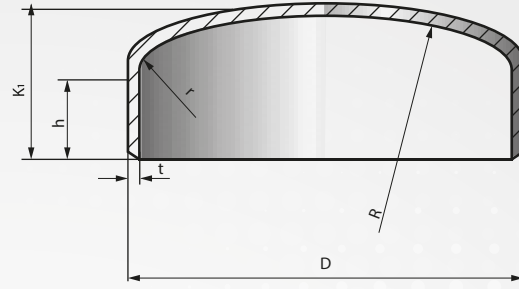
Eksantrik Redüksiyon
Eccentric Reducer

Side D			Side D ₁			Lenght	
DN	D	t ₁	DN	D ₁	t ₂	L ₁	L ₂
20	26,9	2,3	15	21,3	2,0		38
25	33,7	2,6	15	21,3	2,0	35	51
			20	26,9	2,3		51
32	42,4	2,6	15	21,3	2,0	51	51
			20	26,9	2,3	39	51
			25	33,7	2,6		51
40	48,3	2,6	20	26,9	2,3	67	64
			25	33,7	2,6	55	64
			32	42,4	2,6	38	64
50	60,3	2,9	25	33,7	2,6	77	76
			32	42,4	2,6	61	76
			40	48,3	2,6	50	76
65	76,1	2,9	32	42,4	2,6	95	89
			40	48,3	2,6	84	89
			50	60,3	2,9	63	89
80	88,9	3,2	40	48,3	2,6	108	89
			50	60,3	2,9	86	89
			65	76,1	2,9	56	89
100	114,3	3,6	50	60,3	2,9	143	102
			65	76,1	2,9	114	102
			80	88,9	3,2	90	102
125	139,7	4,0	65	76,1	2,9	159	127
			80	88,9	3,2	135	127
			100	114,3	3,6	88	127
150	168,3	4,5	80	88,9	3,2	189	140
			100	114,3	3,6	141	140
			125	139,7	4,0	94	140
200	219,1	6,3	100	114,3	3,6	210	152
			125	139,7	4,0	170	152
			150	168,3	4,5	130	152
250	273,0	6,3	125	139,7	4,0	250	178
			150	168,3	4,5	220	178
			200	219,1	6,3	130	178
300	323,9	7,1	150	168,3	4,5	290	203
			200	219,1	6,3	215	203
			250	273,0	6,3	130	203
350	355,6	8,0	150	168,3	4,5	335	
			200	219,1	6,3	255	330
			250	273,1	6,3	125	330
			300	323,9	7,1	100	330
400	406,4	8,8	200	219,1	6,3	330	
			250	273,1	6,3	250	356
			300	323,9	7,1	175	356
			350	355,6	8,0	130	356

Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



Bombeli Kep
Dished End Cap



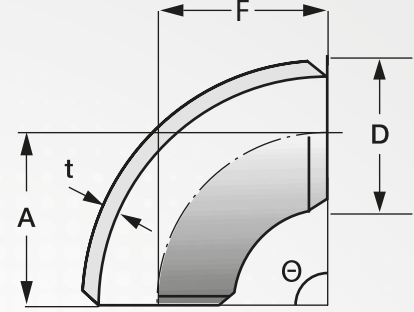
Kep Cap

DN	D	t	h	K ₁	K ₂
20	26,9	2,3			25
25	33,7	2,6	4	11	25
	38,0	2,6	4	11	
32	42,4	2,6	4	11	25
	44,5	2,6	4	11	
40	48,3	2,6	4	11,5	38
	54,0	2,6	4	12,5	
	57,0	2,9	4	13	
50	60,3	2,9	6	16,5	38
	70,0	2,9	6	17,5	
65	76,1	2,9	6	18,5	38
80	88,9	3,2	8	23	51
90	101,6	3,6	8	24,5	64
	108,0	3,6	8	25,5	
100	114,3	3,6	8	26	64
	133,0	4,0	10	32	
125	139,7	4,5	12	35,5	76
	159,0	4,5	15	43	
150	168,3	4,5	15	44,5	89
	193,7	5,6	20	56	
200	219,1	6,3	30	68,5	102
	244,5	6,3	30	68,5	
250	273,0	6,3	40	90	127
300	323,9	7,1	40	99	152
350	355,6	8,0	40	106	165
400	406,4	8,8	50	125	178

Ölçüler mm olarak verilmiştir. *Dimensions in mm.*

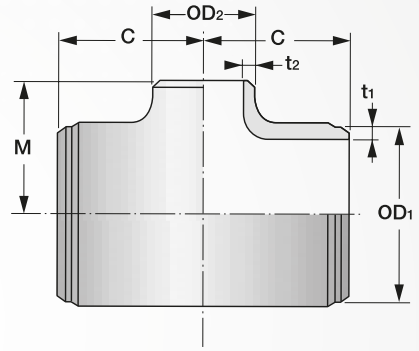
1. Dirsek / Elbow

- $W = 15.4864 \times \Theta / 360 \times F \times T \times (D-T) \times 10^{-5}$
 $W = \text{Ağırlık / Weight (kg)}$
 $F = \text{Merkezden sona / Center to End}$
 $D = \text{Dış çap / Outside Diameter (mm)}$
 $t = \text{Et kalınlığı / Wall Thickness (mm)}$
 $\Theta = \text{Açı / Angle}$



2. Tee

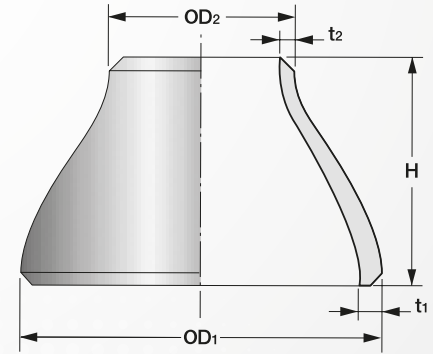
- $W = [0.02466 \{ 2Ct_1(OD+t_1) + t_2(OD_2-t_2) \times (M-OD_1/2) \}] \times 10^{-3} \times K$
 $W = \text{Ağırlık / Weight (kg)}$
 $C = \text{Merkezden sona / End to End (mm)}$
 $OD_1 = \text{Dış çap / Outside Diameter (mm)}$
 $t_1 = \text{Et kalınlığı / Wall Thickness (mm)}$
 $OD_2 = \text{Dış çap / Outside Diameter (mm)}$
 $t_2 = \text{Et kalınlığı / Wall Thickness (mm)}$
 $M = \text{Merkezden sona / Center to End (mm)}$
 $K = 1 \text{ (SAC / PLATE)}$
 $K = 1.363 \text{ (BORU / PIPE)}$



3. Redüksiyon / Reducer

- $W = 1.232t_1(OD_1+OD_2 - 2t_1) \times 10^{-5}$
 $l = \frac{\sqrt{H^2 + (OD_1 - OD_2)^2}}{2}$

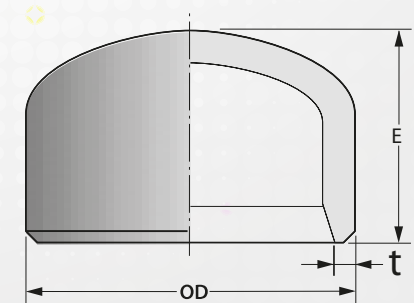
- $W = \text{Ağırlık / Weight (kg)}$
 $H = \text{Merkezden sona / End to End (mm)}$
 $OD_1 = \text{Büyük ölçü çapı / Large Size Outside Diameter (mm)}$
 $OD_2 = \text{Küçük ölçü çapı / Small Size (mm)}$
 $T_1 = \text{Et kalınlığı / Wall Thickness (mm)}$



3. Kep / Cap

- $W = \frac{7.85 \times \pi}{4} (OD + E)^2 \times T \times 10^{-6}$

- $W = \text{Ağırlık / Weight (kg)}$
 $OD = \text{Dış çap / Outside Diameter (mm)}$
 $t = \text{Et kalınlığı / Wall Thickness (mm)}$
 $E = \text{Baştan sona / End to End (mm)}$



Malzemelerin Korozyon Direnci Corrosion Resistance of Materials

Akışkan / Fluid	Karbon Çeliği/ Carbon Steel	Pik / Cast Iron	302 and 304 Paslanmaz Çelik / Stainless Steel	316 Paslanmaz Çelik / Stainless Steel	416 Paslanmaz Çelik / Stainless Steel
Asetaldehit / Acetaldehyde	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Asetik Asit (Havasız) / Acetic Acid, Air Free	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable
Asetik Asit (Gaz) / Acetic Acid, Aerated	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Asetik Asit (Buhar) / Acetic Acid, Vapors	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Aseton / Acetone	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Asetilen / Acetylene	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Alkol / Alcohols	İyi / Good	İyi / Good	Veri Yok / No Data	İyi / Good	İyi / Good
Alüminyum Sülfat / Aluminum Sulfate	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Amonyak / Ammonia	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Amonyum Klorür / Ammonium Chloride	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable
Amonyum Nitrat / Ammonium Nitrate	İyi / Good	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Amonyum Fosfat / Ammonium Phosphate	Veri Yok / No Data	Kötü / Not Useable	İyi / Good	İyi / Good	Orta / Be Careful
Amonyum Sülfat / Ammonium Sulfate	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	İyi / Good	Kötü / Not Useable
Amonyum Sülfid / Ammonium Sulfide	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Orta / Be Careful
Anilin / Aniline	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Asfalt / Asphalt	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Bira / Beer	Orta / Be Careful	Orta / Be Careful	İyi / Good	İyi / Good	Orta / Be Careful
Benzen / Benzene (Benzol)	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Benzoik Asit / Benzoic Acid	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	İyi / Good
Borik Asit / Boric Acid	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Orta / Be Careful
Bütan / Butane	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Kalsiyum Klorür / Calcium Chloride (Alkaline)	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable	Orta / Be Careful	Kötü / Not Useable
Kalsiyum Hipoklorit/ Calcium Hypochlorite	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable
Asit Fenik / Carboic Acid	Orta / Be Careful	Orta / Be Careful	İyi / Good	İyi / Good	Veri Yok / No Data
Karbon Dioksit (Kuru) / Carbon Dioxide, Dry	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Karbon Dioksit (Islak) / Carbon Dioxide, Wet	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	İyi / Good
Karbon Disülfür / Carbon Disulfide	İyi / Good	İyi / Good	İyi / Good	İyi / Good	Orta / Be Careful
Karbon Tetraklorür / Carbon Tetrachloride	Orta / Be Careful	Orta / Be Careful	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable
Karbonik Asit / Carbonic Acid	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Orta / Be Careful	İyi / Good
Klor Gazı / Chlorine Gas	İyi / Good	İyi / Good	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable
Klor Gazı (Islak) / Chlorine Gas, Wet	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable
Klor (Sıvı) / Chlorine, Liquid	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable

Akışkan / Fluid	Karbon Çeliği/ Carbon Steel	Pik / Cast Iron	302 and 304 Paslanmaz Çelik / Stainless Steel	316 Paslanmaz Çelik / Stainless Steel	416 Paslanmaz Çelik / Stainless Steel
Kromik Asit / Chromic Acid	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Kötü / Not Useable
Sitrik Asit / Citric Acid	Veri Yok / No Data	Kötü / Not Useable	Orta / Be Careful	İyi / Good	Orta / Be Careful
Kok Fırın Gazı / Coke Oven Gas	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Bakır Sülfat / Copper Sulfate	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Orta / Be Careful	İyi / Good
Pamuk Yağı / Cottonseed Oil	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Kreozot / Creosote	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Etan / Ethane	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Eter / Ether	Orta / Be Careful	Orta / Be Careful	İyi / Good	İyi / Good	İyi / Good
Ethyl chloride	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Orta / Be Careful
Etilen / Ethylene	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Etilen Glikol / Ethylene Glycol	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Ferrik Klorür / Ferric Chloride	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable
Formaldehit / Formaldehyde	Orta / Be Careful	Orta / Be Careful	İyi / Good	İyi / Good	İyi / Good
Formik Asit / Formic Acid	Veri Yok / No Data	Kötü / Not Useable	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable
Freon (Islak) / Freon Wet	Orta / Be Careful	Orta / Be Careful	Orta / Be Careful	İyi / Good	Veri Yok / No Data
Freon (Kuru) / Freon Dry	Orta / Be Careful	Orta / Be Careful	İyi / Good	İyi / Good	Veri Yok / No Data
Furfural / Furfural	İyi / Good	İyi / Good	İyi / Good	İyi / Good	Orta / Be Careful
Benzin / Gasoline	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Glikoz / Glucose	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Hidroklorik Asit (Gaz), Hydrochloric Acid, Aerated	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable
Hidroklorik Asit (Havasız) Hydrochloric Acid, Air Free	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable
Hidroflorik Asit (Gaz) / Hydrofluoric Acid, Aerated	Orta / Be Careful	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Kötü / Not Useable
Hidroflorik Asit (Havasız) / Hydrofluoric Acid, Air Free	İyi / Good	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Kötü / Not Useable
Hidrojen / Hydrogen	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Hidrojen Peroksit / Hydrogen Peroxide	Veri Yok / No Data	İyi / Good	İyi / Good	İyi / Good	Orta / Be Careful
Hirojen Sülfür (Sıvı) / Hydrogen Sulfide, Liquid	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Magnezyum Hidroksit / Magnesium Hydroxide	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Cıva / Mercury	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Metanol / Methanol	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Metil Etil Keton / Methyl Ethyl Ketone	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Süt / Milk	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Doğal Gaz / Natural Gas	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good

Akışkan / Fluid	Karbon Çeliği/ Carbon Steel	Pik / Cast Iron	302 and 304 Paslanmaz Çelik / Stainless Steel	316 Paslanmaz Çelik / Stainless Steel	416 Paslanmaz Çelik / Stainless Steel
Nitrik Asit / Nitric Acid	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	Orta / Be Careful	Kötü / Not Useable
Oleik Asit / Oleic Acid	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	İyi / Good
Oksalik Asit / Oxalic Acid	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Orta / Be Careful	Orta / Be Careful
Oksijen / Oxygen	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Petrol Yağları / Petroleum Oils	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Fosforik Asit (Gaz) / Phosphoric Acid, Aerated	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Fosforik Asit () / Phosphoric Acid, Air Free	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Fosforik Asit (Buhar) / Phosphoric Acid Vapors	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable
Pikrik Asit / Picric Acid	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Orta / Be Careful
Potasyum Klorür / Potassium Chloride	Orta / Be Careful	Orta / Be Careful	İyi / Good	İyi / Good	Kötü / Not Useable
Potasyum Hidroksit / Potassium Hydroxide	Orta / Be Careful	Orta / Be Careful	İyi / Good	İyi / Good	Orta / Be Careful
Propan / Propane	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Reçine / Rosin	Orta / Be Careful	Orta / Be Careful	İyi / Good	İyi / Good	İyi / Good
Gümüş Nitrat / Silver Nitrate	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Orta / Be Careful
Sodyum Asetat / Sodium Acetate	İyi / Good	İyi / Good	Orta / Be Careful	İyi / Good	İyi / Good
Sodyum Karbonat / Sodium Carbonate	İyi / Good	İyi / Good	İyi / Good	İyi / Good	Orta / Be Careful
Sodyum Klorür / Sodium Chloride	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Orta / Be Careful	Orta / Be Careful
Sodyum Kromat / Sodium Chromate	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Sodyum Hidroksit / Sodium Hydroxide	İyi / Good	İyi / Good	İyi / Good	İyi / Good	Orta / Be Careful
Sodyum Hipoklorit / Sodium Hypochloride	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable
Sodyum Tiyosülfat / Sodium Thiosulfate	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Orta / Be Careful
Kalay Klorür / Stannous Chloride	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable	İyi / Good	Kötü / Not Useable
Stearik Asit / Stearic Acid	İyi / Good	Kötü / Not Useable	İyi / Good	İyi / Good	Orta / Be Careful
Sülfat Likör / Sulfate Liquor	İyi / Good	İyi / Good	İyi / Good	İyi / Good	Veri Yok / No Data
Kükürt / Sulfur	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Kükürt Dioksit (Kuru) / Sulfur Dioxide, Dry	İyi / Good	İyi / Good	İyi / Good	İyi / Good	Orta / Be Careful
Kükürt Trioksit (Kuru) / Sulfur Trioxide, Dry	İyi / Good	İyi / Good	İyi / Good	İyi / Good	Orta / Be Careful
Sülfürik Asit (Gaz) / Sulfuric Acid, Aerated	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable
Sülfürik Asit(Havasız) / Sulfuric Acid, Air Free	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable
Sülfürik Asit / Sulfurous Acid	Kötü / Not Useable	Kötü / Not Useable	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable

Akışkan / Fluid	Karbon Çeliği/ Carbon Steel	Pik / Cast Iron	302 and 304 Paslanmaz Çelik / Stainless Steel	316 Paslanmaz Çelik / Stainless Steel	416 Paslanmaz Çelik / Stainless Steel
Katran / Tar	İyi / Good	İyi / Good	İyi / Good	İyi / Good	İyi / Good
Trikloretilen / Trichloroethylene	Orta / Be Careful	Orta / Be Careful	Orta / Be Careful	İyi / Good	Orta / Be Careful
Terebentin / Turpentine	Orta / Be Careful	Orta / Be Careful	İyi / Good	İyi / Good	İyi / Good
Sirke / Vinegar	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Buhar Kazanı Sistemi / Water, Steam Boiler Feeding System	Orta / Be Careful	Kötü / Not Useable	İyi / Good	İyi / Good	Orta / Be Careful
Damıtılmış Su / Water, Distilled	İyi / Good	İyi / Good	İyi / Good	İyi / Good	Orta / Be Careful
Deniz Suyu / Water, Sea	Orta / Be Careful	Orta / Be Careful	Orta / Be Careful	Orta / Be Careful	Kötü / Not Useable
Viski / Whiskey	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Şarap / Wine	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Kötü / Not Useable
Çinko Klorür / Zinc Chloride	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable	Kötü / Not Useable
Çinko Sülfat / Zinc Sulfate	Kötü / Not Useable	Kötü / Not Useable	İyi / Good	İyi / Good	Orta / Be Careful

NOT: Korozyon karmaşık bir konudur. Korozyon direncini; malzeme ve sıvıların kombinasyonu, akışkanın sıcaklığı, çevre ve yapılardaki galvanik korozyon gibi etkileyen faktörler vardır. Bu sebeple yukarıdaki tablo kullanılırken bunlara dikkat edilmesi gerekmektedir.

Note: Remember that corrosion is a complicated issue, depending on the combination of materials and the fluid temperatures, the surrounding environment and the galvanic currents in the constructions. The table above must be used with care. Always check with the producer of the material.

BASINÇ - SICAKLIK TABLOSU / PRESSURE - TEMPERATURE RATINGS											
DİKİŞSİZ ÇELİK BORULAR. GRADE B, ASTM A106, API 5L & ASTM A53 / SEAMLESS CARBON STEEL PIPE. GRADE B, ASTM A106, API 5L & ASTM A53											
Nominal Size	Sıcaklık Temp. °C ▶			-29 to 38	205	260	350	370	400	430	450
	Gerilme Stress (SE) in kPa ▶			137800	137800	130221	117130	115752	89570	74412	59943
DN	Et Kalınlığı Wall Thickness			Kabul Edilebilir Maksimum Basınç - Sıcaklık Tablosu kPa Cinsinden, Kimyasal Tesisler ve Petrol Rafineleri Baz Alınarak Yapılmıştır Maximum Allowable Pressure - Temperature Ratings in kPa for Chemical Plant and Petroleum Refinery Pipings Systems To ANSI/ASME B31.3A							
		Sch	mm								
15	STD	40	2.77	34416	34416	32528	29255	28910	22372	18589	14972
	XS	80	3.73	48092	48092	45446	40878	40396	31260	25969	20918
		160	4.78	62830	62830	59378	53404	52777	40837	33926	27333
	XXS		7.47	98245	98245	92836	83507	82522	63857	53053	42739
20	STD	40	2.87	28070	28070	26526	23860	23578	18245	15158	12209
	XS	80	3.91	39418	39418	37247	33506	33106	25617	21283	17142
		160	5.56	58152	58152	54955	49429	48843	37799	31398	25293
	XXS		7.82	83107	83107	78539	70643	69809	54024	44881	36152
25	STD	40	3.38	26251	26251	24804	22310	22048	17060	14173	11417
	XS	80	4.55	36283	36283	34285	30862	30474	23584	19595	15785
		160	6.35	52481	52481	49594	44606	44082	34112	28339	22827
	XXS		9.09	77030	77030	72793	65476	64704	50070	41595	33506
32	STD	40	3.56	21614	21614	20421	18369	18155	14049	11672	9404
	XS	80	4.85	30178	30178	28518	25651	25348	19616	16295	13125
		160	6.35	40596	40596	38364	34505	34099	26389	21924	17659
	XXS		9.7	64601	64601	61045	54906	54266	41988	34884	28097
40	STD	40	3.68	19444	19444	18375	16529	16329	12636	10500	8454
	XS	80	5.08	27402	27402	25900	23295	23019	17811	14800	11919
		160	7.14	39783	39783	37599	33816	33416	25858	21483	17308
	XXS		10.16	58779	58779	55547	49966	49374	38205	31742	25569
50	STD	40	3.91	16378	16378	15468	13925	13759	10645	8847	7124
	XS	80	5.54	23653	23653	22351	20105	19871	15378	12774	10287
		160	8.74	38866	38866	36731	33037	32652	25266	20987	16908
	XXS		11.07	50793	50793	48003	43173	42670	33017	27429	22096
65	STD	40	5.16	17914	17914	16929	15227	15048	11644	9674	7793
	XS	80	7.01	24818	24818	23447	21097	20849	16129	13401	10797
		160	9.53	34615	34615	32714	29420	29076	22503	18693	15055
	XXS		14.02	53081	53081	50159	45116	44585	34498	28662	23088
80	STD	40	5.49	15558	15558	14696	13222	13063	10108	8399	6766
	XS	80	7.62	21986	21986	20780	18693	18472	14290	11871	9563
		160	11.13	33079	33079	31253	28111	27780	21497	17859	14386
	XXS		15.24	46976	46976	44392	39928	39459	30536	25369	20436
100	STD	40	6.02	13187	13187	12464	11210	11079	8571	7124	5739
	XS	80	8.56	19058	19058	18010	16198	16012	12388	12094	8289
		120	11.13	25190	25190	23805	21407	21159	16371	13601	10955
	XXS		17.12	40348	40348	38129	34298	33892	26230	21786	17549
125	STD	40	6.55	11561	11561	10921	9825	9708	7517	6243	5038
	XS	80	9.53	17060	17060	16122	14503	14331	11093	9212	7421
		120	12.70	23130	23130	21855	19657	19430	15034	12492	10059
	XXS		19.05	35897	35897	33926	30516	30158	23337	19388	15620
150	STD	40	7.11	10500	10500	9928	8924	8819	6828	5670	4568
	XS	80	10.97	16474	16474	15571	14007	13842	10707	8895	7165
		120	14.27	21745	21745	20553	18486	18265	14138	11747	9460
	XXS		21.95	34608	34608	32707	29420	29069	22496	18686	15054
200	STD	20	6.35	7138	7138	6745	6063	5994	4637	3852	3100
		30	7.04	7924	7924	7489	6732	6656	5147	4279	3445
		40	8.18	9246	9246	8737	7855	7765	6008	4995	4024
	XS	60	10.31	11741	11741	11093	9977	9860	7627	6339	5105
		80	12.70	14572	14572	13766	12388	12237	9474	7868	6338
		100	15.09	17452	17452	16488	14834	14655	11341	9426	7593
	XXS	120	18.26	21345	21345	20174	18148	17935	13876	11527	9288
		140	20.62	24308	24308	22971	20656	20415	15799	13125	10569
XXS	160	22.23	26334	26334	24887	22386	22124	17115	14221	11458	
	160	23.01	27340	27340	25838	23240	22964	17769	14765	11892	

BASINÇ - SICAKLIK TABLOSU / PRESSURE - TEMPERATURE RATINGS												
DİKİŞSİZ ÇELİK BORULAR. GRADE B, ASTM A106, API 5L & ASTM A53 / SEAMLESS CARBON STEEL PIPE. GRADE B, ASTM A106, API 5L & ASTM A53												
Nominal Size	Sıcaklık	Temp. °C	-29 to 38		205	260	350	370	400	430	450	
	Gerilme	Stress (SE) in kPa	137800		137800	130221	117130	115752	89570	74412	59943	
DN	Et Kalınlığı		Wall Thickness		Kabul Edilebilir Maksimum Basınç - Sıcaklık Tablosu kPa Cinsinden, Kimyasal Tesisler ve Petrol Rafineleri Baz Alınarak Yapılmıştır Maximum Allowable Pressure - Temperature Ratings in kPa for Chemical Plant and Petroleum Refinery Pipings Systems To ANSI/ASME B31.3A							
		Sch	mm									
250	STD	20	6.35	5698	5698	5388	4844	4789	3707	3080	2480	
		30	7.80	7028	7028	6642	5974	5905	4568	3796	3059	
		40	9.27	8385	8385	7923	7131	7048	5450	4527	3652	
	XS	60	12.70	11596	11596	10955	9853	9736	7538	6263	5043	
		80	15.09	13863	13863	13098	11781	11644	9012	7483	6028	
		100	18.26	16922	16922	15992	14386	14214	10996	9136	7359	
	XXS	120	21.44	20036	20036	18934	17032	16825	13022	10817	8716	
		140	25.40	23998	23998	16474	20394	20153	15599	12960	10438	
		160	28.58	27229	27229	25734	23143	22875	17700	14703	11844	
	300	STD	20	6.35	4795	4795	4534	4072	4024	3114	2591	2088
			30	8.38	6359	6359	6008	5402	5540	4134	3431	2763
			40	9.53	7241	7241	6842	6153	6084	4706	3914	3149
XS		60	10.31	7854	7854	7421	6676	6601	5105	4244	3417	
		80	12.70	9722	9722	9191	8268	8165	6318	5250	4230	
		100	14.27	10969	10969	10363	9322	9212	7131	5925	4768	
XXS		120	17.48	13525	13525	12850	11492	11362	8792	7303	5884	
		140	21.44	16736	16736	15819	14227	14062	10879	9040	7283	
		160	25.40	20015	20015	18913	17011	16811	13008	10804	8702	
350		STD	10	6.35	4361	4361	4120	3707	3665	2831	2356	1895
			20	7.92	5457	5457	5161	4644	4589	3548	2949	2377
			30	9.53	6580	6580	6222	5595	5533	4279	3555	2866
	XS	40	11.13	7717	7717	7310	6559	6477	5016	4168	3355	
		60	12.70	8833	8833	8351	7510	7421	5739	4768	3845	
		80	15.09	10541	10541	9963	8964	8861	6855	5691	4589	
	XXS	100	19.05	13421	13421	12684	11410	11272	8723	7248	5836	
		120	23.83	16949	16949	16019	14407	14242	11017	9157	7372	
		140	27.79	19933	19933	18837	16943	16743	12960	10762	8675	
	400	STD	10	6.35	3810	3810	3603	3238	3197	2474	2060	1660
			20	7.92	4768	4768	4507	4051	4004	3100	2577	2074
			30	9.53	5746	5746	5429	4885	4830	3734	3100	2501
XS		40	12.70	7703	7703	7283	6545	6470	5009	4162	3349	
		60	16.66	10176	10176	9618	8654	8550	6614	5498	4430	
		80	21.44	13208	13208	12478	11224	11093	8585	7131	5746	
XXS		100	26.19	16274	16274	15378	13835	13670	10576	8785	7076	
		120	30.96	19409	19409	18341	16481	16302	12616	10480	8440	
		140	36.53	23130	23130	21855	19657	19430	15034	12492	10059	
450		STD	10	6.35	3383	3383	3197	2873	2839	2198	1826	1474
			20	7.92	4230	4230	3996	3597	3555	2749	2287	1839
			30	9.53	5099	5099	4816	4334	4286	3314	2756	2219
	XS	40	11.13	5967	5967	5643	5071	5016	3879	3225	2598	
		60	12.70	6835	6835	6456	5808	5739	4437	3686	2969	
		80	14.27	7696	7696	7276	6545	6463	5002	4155	3349	
	XXS	100	19.05	10349	10349	9784	8799	8695	6725	5588	4499	
		120	23.83	13043	13043	12326	11086	10955	8475	7042	5670	
		140	29.36	16219	16219	15323	13787	13622	10542	8757	7055	
	XXS	160	34.93	19464	19464	18389	16543	16350	12650	10507	8468	
		180	39.67	22282	22282	21056	18941	18713	14483	12030	9694	
		200	45.24	25638	25638	24225	21793	21531	16660	13842	11155	

100 kPa= 1 Bar

BASINÇ - SICAKLIK TABLOSU / PRESSURE - TEMPERATURE RATINGS												
Dikişsiz Çelik Borular Grade B, ASTM A106, API 5L & ASTM A53 / Zeamless Carbon Steel Pipe Grade B, ASTM A106, API 5L & ASTM A53												
Nominal Size	Sıcaklık Temp. °C ▶			-29 to 38	205	260	350	370	400	430	450	
	Gerilme Stress (SE) (kPa) ▶			137800	137800	130221	117130	115752	89570	74412	59943	
DN	Et Kalınlığı Wall Thickness			Kabul Edilebilir Maksimum Basınç - Sıcaklık Tablosu kPa Cinsinden, Kimyasal Tesisler ve Petrol Rafineleri Baz Alınarak Yapılmıştır Maximum Allowable Pressure - Temperature Ratings in kPa for Chemical Plant and Petroleum Refinery Piping Systems To ANSI/ASME B31.3A								
		Sch	mm									
500	STD XS	10	6.35	3038	3038	2873	2584	2556	1977	1640	1323	
		20	9.53	4582	4582	4327	3893	3852	2976	2474	1991	
		30	12.70	6139	6139	5801	5216	5154	3989	3314	2666	
		40	15.09	7317	7317	6911	6215	6146	4754	3948	3183	
		60	20.62	10080	10080	9522	8564	8468	6552	5443	4382	
		80	26.19	12898	12898	12188	10962	10831	8385	6966	5608	
		100	32.54	16171	16171	15287	13746	13580	10514	8730	7035	
		120	38.10	19085	19085	18038	16226	16033	12409	10307	8302	
		140	44.45	22475	22475	21242	19106	18879	14614	12140	9777	
		160	50.01	25450	25450	24094	21675	21421	16577	13766	11093	
	600	STD XS	10	6.35	2529	2529	2391	2150	2129	1647	1364	1102
			20	9.53	3810	3810	3603	3238	3197	2474	2060	1660
30			12.70	5097	5097	4816	4334	4286	3314	2756	2219	
		40	14.27	5739	5739	5423	4878	4823	3734	3100	2494	
		60	17.48	7055	7055	6670	5994	5925	4589	3810	3066	
		80	24.61	10018	10018	9467	8516	8420	6511	5409	4361	
		100	30.96	12691	12691	12002	10783	10659	8254	6856	5519	
		120	38.89	16102	16102	15220	13690	13525	10466	8695	7007	
		140	46.02	19223	19223	18168	16336	16150	12491	10383	8364	
		160	52.37	22048	22048	20835	18741	18520	14331	11906	9591	
			160	59.54	25279	25279	23888	21489	21235	16433	13649	10996

100 kPa= 1 Bar

NOT: Karbon çelikleri uzun süre 425°C sıcaklığa mağruz kalması durumunda karbür fazı grafitte dönüşebilmektedir. 425°C kabul edilebilir fakat üzerinde uzun süre kullanım için tavsiye edilmez.

Note: Upon prolonged exposure to temperatures above 425°C, the carbide phase of steel may be converted to graphite. Permissible, but not recommended for prolonged use above 425°C

$$p \text{ (psig)} = \frac{2 \times t \text{ (in)} \times S \text{ (psi)} \times E}{D \text{ (in)} - 2 \times t \text{ (in)} \times Y}$$

p : Basınç / Pressure

D: Dış Çap / Outside Diameter

S: İzin Verilen Çekme Kuvveti / Allowable Tensile Stress

t: Et kalınlığı / Thickness

E: Malzeme Kalite Faktörü / Material Construction Quality

Y: Et Kalınlığı Katsayısı / Wall Thickness Coefficient

Formül $t < D/6$ olması durumunda geçerlidir.

Y için Katsayı Değerleri / Values of Coefficient Y

Malzeme Material	Sıcaklık / Metal Temperature °C(°F)					
	≤482 (≤900)	510 (950)	538 (1000)	566 (1050)	593 (1100)	≥621 (≥1150)
Ferritik Çelik Ferritic Steels	0.4	0.5	0.7	0.7	0.7	0.7
Östenit Çelik Austenitic Steels	0.4	0.4	0.4	0.4	0.5	0.7
Sünek Metaller Ductile Metals	0.4	0.4	0.4	0.4	0.4	0.4
Dökme Demir Cast Iron	0.0	...	...	...	...	...

Karbon Çelikleri için Ferritik Çelik referans alınır. Ferritic Steels is reference for Carbon Steel

(E) için malzeme kalite faktörü. *Material Construction Quality for (E).*

Malzeme / Spec No	E
Karbon Çeliği / Carbon Steel	
API 5L	1.00
A53	1.00
A105	1.00
A106	1.00
A181	1.00
A234	1.00
A333	1.00
A350	1.00
A420	1.00
Düşük ve Orta Alaşımli Çelik / Low and Intermediate Alloy Steel	
A182	1.00
A234	1.00
A333	1.00
A350	1.00
Paslanmaz Çelik / Stainless Steel	
A182	1.00

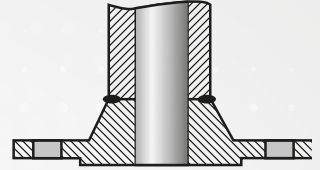
Malzeme Material	Spec	Grade	Sıcaklık / Metal Temperature °F(°C) İzin Verilen Çekme Kuvveti/ Allowable Stress (S) ksi															
			≤100 (≤37)	200 (93)	300 (148)	400 (204)	500 (260)	600 (315)	650 (343)	700 (371)	750 (398)	800 (426)	850 (454)	900 (482)	950 (482)	1000 (510)	1050 (537)	1100 (593)
A285 Gr.A	A134	...	15.0	14.6	14.2	13.7	13.0	11.8	11.6	11.5	10.3	9.0	7.8	6.5	...	...	...	...
A285 Gr.A	A672	A45	15.0	14.6	14.2	13.7	13.0	11.8	11.6	11.5	10.3	9.0	7.8	6.5	4.5	2.5	1.6	1.0
Butt Weld	API 5L	A25	15.0	15.0	14.5	13.8	...	...	...	...	...	...	...	...	...	...	...	...
Smls & ERW	API 5L	A25	15.0	15.0	14.5	13.8	...	...	...	...	...	...	...	...	...	...	...	...
	A285	A	15.0	14.6	14.2	13.7	13.0	11.8	11.6	11.5	10.2	9.0	7.7	6.5	4.5	2.5	1.6	1.0
	A285	B	16.7	16.4	16.0	15.4	14.6	13.3	13.1	13.0	11.1	9.6	8.0	6.5	4.5	2.5	1.6	1.0
	A516	55	18.3	18.3	17.7	17.2	16.2	14.8	14.5	14.4	12.0	10.2	8.3	...	...	...	...	...
	A285	C	18.3	18.3	17.7	17.2	16.2	14.8	14.5	14.4	12.0	10.2	8.3	6.5	4.5	2.5	1.6	1.0
	A516	60	20.0	19.5	18.9	18.3	17.3	15.8	15.5	15.4	12.9	10.8	8.6	...	...	...	...	...
	A515	60	20.0	19.5	18.9	18.3	17.3	15.8	15.5	15.4	12.9	10.8	8.6	6.5	4.5	2.5	...	...
	A516	65	21.7	21.3	20.7	20.0	18.9	17.3	17.0	16.8	13.8	11.4	8.9	...	...	...	...	...
	A515	65	21.7	21.3	20.7	20.0	18.9	17.3	17.0	16.8	13.8	11.4	8.9	6.5	4.5	2.5	...	...
	A516	70	23.3	23.1	22.5	21.7	20.5	18.7	18.4	18.3	14.7	12.0	9.2	...	...	...	...	...
	A515	70	23.3	23.1	22.5	21.7	20.5	18.7	18.4	18.3	14.7	12.0	9.2	6.5	4.5	2.5	...	...
	A350	LF-1	20.0	18.3	17.7	17.2	16.2	14.8	14.5	14.4	13.0	10.8	7.8	5.0	3.0	1.5	...	...
	A181	Cl.60	20.0	18.3	17.7	17.2	16.2	14.8	14.5	14.4	13.0	10.8	8.7	6.5	4.5	2.5	1.6	1.0
	A420	WPL-6	20.0	20.0	20.0	20.0	18.9	17.3	17.0	16.8	13.0	10.8	7.8	5.0	3.0	1.5	...	...
	A234	WPB	20.0	20.0	20.0	20.0	18.9	17.3	17.0	16.8	13.0	10.8	8.7	6.5	4.5	2.5	1.6	1.0
	A350	LF-2	23.3	21.9	21.3	20.6	19.4	17.8	17.4	17.3	14.8	12.0	7.8	5.0	3.0	1.5	...	...
	A105	...	23.3	21.9	21.3	20.6	19.4	17.8	17.4	17.3	14.8	12.0	9.3	6.5	4.5	2.5	1.6	1.0
	A181	Cl.70	23.3	21.9	21.3	20.6	19.4	17.8	17.4	17.3	14.8	12.0	9.3	6.5	4.5	2.5	1.6	1.0
	A234	WPC	23.3	23.3	23.3	20.6	19.4	17.8	17.4	17.3	14.8	12.0						
C-½Mo	A234	WP1	18.3	18.3	17.5	16.9	16.3	15.7	15.4	15.1	13.8	13.5	13.2	12.7	8.2	4.8	4.0	2.4
1 C- ½Mo	A182	F12 Cl.1	20.0	18.7	18.0	17.5	17.2	16.7	16.2	15.6	15.2	15.0	14.5	12.8	1.3	7.2	4.5	2.8
1 C- ½Mo	WP12 Cl.1	A234	20.0	18.7	18.0	17.5	17.2	16.7	16.2	15.6	15.2	15.0	14.5	12.8	11.3	7.2	4.5	2.8
1¼Cr- ½Mo	A182	F11 Cl.1	20.0	18.7	18.0	17.5	17.2	16.7	16.2	15.6	15.2	15.0	14.5	12.8	9.3	6.3	4.2	2.8
1¼Cr- ½Mo	WP11b Cl.1	A234	20.0	18.7	18.0	17.5	17.2	16.7	16.2	15.6	15.2	15.0	14.5	12.8	9.3	6.3	4.2	2.8

Malzeme Material	Spec	Grade	Sıcaklık / Metal Temperature °F(°C) İzin Verilen Çekme Kuvveti/ Allowable Stress (S) ksi															
			≤100 (≤37)	200 (93)	300 (148)	400 (204)	500 (260)	600 (315)	650 (343)	700 (371)	750 (398)	800 (426)	850 (454)	900 (482)	950 (482)	1000 (510)	1050 (537)	1100 (593)
2¼Cr-1 Mo	A182	F22 Cl.1	20.0	18.5	18.0	17.9	17.9	17.9	17.9	17.9	17.9	17.8	14.5	12.8	10.8	7.8	5.1	3.2
2¼Cr-1 Mo	A234	WP22 Cl.1	20.0	18.5	18.0	17.9	17.9	17.9	17.9	17.9	17.9	17.8	14.5	12.8	10.8	7.8	5.1	3.2
5Cr-½ Mo	A234	WP5	20.0	18.1	17.4	17.2	17.1	16.8	16.6	16.3	13.2	12.8	12.1	10.9	8.0	5.8	4.2	2.9
9Cr-1 Mo	A234	WP9	20.0	18.1	17.4	17.2	17.1	16.8	16.6	16.3	13.2	12.8	12.1	11.4	10.6	7.4	5.0	3.3
3½Ni	A420	WPL3	21.7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3½Ni	A350	LF3	23.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
½Cr-½ Mo	A182	F2	23.3	23.3	23.3	22.5	21.7	20.9	20.5	20.1	17.5	17.5	17.1	15.0	9.2	5.9	...	...
Cr-½Mo	A182	F1	23.3	23.3	23.3	22.5	21.7	20.9	20.5	20.1	17.5	17.5	17.1	13.7	8.2	4.8	4.0	2.4
1 Cr-½ Mo	A182	F12 Cl.2	23.3	23.3	23.3	22.5	21.7	20.9	20.5	20.1	19.7	19.2	18.7	18.0	11.3	7.2	4.5	2.8
1 Cr-½ Mo	A234	WP12 Cl.2	23.3	23.3	23.3	22.5	21.7	20.9	20.5	20.1	19.7	19.2	18.7	18.0	11.3	7.2	4.5	2.8
1¼ Cr-½ Mo	A182	F11 Cl.2	23.3	23.3	23.3	22.5	21.7	20.9	20.5	20.1	19.7	19.2	18.7	13.7	9.3	6.3	4.2	2.8
1¼ Cr-½ Mo	A234	WP11 Cl.2	23.3	23.3	23.3	22.5	21.7	20.9	20.5	20.1	19.7	19.2	18.7	13.7	9.3	6.3	4.2	2.8
5Cr-½ Mo	A182	F5	23.3	23.3	22.6	22.4	22.4	22.0	21.7	21.3	15.4	14.8	14.1	10.9	8.0	5.8	4.2	2.9
3Cr-1 Mo	A182	F21	25.0	25.0	24.5	24.1	23.9	23.8	23.6	23.4	23.0	22.5	19.0	13.1	9.5	6.8	4.9	3.2
2¼ Cr-1 Mo	A182	F22 Cl.3	25.0	25.0	24.5	24.1	23.9	23.8	23.6	23.4	23.0	22.5	21.8	17.0	11.4	7.8	5.1	3.2
2¼ Cr-1 Mo	A234	WP22 Cl.3	25.0	25.0	24.5	24.1	23.9	23.8	23.6	23.4	23.0	22.5	21.8	17.0	11.4	7.8	5.1	3.2
9Cr-1Mo	A182	F9	28.3	28.3	27.5	27.2	27.1	26.8	26.3	25.8	18.7	18.1	17.1	16.2	11.0	7.4	5.0	3.3
9Cr-1 Mo-V	A182	F91	28.3	28.3	28.3	28.2	28.1	27.7	27.3	26.7	25.9	24.9	23.7	22.3	20.7	18.0	14.0	10.3
9Cr-1 Mo-V	A234	WP91	28.3	28.3	28.3	28.2	28.1	27.7	27.3	26.7	25.9	24.9	23.7	22.3	20.7	18.0	14.0	10.3
5Cr-½Mo	A182	F5a	30.0	29.9	29.1	28.9	28.7	28.3	27.9	27.3	19.8	19.1	14.3	10.9	8.0	5.8	4.2	2.9

KAYNAK BOYUNLU FLANŞ WELDING NECK FLANGE

Bu gruptaki flanşlar arka kısmında kaynak yapılacak boru çapına uyan, konik biçimde daralan boyun olacak şekilde dizayn edilir. Bu flanşların göbeği, birleştirilecek borunun iç çapına uyacak şekilde delinir. Böylece ürün akışı engellenmez. Bu uyum birleşme noktasında türbülans engeller ve erozyonu azaltır. Kaynak boyunlu flanşlar yüksek basınç, sıfır-altı sıcaklık, yüksek sıcaklık gibi çeşitli uygulamalarda tercih edilir. Aynı zamanda konik boyun boyunca çok iyi basınç dağılımı sağlar ve hata tespiti için kolayca radyografik muayene yapılabilir.

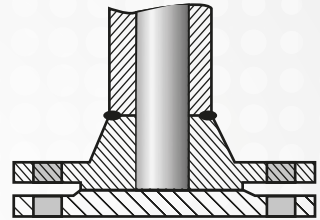
This group of flanges is designed with a hub on the backside tapering to a diameter that will match the pipe to which it will be welded. These flanges are bored to match the inside diameter of mating pipe so there will be no restriction of product flow. This prevents turbulence at the joint and reduces erosion. Welding neck flanges are preferred for use in severe service application involving high pressure, sub-zero and/or elevated temperatures. They also provide excellent stress distribution through that tapered hub and are easily radiographed for flaw detection.



KÖR FLANŞ BLIND FLANGE

Bu tür flanşlar göbek deliksiz üretilir ve boru sistemlerini kapatmak için kullanılır. Aynı zamanda basınçlı kazanlara erişim kapağı olarak da kullanılır. Kör flanşlar müşteri talebine göre göbekli veya göbeksiz olarak temin edilebilir. Basınç altında ve kaçış yüklemelerinde diğer flanşlara göre daha yüksek basınca maruz kalırlar. Ancak maksimum gerilme olan merkezdeki eğilme gerilmesi flanş tarafından kolayca absorbe edilir.

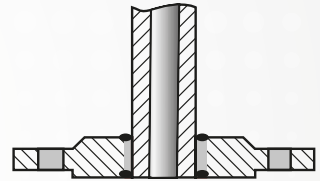
These flanges are manufactured without a bore and used as closures or seals for the ends of piping systems. They are also used to provide with or without a hub, depending on customer requirements. Under pressure and bolt loading, the blinde flange is subjected to more stress than any other flange type. However, the maximum stresses are bending stresses at the center and are easily absorbed by the flange.



SLIP-ON FLANŞ SLIP-ON FLANGE

Slip-on flanşlar kaynak yapılacak borunun dışına geçecek şekilde dizayn edilmiştir. Bu flanşlar göbek kısmından ve borunun ucunda flanşın iç kısmından dolgu kaynak ile birleştirilir. Alçak göbek ve birleştirme yöntemi sebebiyle bu tür flanşlar genellikle yüksek basınç uygulamalarında kullanılmaz.

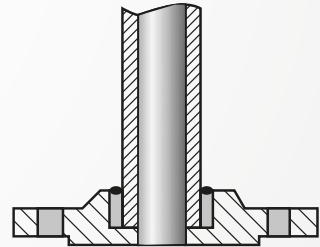
Slip-on flange are designed to slide over the outside diameter of the pipe to which it will be welded. These flanges are attached to the pipe by fillet welding at the hub and at the end of the pipe inside the flange. Because of the low hub and method of attachment, these flanges are not normally used in high stress applications.



SOKET KAYNAKLI FLANŞ SOCKET WELDING FLANGE

Bu flanşlar slip-on flanşlara benzerler, fakat göbek deliğinde birleştirilecek borunun iç çapına uyan ikinci bir iç çap bulunur. Ayrıca flanş yüzeyinde birleştirilir borunun dış çapından biraz geniş bir havşa bulunur. Havşa, içine yerleştirilen boru için soket görevi görür. daha sonra flanş göbeğinden dolgu kaynağı ile birleştirilir. Flanş iç çapı ve havşa çapı farklılığından oluşan omuz kısmı birleştirilecek boruyla aynı genişliğe sahiptir. Böylece bağlantı bölgesinden ürün akışı kısıtlanmaz. Bu flanşlar ilk olarak küçük çap ve yüksek basınç hatları için geliştirilmiştir. İçten kaynaklı soket tip flanşlar genellikle kimyasal prosesler, hidrolik hatları ve buhar dağıtım hatlarında kullanılır.

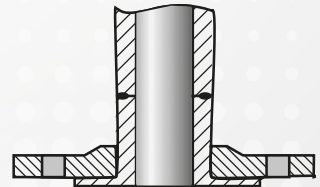
These flanges are similar to slip-on flanges except they have a bore diameter equal to that of matching pipe. They also have a counterbore from the hub side slightly larger than the outside diameter of the matching pipe. The counterbore provides a socket into which the end of the pipe is inserted. The flanges is then attached to the pipe by a fillet weld at the hub. The shoulder made by the difference between the bore and counterbore is the same width as the wall of the pipe, thereby providing for an unrestricted flow of product through the connection. These flanges were initially developed for use in small diameter, high pressure lines. Internally welded socket type flanges are typically used in chemical process, hydraulic lines and steam distribution lines.



OYNAK FLANŞ LAP JOINT FLANGE

Oynak küt uç ile birlikte kullanılır, flanş yüzey kesitindeki daire ve küt ucun flanş kısmına uyan iç çap haricinde slip-on flanşlarla neredeyse aynıdır. Bu flanşlar temizlemek için sık sık sökülmesi gereken uygulamalarda ve civata hizalama ihtiyacı bulunan uygulamalarda kullanılır.

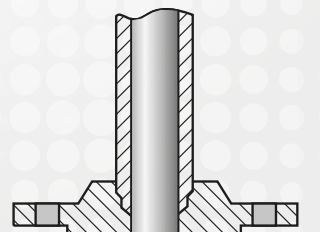
Used in a conjunction with a lap joint stub end, these flanges are nearly identical to a slip-on flange with the exception of a radius at the intersection of the flange face and the bore to accommodate the flanged portion of the stub end. These flanges are used in applications where the joint must be frequently disassembled for cleaning or where there is a need to facilitate bolt alignment.

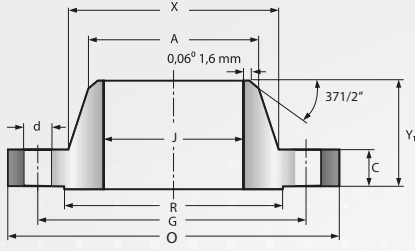


DİŞLİ FLANŞ THREADED FLANGE

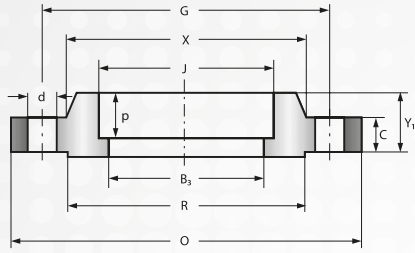
Dişli flanşlarda, birleştirilecek borunun dışındaki dişlere uyacak şekilde deliğin iç kısmında diş açılır. Dişler boru ve flanş arasında sızdırmazlık sağlamak için konik biçimde açılır. Bu tür flanşlar genellikle düşük basınç ve döngüsel olmayan uygulamalarda kullanılır. Aynı zamanda kaynaklı tehlikeli olduğu durumlarda kullanılır.

Threaded flanges are threaded in the bore to match an external thread on the pipe. The threads are tapered to create a seal between the flange and pipe as tapers approach the same diameter. These flanges are normally designed for low pressure, non-cyclic applications. They are also used in applications where welding is hazardous.





Kaynak Boyunlu / Welding Neck



Soket Kaynaklı / Socket Welding

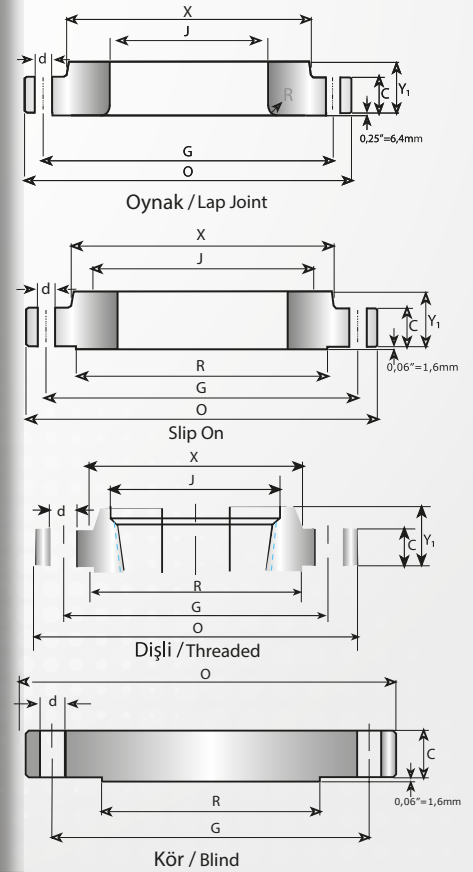
KAYNAK BOYUNLU VE SOKET KAYNAKLI FLANŞ WELDING NECK AND SOCKET WELDING FLANGE			
O	Dış Çap* Outside Diameter	$O \leq 24"$	$\pm 1,6$ mm
		$O > 24"$	$\pm 3,2$ mm
J, B ₃	İç Çap Inside Diameter	$J, B_3 \leq 10$	+0,8 mm
		12" - 18" arası / 12" to 18"	+1,6 mm
		$J, B_3 \geq 20"$	+3,2 mm - 1,6 mm
R	Conta yüzeyi Çapı Diameter of Contact Face	0,06" RF	$\pm 0,8$ mm
		0,25" RF	$\pm 0,5$ mm
		Dişi ve Erkek Tongue and Groove. Male and Female	$\pm 0,5$ mm
A	Kaynak Noktası Merkez Çapı** Diameter of Hub at Point of Welding	$A \leq 5"$	+2,4 mm - 0,8 mm
		$A \geq 6"$	+4 mm - 0,8 mm
X	Taban Merkez Çapı* Diameter of Hub at Base	$X \leq 24"$	$\pm 1,6$ mm
		$X > 24"$	$\pm 3,2$ mm
G, R	Delme ve Alın Drilling and Facing	Saplama Eksen Çapı, d Bolt Circle Diameter, d	$\pm 1,6$ mm
		Saplama Delik Merkezleri Arası Uzaklık Center-to-Center of adjacent bolt holes	$\pm 0,8$ mm
		Saplama Eksen, d ve Conta Yüzeyi Eksenleri arası maksimum farklılık 2 1/2" ve küçük ölçülerde Max. Eccentricity between bolt circle dia. d, and machined facing diameters: size 2 1/2" and smaller	0,8 mm
		3" ve büyük ölçülerde sizes 3" and larger	1,6 mm
Y ₁	Yükseklik Overall Length Through Hub	$Y_1 \leq 4"$	$\pm 1,6$ mm
		5" - 10" arası 5" to 10"	+1,6 mm - 3,2 mm
		$Y_1 \geq 12"$	+3,2 mm - 4,6 mm
C	Kalınlık Thickness	$C \leq 18"$	+3,2 mm
		$C \leq 18"$	+4,8 mm

* ASME B16.5 kapsamında değildir. Tolerance is not covered by ASME B16.5

** J ve A boyutlarının toleranslarına bakılmaksızın, et kalınlığı nominal et kalınlığının % 87,5'inden az olmamalıdır.

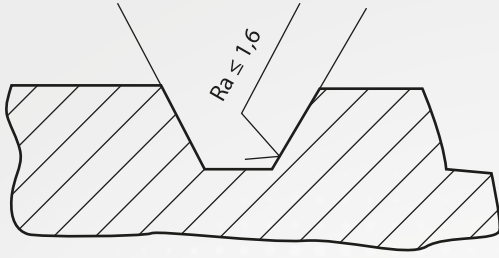
Despite the tolerances of J and A sizes, W.T. should not be less than 87,5% of the nominal W.T.

OYNAK, SLIP-ON, DİŞLİ VE KÖR FLANŞ LAP JOINT, SLIP-ON, THREADED AND BLIND FLANGES			
O	Dış Çap* Outside Diameter	$O \leq 24"$	$\pm 1,6$ mm
		$O > 24"$	$\pm 3,2$ mm
J	İç Çap Inside Diameter	SO ve LJ $J \leq 10"$	+0,8 mm
		$J \geq 12"$	+1,6 mm
Havşa Çapı Diameter of Counterbore		Dişli Flanş Threaded	Matkap mastarı sınırları içerisinde Within limits on boring gauge
R	Conta Yüzeyi Çapı Diameter of Contact Face	0,06" RF	$\pm 0,8$ mm
		0,25" RF	$\pm 0,5$ mm
		Dişi ve Erkek Tongue and Groove. Male and Female	$\pm 0,5$ mm
A	Taban Dış Çapı* Outside Diameter of Hub	$X < 12"$	+2,4 mm - 1,6 mm
		$X \geq 14"$	$\pm 3,2$ mm
G, R	Delme ve Alın Drilling and Facing	Saplama Eksen Çapı, d Bolt Circle Diameter, d	$\pm 1,6$ mm
		Saplama Delik Merkezleri Arası Uzaklık Center-to-Center of adjacent bolt holes	$\pm 0,8$ mm
		Saplama Eksen, d ve Conta Yüzeyi Eksenleri arası maksimum farklılık 2 1/2" ve küçük ölçülerde Max. Eccentricity between bolt circle dia. d, and machined facing diameters: size 2 1/2" and smaller	0,8 mm
		3" ve büyük ölçülerde sizes 3" and larger	1,6 mm
Y ₁	Yükseklik Overall Length of Hub	$Y_1 \leq 18"$	+3,2 mm - 0,8 mm
		$Y_1 \geq 20"$	+4,8 mm - 1,6 mm
C	Kalınlık Thickness	$C \leq 18"$	+3,2 mm
		$C \geq 20"$	+4,8 mm



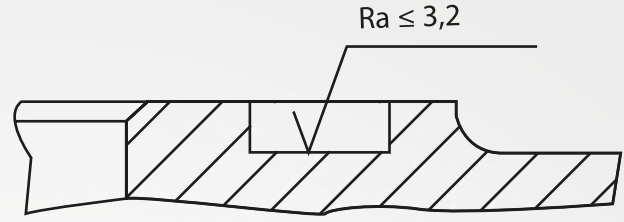
* ASME B16.5 kapsamında değildir. Tolerance is not covered by ASME B16.5

Conta Yüzeyleri / Facings



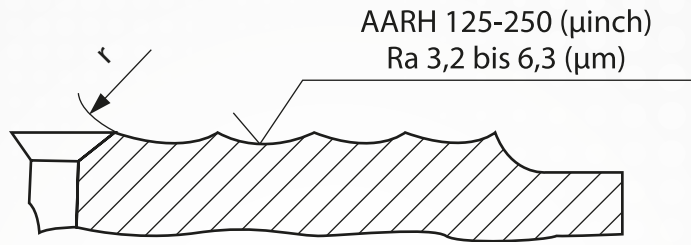
Ra [μm]

Halkalı Yüzey / Ring Joint Face



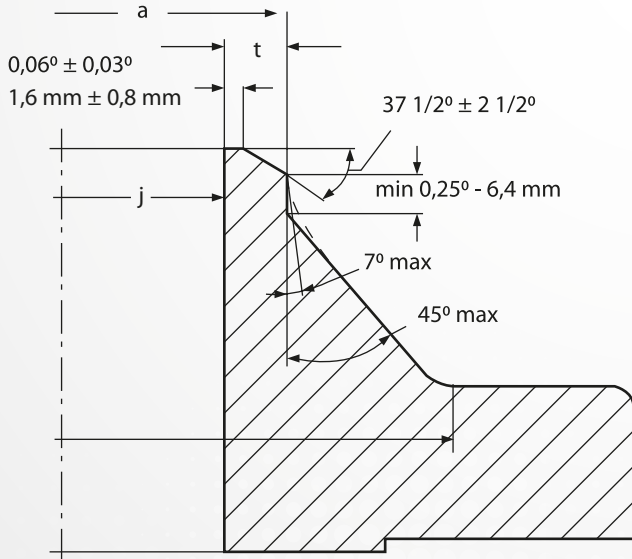
Ra [μm]

Dilli ve Yivli Yüzey / Tongue and Groove Facings

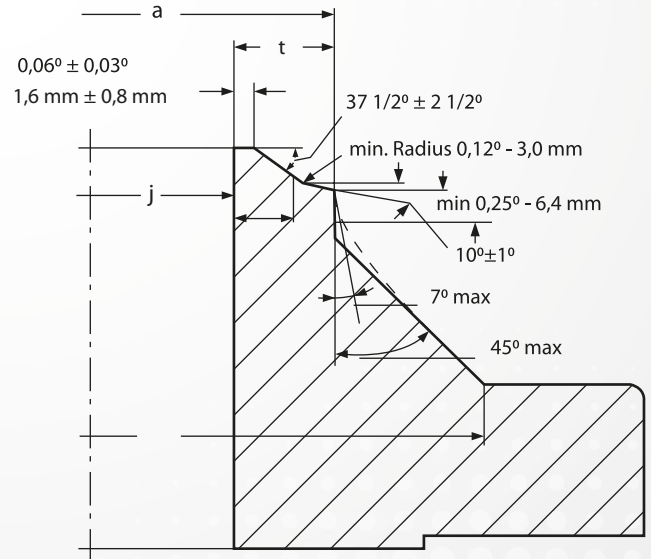


Faturalı Yüzey / Raised Face

Kaynak Ağzı Hazırlama / Welding Ends Preparation



5 mm - 22 mm et kalınlığı için pah / Bevel for W.T. 5 mm to 22 mm inclusive



22 mm'den kalın et kalınlığı için pah / Bevel for W.T. greater than 22 mm

a= Boru dış çapı / Outside diameter of pipe

J= Boru iç çapı / Inside diameter of pipe

t= Boru et kalınlığı / Wall thickness of pipe

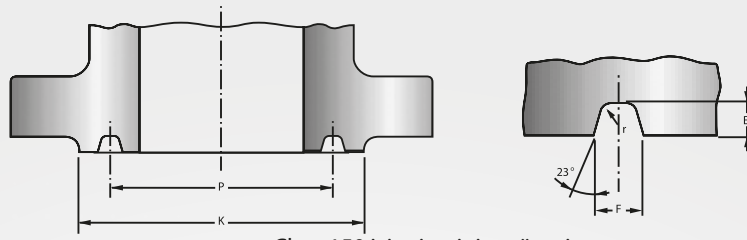
FLANŞLAR İÇİN MALZEME ÖZELLİKLERİ / MATERIAL SPECIFICATION FOR FLANGES

	C	Mn	Si	P	S	Cr	Ni	Mo	Nb	V
Karbon Çeliği / Carbon Steel										
A105N	0,35	0,60-1,35	0,10-0,35	0,035	0,040	0,30	0,40	0,12		0,08
C21	0,18-0,23	0,80-1,35	0,15-0,35	0,035	0,030	0,30	0,40	0,12	0,02	0,03
BF48N	0,23	0,70-1,35	0,15-0,30	0,035	0,035		1,45			
CSAGR248CAT I	0,35	1,35	0,35	0,050	0,060	0,30	0,40	0,12	0,05	0,10
ESP.ULMA	0,18-0,21	0,80-1,10	0,15-0,30	0,020	0,010	0,30	0,40	0,12	0,02	0,03
Düşük Sıcaklık Karbon ve Alaşım Çeliği / Carbon and Alloy Steel for Low-Temperature										
A350LF2Class1	0,30	0,60-1,35	0,15-0,30	0,035	0,040	0,30	0,40	0,12	0,02	0,08
A350LF2Class2	0,30	0,60-1,35	0,15-0,30	0,035	0,040	0,30	0,40		0,02	0,08
BF48F	0,20	0,90-1,40	0,35	0,030	0,020		0,45	0,12		
CSAGR248CAT II	0,35	1,35	0,35	0,050	0,060	0,30	0,40	0,12	0,05	0,10
A350LF3Class1	0,20	0,90	0,20-0,35	0,035	0,040	0,30	3,3-3,7	0,12	0,02	0,03
A350LF3Class2	0,20	0,90	0,20-0,35	0,035	0,040	0,30	3,3-3,7	0,12	0,02	0,03
A350LF6Class1	0,22	1,15-1,50	0,15-0,30	0,025	0,025	0,30	0,40	0,12	0,02	0,04-0,11
A350LF6Class2				0,025	0,025	0,30	0,40	0,12	0,02	0,04-0,11
A350LF6Class3				0,025	0,025	0,30	0,40	0,12	0,02	
A707L3Class3	0,22	1,15-1,50	0,30	0,025	0,025	0,30	0,40	0,12	0,02	0,04-0,11
A707L3Class4				0,025	0,025	0,30	0,40	0,12	0,02	
Yüksek Akma İçin Karbon Çeliği / Carbon Steel for High Yield										
A694F42	0,26	1,40	0,15-0,35	0,025	0,025					
A694F52				0,025	0,025					
A694F60				0,025	0,025					
A694F65				0,025	0,025					
A694F70				0,025	0,025					
Düşük Alaşımlı Çelik / Low-Alloy Steel										
A182F1	0,28	0,60-0,90	0,15-0,35	0,045	0,045			0,44-0,65		
A182F5	0,15	0,30-0,60	0,50	0,030	0,030	4-6	0,50	0,44-0,65		
A182F5a	0,25	0,60	0,50	0,040	0,040	4-6	0,50	0,44-0,65		
A182F9	0,15	0,30-0,60	0,50-1	0,030	0,030		0,90-1,10			
A182F91	0,08-0,12	0,30-0,60	0,20-0,50	0,020	0,020	8-9,5	0,40	0,85-1,05	0,06-0,10	0,18-0,25
A182F11Class1	0,05-0,15	0,30-0,60	0,50-1	0,030	0,030	1-1,5		0,44-0,65		
A182F11Class2	0,10-0,20	0,30-0,60	0,50-1	0,040	0,040	1-1,5		0,44-0,65		
A182F22Class1y3	0,05-0,15	0,30-0,60	0,50	0,040	0,040	2-2,5		0,87-1,13		

				Çekme Muk. Tensile Strenght		Akma Muk. Yield Strenght		Sertlik Hardness	Darbe Testi Impact Test		Isıl İşlem Heat Treatment
Cu	AL	Ti	DiĞER	KSI	N/mm	KSI	N/mm	HB	°C	Joule	
Karbon ÇeliĐi / Carbon Steel											
0,40				70	485	36	250	137-187			N
0,40				70-91	485-630	36	250	137-187	20	31	N
				67-86	470-600	37	255	137-187			N
0,40				60	414	35	248	137-187			N
0,40	0,020-0,050		N:0,012	70	485	36	250	137-187	20	37	N
Düşük Sıcaklık Karbon ve Alaşım ÇeliĐi / Carbon and Alloy Steel for Low-Temperature											
0,40				70-95	485-655	36	250	137-197	-46	20	N
0,40				70-95	485-655	36	250	137-197	-18	27	N
				67-86	470-600	37	255	137-187	-46	21	N
0,40				60	414	36	248	137-197	-46	27	N
0,40				70-95	485-655	38	260	137-197	-101	20	N
0,40				70-95	485-655	38	260	137-197	-101	27	N
0,40			N:0,01-0,03	66-91	455-630	52	360	137-197	-51	20	N
0,40				75-100	515-690	60	415	137-197	-51	27	N
				75-100	515-690	60	415	137-197	-18	27	N
0,20			N:0,01-0,03	75	515	60	415	156-235	-46	68	Q&T
				90	620	75	515	179-265	-46	68	Q&T
Yüksek Akma İçin Karbon ÇeliĐi / Carbon Steel for High Yield											
				60	415	42	290				GerektiĐinde ısııl işlemler
				66	455	52	360				
				75	515	60	415				
				77	530	65	455				
				82	565	70	485				
Düşük Alaşımli Çelik / Low-Alloy Steel											
				70	485	40	275	143-192			N&T
				70	485	40	275	143-217			N&T
				90	620	65	450	187-248			N&T
				85	585	55	380	179-217			N&T
	0,040		N:0,03-0,07	85	585	60	415	248			N&T
				60	415	30	205	121-174			N&T
				70	485	40	275	143-207			N&T
				75	515	45	310	156-207			N&T

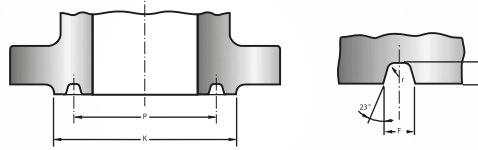
	C	Mn	Si	P	S	Cr	Ni	Mo	Nb	V
Östenitik Paslanmaz Çelik / Austenitic Stainless Steel										
A182F304	0,08	2,00	1,00	0,045	0,030	18-20	8-11			
A182F304H	0,04-0,10	2,00	1,00	0,045	0,030	18-20	8-11			
A182F304L	0,03	2,00	1,00	0,045	0,030	18-20	8-13			
A182F316	0,08	2,00	1,00	0,045	0,030	16-18	10-14	2-3		
A182F316H	0,01-0,10	2,00	1,00	0,045	0,030	16-18	10-14	2-3		
A182F316L	0,03	2,00	1,00	0,045	0,030	16-18	10-15	2-3		
A182F321	0,08	2,00	1,00	0,045	0,030	17-19	9-12			
A182F321H	0,04-0,10	2,00	1,00	0,045	0,030	17-19	9-12			
A182F347	0,08	2,00	1,00	0,045	0,030	17-20	9-13		10x%C-1,10	
A182F347H	0,04-0,10	2,00	1,00	0,045	0,030	17-20	9-13		8x%C-1,10	
A182F904L	0,02	2,00	1,00	0,040	0,030	19-23	23-28	4-5		
Ferritik-Östenitik Paslanmaz Çelik (Duplex) / Ferritic-Austenitic Stainless Steel (Duplex)										
A182F50	0,03	2,00	1,00	0,045	0,030	24-26	5,5-6,5	1,2-2		
A182F51	0,03	2,00	1,00	0,030	0,020	21-23	4,5-6,5	2,5-3,5		
A182F52	0,03	2,00	0,60	0,035	0,010	26-29	3,5-5,2	1-2,5		
A182F53	0,03	1,20	0,80	0,035	0,020	24-26	6-8	3-5		
A182F54*	0,03	1,00	0,80	0,030	0,020	24-26	6-8	2,5-3,5		
A182F55*	0,03	1,00	1,00	0,030	0,010	24-26	6-8	3-4		
A182F57*	0,03	0,80	0,80	0,025	0,002	24-26	6,5-8	3-4		
A182F59	0,03	1,50	0,80	0,035	0,020	24-26	5,5-8	3-5		
A182F60	0,03	2,00	1,00	0,030	0,020	22-23	4,5-6,5	3-3,5		
A182F61	0,04	1,50	1,00	0,040	0,030	24-27	4,5-6,5	2,6-3,9		
A182F65	0,03	0,8-1,5	0,80	0,030	0,030	28-30	5,8-7,5	1,5-2,6		

				Çekme Muk. Tensile Strenght		Akma Muk. Yield Strenght		Sertlik Hardness	Darbe Testi Impact Test		Isıl İşlem Heat Treatment
Cu	AL	Ti	DiĞER	KSI	N/mm	KSI	N/mm	HB	°C	Joule	
Östenitik Paslanmaz Çelik / Austenitic Stainless Steel											
				75	515	30	205				A
				75	515	30	205				A
				70	485	25	170				A
				75	515	30	205				A
				75	515	30	205				A
				70	485	25	170				A
		5x%C-0,70		75	515	30	205				A
		4x%C-0,70		75	515	30	205				A
				75	515	30	205				A
				75	515	30	205				A
1,2			N:0,10	71	490	31	215				A
Ferritik-Östenitik Paslanmaz Çelik (Duplex) / Ferritic-Austenitic Stainless Steel (Duplex)											
			N:0,14-0,2	100-130	690-900	65	450				A
			N:0,08-0,2	90	620	65	450				A
			N:0,15-0,35	100	690	70	485				A
0,50			N:0,24-0,32	116	800	80	550	310			A
0,20-0,80			N:0,24-0,32	116	800	80	550	310			A
0,50-1			N:0,20-0,3	100-130	895	80	550				A
1,2-2			N:0,23-0,33	118	820	85	585				A
0,5-3			N:0,20-0,35	112	770	80	550				A
			N:0,14-0,2	95	655	70	785				A
1,5-2,5			N:0,10-0,25	109	750	80	550				A
0,80			N:0,30-0,4	109	750	80	550				A



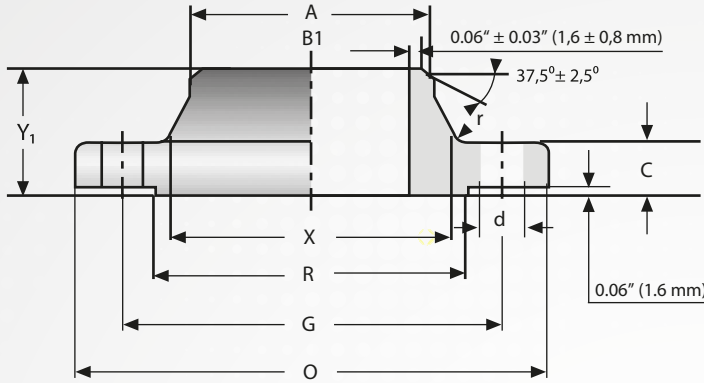
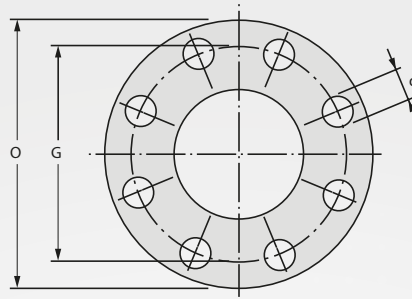
Class 150 için ring joint yüzeyi
Dimension of class 150 ring joint facings

Ölçüler Sizes		Yüksek kısmın çapı Diameter of raised portion	Oluk çapı Pitch diameter of groove	Oluk derinliği Depth of groove	Oluk genişliği Width of groove	Oluk iç çapı Radius at bottom	Flanşlar arası mesafe Approximate dist. between flanges	Delik sayısı Ring number
DN	NPS	K	P	E	F	r		
		DN 25 to 600 /			NPS 1 to 24			
25	1	63,5	47,62	6,35	8,74	0,8	4,1	R15
32	1 1/4	73,2	57,15	6,35	8,74	0,8	4,1	R17
40	1 1/2	82,5	65,07	6,35	8,74	0,8	4,1	R19
50	2	101,6	82,55	6,35	8,74	0,8	4,1	R22
65	2 1/2	120,7	101,60	6,35	8,74	0,8	4,1	R25
80	3	133,4	114,30	6,35	8,74	0,8	4,1	R29
-	3 1/2	154,0	131,78	6,35	8,74	0,8	4,1	R33
100	4	171,5	149,22	6,35	8,74	0,8	4,1	R36
125	5	193,5	171,45	6,35	8,74	0,8	4,1	R40
150	6	219,0	193,68	6,35	8,74	0,8	4,1	R43
200	8	273,0	247,65	6,35	8,74	0,8	4,1	R48
250	10	330,2	304,80	6,35	8,74	0,8	4,1	R52
300	12	406,4	381,00	6,35	8,74	0,8	4,1	R56
350	14	425,5	396,88	6,35	8,74	0,8	3,0	R59
400	16	482,6	454,02	6,35	8,74	0,8	3,0	R64
450	18	546,1	517,52	6,35	8,74	0,8	3,0	R68
500	20	596,9	558,80	6,35	8,74	0,8	3,0	R72
600	24	711,2	673,10	6,35	8,74	0,8	3,0	R76

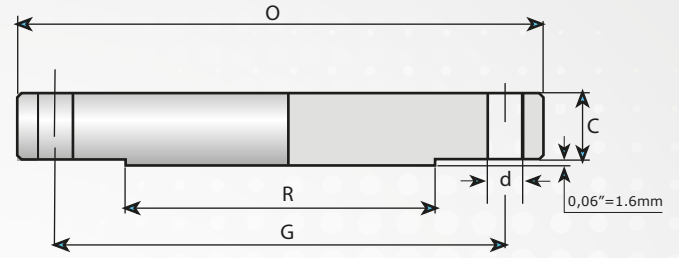


Class 300,400,600 için ring joint yüzeyi
Dimension of class 300,400,600 ring joint facings

Ölçüler Sizes		Yüksek kısmın çapı Diameter of raised portion	Oluk çapı Pitch diameter of groove	Oluk derinliği Depth of groove	Oluk genişliği Width of groove	Oluk iç çapı Radius at bottom	Flanşlar aras mesafe Approximate dist. between flanges	Delik sayısı Ring number
DN	NPS	K	P	E	F	r	Classes 300 - 400 600	
		DN 25 to 600 /			NPS 1 to 24			
15	1/2	50,8	34,14	5,56	7,14	0,8	3,0	R11
20	3/4	63,5	42,28	6,35	8,74	0,8	4,1	R13
25	1	69,9	50,80	6,35	8,74	0,8	4,1	R16
32	1 1/4	79,2	60,32	6,35	8,74	0,8	4,1	R18
40	1 1/2	90,4	68,28	6,35	8,74	0,8	4,1	R20
50	2	108,0	82,55	7,92	11,91	0,8	5,6	R23
65	2 1/2	127,0	101,60	7,92	11,91	0,8	5,6	R26
80	3	146,1	123,83	7,92	11,91	0,8	5,6	R31
-	3 1/2	158,8	131,78	7,92	11,91	0,8	5,6	R34
100	4	174,8	149,22	7,92	11,91	0,8	5,6	R37
125	5	209,6	180,98	7,92	11,91	0,8	5,6	R41
150	6	241,3	211,12	7,92	11,91	0,8	5,6	R45
200	8	301,8	269,88	7,92	11,91	0,8	5,6	R49
250	10	355,6	323,85	7,92	11,91	0,8	5,6	R53
300	12	412,8	381,00	7,92	11,91	0,8	5,6	R57
350	14	457,2	419,10	7,92	11,91	0,8	5,6	R61
400	16	508,0	469,90	7,92	11,91	0,8	5,6	R65
450	18	574,5	533,40	7,92	11,91	0,8	5,6	R69
500	20	635,0	584,20	9,52	13,49	1,6	5,6	R73
600	24	749,3	692,15	11,13	16,66	1,6	6,4	R77



Kaynak Boyunlu
Welding Neck

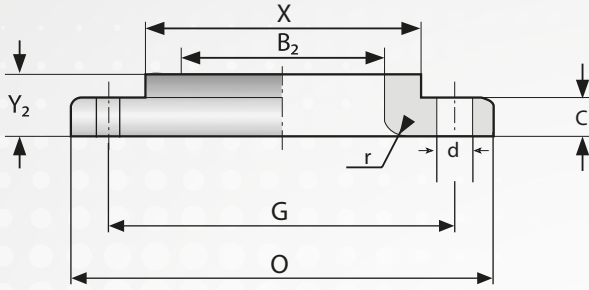
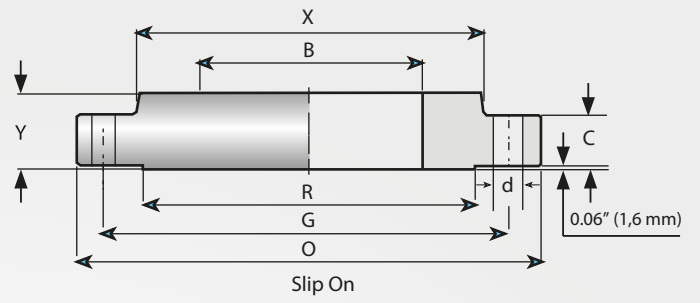
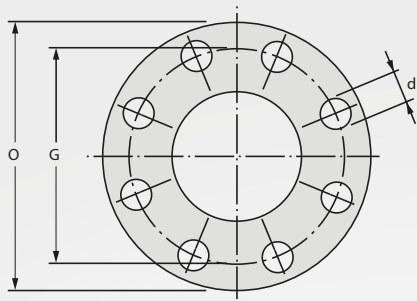


Kör
Blind

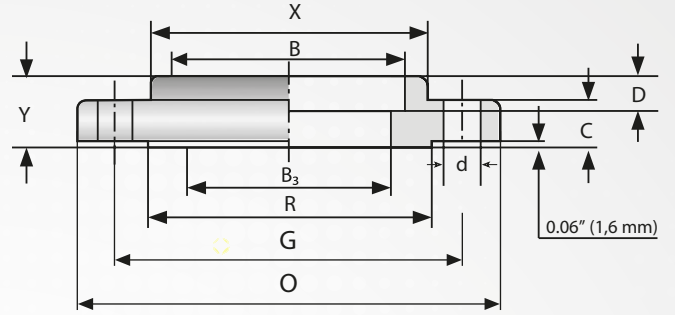
B1 üreticiye göre değişiklik gösterebilir. B1 may vary according to manufacturer.

Ölçüler Sizes		Ortak Ölçüler - Shared Sizes								Kaynak Boyunlu Welding Neck			Kör Blind
		O	C min.	R	Delik Sayısı No of Holes	Delik Ölçüsü Size of Holes		B min.	X	A	Y ₁	Ağırlık Weight	Ağırlık Weight
						G	d						
DN	NPS	mm	mm	mm	Adet Number	mm	mm	mm	mm	mm	mm	kg	kg
15	1/2	89	11.2	34,9	4	60.3	15.8	22.4	30	21,3	48	0.6	1.2
20	3/4	99	12.7	42,9	4	69.8	15.8	27.7	38	26,7	52	0.8	1.3
25	1	108	14.3	50,8	4	79.4	15.8	34.5	49	33,4	56	1.1	1.4
32	1 1/4	117	15.7	63,5	4	88.9	15.8	43.2	59	42,2	57	1.4	1.8
40	1 1/2	127	17.5	73,0	4	98.4	15.8	49.5	65	48,3	62	1.8	2.2
50	2	152	19.1	92,1	4	120.6	19.0	62.0	78	60,3	63	2.7	2.8
65	2 1/2	178	22.3	104,8	4	139.7	19.0	74.7	90	73.0	70	4.0	4.7
80	3	190	23.9	127,0	4	152.4	19.0	90.7	108	88,9	70	4.5	5.5
-	3 1/2	216	23.9	139,7	8	177.8	19.0	103.4	122	101.6	71	6.2	6.8
100	4	229	23.9	157,2	8	190.5	19.0	116.1	135	114,3	76	7.0	8.0
125	5	254	23.9	185,7	8	215.9	22.2	143.8	164	141.3	89	8.6	9.0
150	6	279	25.4	215,9	8	241.3	22.2	170.7	192	168,3	89	10.8	12.0
200	8	343	28.5	269,9	8	298.4	22.2	221.5	246	219,1	102	18.0	20.0
250	10	406	30.2	323,8	12	362.0	25.4	276.4	305	273.0	102	24.0	32.0
300	12	483	31.8	381,0	12	431.8	25.4	327.2	365	323,9	114	37.0	40.0
350	14	533	35.0	412,8	12	476.2	28.5	359.2	400	355,6	127	47.0	59.0
400	16	597	36.6	469,9	16	539.8	28.5	410.5	457	406,4	127	58.0	77.0
450	18	635	39.7	533,4	16	577.8	31.8	461.8	505	457.0	140	64.0	95.0
500	20	698	42.9	584,2	20	635.0	31.8	513.1	559	508.0	144	77.0	123.0
600	24	813	47.7	692,2	20	749.3	35.0	616.0	664	610.0	152	118.0	186.0

Ağırlıklar yaklaşık olarak verilmiştir. Weights are approximate. Ölçüler mm olarak verilmiştir. Dimensions in mm.



Oynak
Lapped

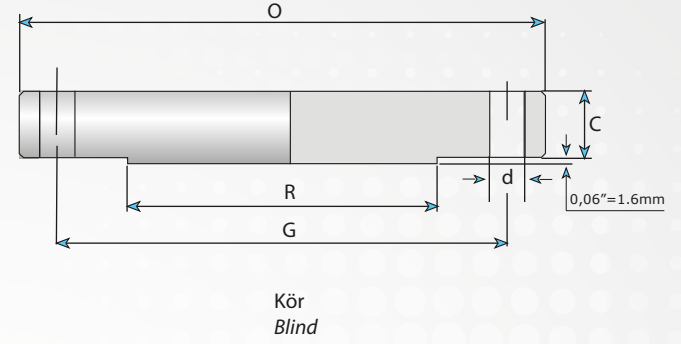
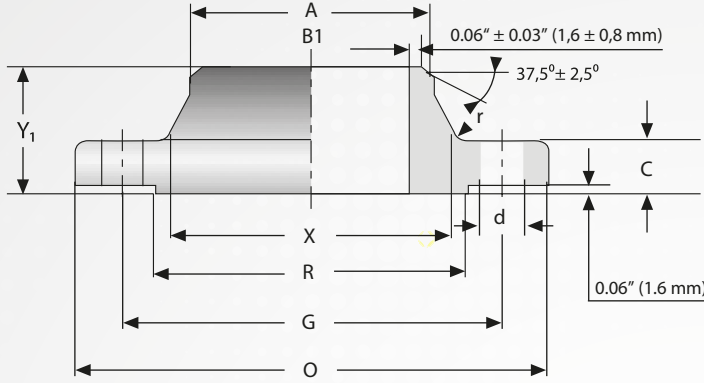
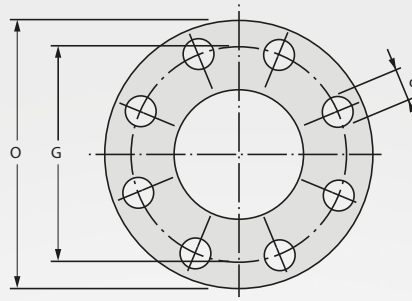


Soket Kaynaklı
Socket Weld

B₃: STD = SCH 40 Borunun iç çapına göre dir. B₃: inside diameter of pipe for STD wall pipe idem SCH 40

Ölçüler Sizes		Ortak Ölçüler - Shared Sizes									Oynak Lapped				Soket Kaynaklı Socket Welding			Slip-on	
		O	C min.	R	Delik Sayısı No of Holes	Delik Ölçüsü Size of Holes		B min.	X	Y	B ₂ min.	Y ₂	r	Ağırlık Weight	B ₃	D	Ağırlık Weight	Ağırlık Weight	
						G	d												kg
DN	NPS	mm	mm	mm	Adet Number	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
15	1/2	89	11.2	34,9	4	60.3	15.8	22.4	30	16	22.9	16	3	0.8	15.8	10	0.8	0.8	
20	3/4	99	12.7	42,9	4	69.8	15.8	27.7	38	16	28.2	16	3	0.9	20.8	11	0.9	0.9	
25	1	108	14.3	50,8	4	79.4	15.8	34.5	49	17	35.0	17	3	1.0	26.7	13	1.0	1.0	
32	1 1/4	117	15.7	63,5	4	88.9	15.8	43.2	59	21	43.7	21	5	1.3	35.0	14	1.3	1.3	
40	1 1/2	127	17.5	73,0	4	98.4	15.8	49.5	65	22	50.0	22	6	1.5	40.9	16	1.4	1.5	
50	2	152	19.1	92,1	4	120.6	19.0	62.0	78	25	62.5	25	8	2.3	52.6	17	2.3	2.3	
65	2 1/2	178	22.3	104,8	4	139.7	19.0	74.7	90	29	75.4	29	8	3.7	62.7	19	3.0	3.7	
80	3	190	23.9	127,0	4	152.4	19.0	90.7	108	30	91.4	30	10	4.2	78.0	21	3.5	4.2	
-	3 1/2	216	23.9	139,7	8	177.8	19.0	103.4	122	32	104.1	32	11	5.3	-	-	-	5.3	
100	4	229	23.9	157,2	8	190.5	19.0	116.1	135	33	116.8	33	11	5.9	-	-	-	5.9	
125	5	254	23.9	185,7	8	215.9	22.2	143.8	164	37	144.5	37	11	7.0	-	-	-	7.0	
150	6	279	25.4	215,9	8	241.3	22.2	170.7	192	40	171.4	40	13	8.5	-	-	-	8.5	
200	8	343	28.5	269,9	8	298.4	22.2	221.5	246	44	222.2	44	13	13.5	-	-	-	13.5	
250	10	406	30.2	323,8	12	362.0	25.4	276.4	305	49	277.4	49	13	19.5	-	-	-	19.5	
300	12	483	31.8	381,0	12	431.8	25.4	327.2	365	56	328.2	56	13	29.0	-	-	-	29.0	
350	14	533	35.0	412,8	12	476.2	28.5	359.2	400	57	360.2	79	13	45.0	-	-	-	39.0	
400	16	597	36.6	469,9	16	539.8	28.5	410.5	457	63	411.2	87	13	58.0	-	-	-	47.0	
450	18	635	39.7	533,4	16	577.8	31.8	461.8	505	68	462.3	97	13	66.0	-	-	-	54.0	
500	20	698	42.9	584,2	20	635.0	31.8	513.1	559	73	514.4	103	13	84.0	-	-	-	70.0	
600	24	813	47.7	692,2	20	749.3	35.0	616.0	664	83	616.0	111	13	118.0	-	-	-	95.0	

Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*

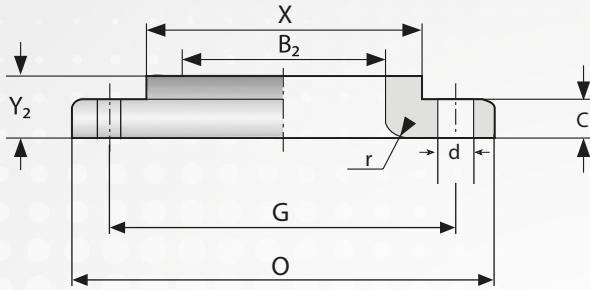
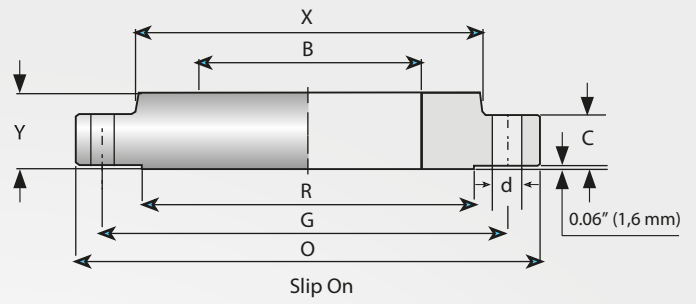
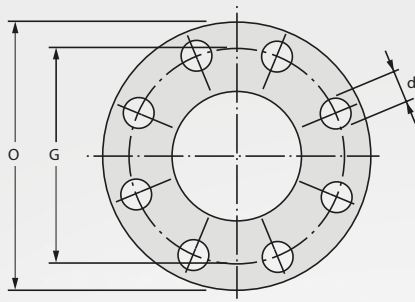


Kaynak Boyunlu
Welding Neck

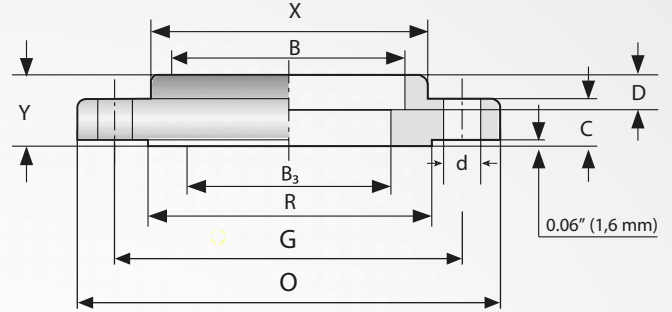
B1 üreticiye göre değişiklik gösterebilir. B1 may vary according to manufacturer.

Ölçüler Sizes		Ortak Ölçüler - Shared Sizes								Kaynak Boyunlu Welding Neck		Kör Blind	
		O	C min.	R	Delik Sayısı No of Holes	Delik Ölçüsü Size of Holes		B min.	X	A	Y ₁	Ağırlık Weight	Ağırlık Weight
						G	d						
DN	NPS	mm	mm	mm	Adet Number	mm	mm	mm	mm	mm	mm	kg	kg
15	1/2	95	14,2	34,9	4	66,7	15,8	22,4	38	21,3	52	1,5	1,5
20	3/4	117	15,7	42,9	4	82,6	19,0	27,7	48	26,7	57	1,8	1,6
25	1	124	17,5	50,8	4	88,9	19,0	34,5	54	33,5	62	2,0	2,0
32	1 1/4	133	19,0	63,5	4	98,4	19,0	43,2	63	42,2	65	2,5	2,5
40	1 1/2	156	20,6	73,0	4	114,3	22,2	49,5	70	48,3	68	3,5	3,0
50	2	165	22,4	92,1	8	127,0	19,0	62,0	84	60,3	70	4,0	3,5
65	2 1/2	190	25,4	104,8	8	149,2	22,2	74,7	100	73,0	76	5,0	5,5
80	3	210	28,4	127,0	8	168,3	22,2	90,7	117	88,9	79	7,0	7,0
-	3 1/2	229	30,2	139,7	8	184,1	22,2	103,4	133	101,6	81	9,2	9,0
100	4	254	31,8	157,2	8	200,0	22,2	116,1	146	114,3	86	11,0	12,0
125	5	279	35,0	185,7	8	235,0	22,2	143,8	178	141,3	98	14,0	15,8
150	6	318	36,6	215,9	12	269,9	22,2	170,7	206	168,3	98	19,0	23,0
200	8	381	41,1	269,9	12	330,2	25,4	221,5	260	219,1	111	30,0	37,0
250	10	444	47,8	323,8	16	387,4	28,5	276,4	320	273,0	117	41,0	58,0
300	12	521	50,8	381,0	16	450,8	31,8	327,2	375	323,9	130	62,0	83,0
350	14	584	53,8	412,8	20	514,4	31,8	359,2	425	355,6	143	84,0	107,0
400	16	648	57,2	469,9	20	571,5	35,0	410,5	483	406,4	146	111,0	139,0
450	18	711	60,5	533,4	24	628,6	35,0	461,8	533	457,0	159	138,0	177,0
500	20	775	63,5	584,2	24	685,8	35,0	513,1	587	508,0	162	171,0	223,0
600	24	914	69,9	692,2	24	812,8	41,1	616,0	701	610,0	168	247,0	342,0

Ağırlıklar yaklaşık olarak verilmiştir. Weights are approximate. Ölçüler mm olarak verilmiştir. Dimensions in mm.



Oynak
Lapped

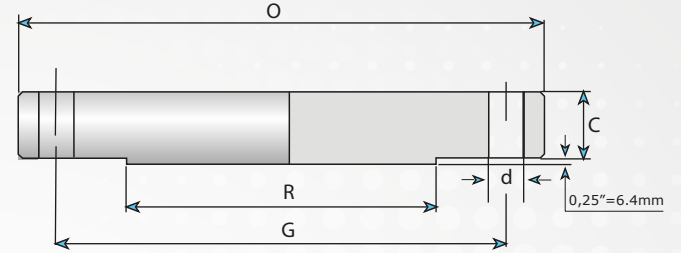
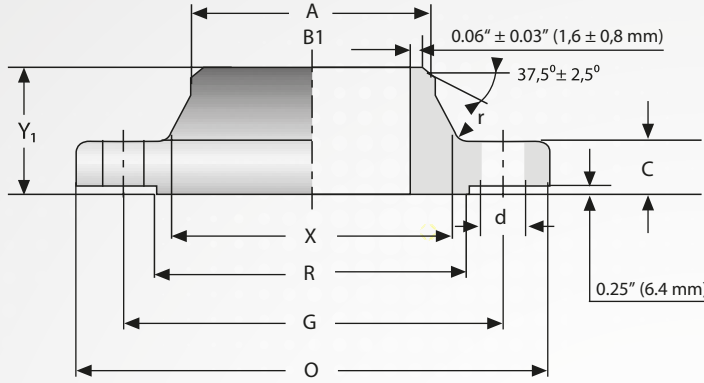
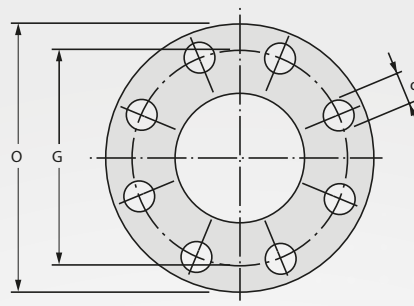


Soket Kaynaklı
Socket Weld

B₃: STD = SCH 40 Borunun iç çapına göre. B₃: inside diameter of pipe for STD wall pipe idem SCH 40

Ölçüler Sizes		Ortak Ölçüler - Shared Sizes									Oynak Lapped				Soket Kaynaklı Socket Welding			Slip-on
		O	C min.	R	Delik Sayısı No of Holes	Delik Ölçüsü Size of Holes		B min.	X	Y	B ₂ min.	Y ₂	r	Ağırlık Weight	B ₃	D	Ağırlık Weight	Ağırlık Weight
						G	d											
DN	NPS	mm	mm	mm	Adet Number	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg
15	1/2	95	14,2	34,9	4	66.7	15.8	22.4	38	22	22.9	22	3	1.2	15.8	10	1.2	1.2
20	3/4	117	15,7	42,9	4	82.6	19.0	27.7	48	25	28.2	25	3	1.3	20.8	11	1.3	1.3
25	1	124	17,5	50,8	4	88.9	19.0	34.5	54	27	35.0	27	3	1.4	26.7	13	1.4	1.4
32	1 1/4	133	19,0	63,5	4	98.4	19.0	43.2	63	27	43.7	27	5	1.8	35.0	14	1.8	1.8
40	1 1/2	156	20,6	73,0	4	114.3	22.2	49.5	70	30	50.0	30	6	2.5	40.9	16	2.5	2.5
50	2	165	22,4	92,1	8	127.0	19.0	62.0	84	33	62.5	33	8	3.0	52.6	17	3.0	3.0
65	2 1/2	190	25,4	104,8	8	149.2	22.2	74.7	100	38	75.4	38	8	4.5	62.7	19	4.5	4.5
80	3	210	28,4	127,0	8	168.3	22.2	90.7	117	43	91.4	43	10	6.0	78.0	21	6.0	6.0
-	3 1/2	229	30,2	139,7	8	184.1	22.2	103.4	133	44	104.1	44	10	7.5	-	-	-	7.5
100	4	254	31,8	157,2	8	200.0	22.2	116.1	146	48	116.8	48	11	10.1	-	-	-	10.1
125	5	279	35,0	185,7	8	235.0	22.2	143.8	178	51	144.5	51	11	12.5	-	-	-	12.5
150	6	318	36,6	215,9	12	269.9	22.2	170.7	206	52	171.4	52	13	17.5	-	-	-	17.5
200	8	381	41,1	269,9	12	330.2	25.4	221.5	260	62	222.2	62	13	26.0	-	-	-	26.0
250	10	444	47,8	323,8	16	387.4	28.5	276.4	320	66	277.4	95	13	41.0	-	-	-	38.0
300	12	521	50,8	381,0	16	450.8	31.8	327.2	375	73	328.2	102	13	63.0	-	-	-	52.0
350	14	584	53,8	412,8	20	514.4	31.8	359.2	425	76	360.2	111	13	86.0	-	-	-	74.0
400	16	648	57,2	469,9	20	571.5	35.0	410.5	483	83	411.2	121	13	109.0	-	-	-	100.0
450	18	711	60,5	533,4	24	628.6	35.0	461.8	533	89	462.3	130	13	138.0	-	-	-	127.0
500	20	775	63,5	584,2	24	685.8	35.0	513.1	587	95	514.4	140	13	170.0	-	-	-	147.0
600	24	914	69,9	692,2	24	812.8	41.1	616.0	701	106	616.0	152	13	241.0	-	-	-	208.0

Ölçüler mm olarak verilmiştir. Dimensions in mm.



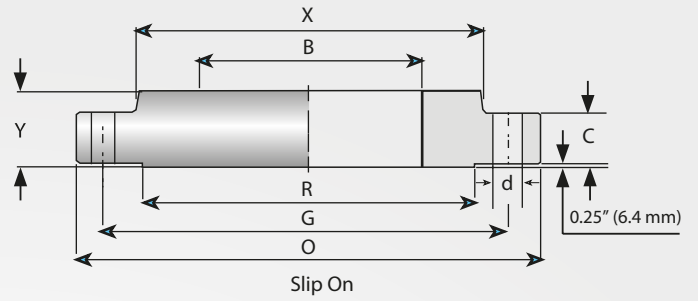
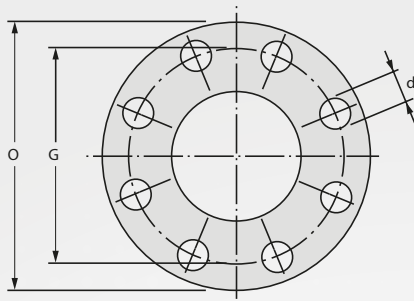
Kör
Blind

Kaynak Boyunlu
Welding Neck

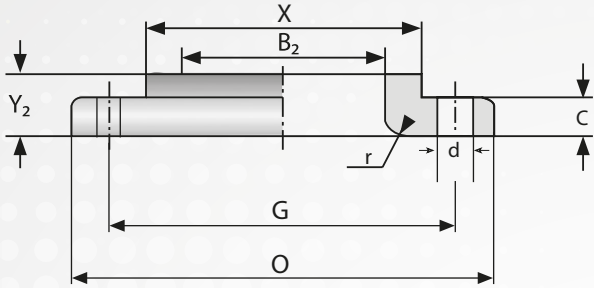
B1 üreticiye göre değişiklik gösterebilir. B1 may vary according to manufacturer.

Ölçüler Sizes		Ortak Ölçüler - Shared Sizes									Kaynak Boyunlu Welding Neck			Kör Blind
		O	C min.	R	Delik Sayısı No of Holes	Delik Ölçüsü Size of Holes		B min.	X	Y	A	Y ₁	Ağırlık Weight	Ağırlık Weight
						G	d							
DN	NPS	mm	mm	mm	Adet Number	mm	mm	mm	mm	mm	mm	mm	kg	kg
15	1/2	95	14,2	34,9	4	66,7	15,8	22,4	38	22	21,3	52	1,5	1,4
20	3/4	117	15,7	42,9	4	82,6	19,0	27,7	48	25	26,7	57	2,0	1,6
25	1	124	17,5	50,8	4	88,9	19,0	34,5	54	27	33,4	62	2,5	2,1
32	1 1/4	133	20,6	63,5	4	98,4	19,0	43,2	64	29	42,2	67	3,2	2,6
40	1 1/2	156	22,4	73,0	4	114,3	22,2	49,5	70	32	48,3	70	4,5	3,3
50	2	165	25,4	92,1	8	127,0	19,0	62,0	84	37	60,3	73	5,5	4,4
65	2 1/2	190	28,4	104,8	8	149,2	22,2	74,7	100	41	73,0	79	8,0	6,0
80	3	210	31,8	127,0	8	168,3	22,2	90,7	118	46	88,9	83	10,5	7,4
-	3 1/2	229	35,0	139,7	8	184,1	25,4	103,4	133	49	101,6	86	15,6	9,5
100	4	273	38,1	157,2	8	215,9	25,4	116,1	152	54	114,3	102	19,0	17,0
125	5	330	44,5	185,7	8	266,7	28,5	143,8	189	60	141,3	114	31,0	27,0
150	6	356	47,8	215,9	12	292,1	28,5	170,7	222	67	168,3	117	37,0	32,0
200	8	419	55,6	269,9	12	349,2	31,8	221,5	273	76	219,1	133	53,0	46,0
250	10	508	63,5	323,8	16	431,8	35,0	276,4	343	86	273,0	152	86,0	74,0
300	12	559	66,5	381,0	20	489,0	35,0	327,2	400	92	323,9	156	102,0	90,0
350	14	603	69,9	412,8	20	527,0	38,1	359,2	432	94	355,6	165	150,0	108,0
400	16	686	76,2	469,9	20	603,2	41,1	410,5	495	106	406,4	178	190,0	150,0
450	18	743	82,6	533,4	20	654,0	44,5	461,8	546	117	457,0	184	240,0	188,0
500	20	813	88,9	584,2	24	723,9	44,5	513,1	610	127	508,0	190	295,0	230,0
600	24	940	101,6	692,2	24	838,2	50,8	616,0	718	140	610,0	203	365,0	325,0

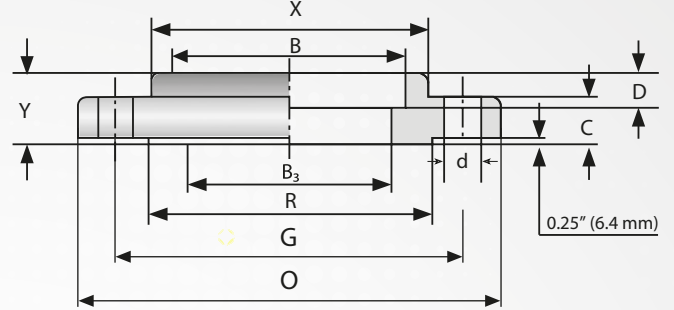
Ağırlıklar yaklaşık olarak verilmiştir. Weights are approximate. Ölçüler mm olarak verilmiştir. Dimensions in mm.



Slip On



Oynak
Lapped

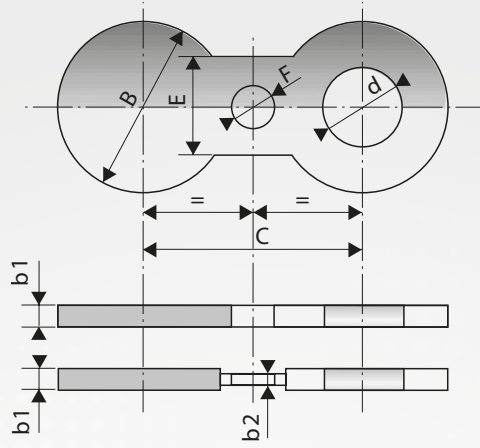


Soket Kaynaklı
Socket Weld

B3: STD = SCH 40 Borunun iç çapına göre dir. B3: inside diameter of pipe for STD wall pipe idem SCH 40

Ölçüler Sizes		Ortak Ölçüler - Shared Sizes										Oynak Lapped			Soket Kaynaklı Socket Welding			Slip-on
		O	C min.	R	Delik Sayısı No of Holes	Delik Ölçüsü Size of Holes		B min.	X	Y	B ₂ min.	Y ₂	r	Ağırlık Weight	B ₃	D	Ağırlık Weight	Ağırlık Weight
						G	d											
DN	NPS	mm	mm	mm	Adet Number	mm	mm	mm	mm	mm	mm	mm	mm	kg	mm	mm	kg	kg
15	1/2	95	14,2	34,9	4	66.7	15.8	22.4	38	22	22.9	22	3	1.3	15.8	10	1.3	1.3
20	3/4	117	15,7	42,9	4	82.6	19.0	27.7	48	25	29.2	25	3	1.4	20.8	11	1.4	1.4
25	1	124	17,5	50,8	4	88.9	19.0	34.5	54	27	35.0	27	3	1.8	26.7	13	1.8	1.8
32	1 1/4	133	20,6	63,5	4	98.4	19.0	43.2	64	29	43.7	29	5	2.1	35.0	14	2.6	2.1
40	1 1/2	156	22,4	73,0	4	114.3	22.2	49.5	70	32	50.0	32	6	3.1	40.9	16	3.1	3.1
50	2	165	25,4	92,1	8	127.0	19.0	62.0	84	37	62.5	37	8	4.0	52.6	17	4.0	4.0
65	2 1/2	190	28,4	104,8	8	149.2	22.2	74.7	100	41	75.4	41	8	5.4	62.7	19	5.5	5.4
80	3	210	31,8	127,0	8	168.3	22.2	90.7	118	46	91.4	46	10	7.0	78.0	21	7.0	7.0
-	3 1/2	229	35,0	139,7	8	184.1	25.4	103.4	133	49	104.1	49	10	8.9	-	-	-	8.9
100	4	273	38,1	157,2	8	215.9	25.4	116.1	152	54	116.8	54	11	16.0	-	-	-	16.0
125	5	330	44,5	185,7	8	266.7	28.5	143.8	189	60	144.5	60	11	25.0	-	-	-	25.0
150	6	356	47,8	215,9	12	292.1	28.5	170.7	222	67	171.4	67	13	30.0	-	-	-	30.0
200	8	419	55,6	269,9	12	349.2	31.8	221.5	273	76	222.2	76	13	43.0	-	-	-	43.0
250	10	508	63,5	323,8	16	431.8	35.0	276.4	343	86	277.4	111	13	89.0	-	-	-	70.0
300	12	559	66,5	381,0	20	489.0	35.0	327.2	400	92	328.2	117	13	109.0	-	-	-	86.0
350	14	603	69,9	412,8	20	527.0	38.1	359.2	432	94	360.2	127	13	132.0	-	-	-	100.0
400	16	686	76,2	469,9	20	603.2	41.1	410.5	495	106	411.2	140	13	182.0	-	-	-	142.0
450	18	743	82,6	533,4	20	654.0	44.5	461.8	546	117	462.3	152	13	213.0	-	-	-	175.0
500	20	813	88,9	584,2	24	723.9	44.5	513.1	610	127	514.4	165	13	274.0	-	-	-	221.0
600	24	940	101,6	692,2	24	838.2	50.8	616.0	718	140	616.0	184	13	393.0	-	-	-	315.0

Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



Spectacle Blind Flange

İMALAT YÖNTEMİ

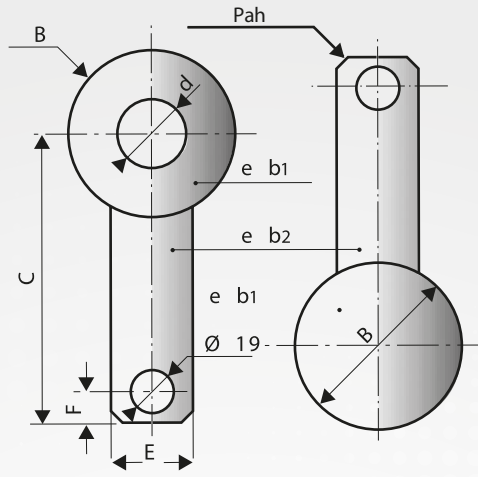
Tercihen tek parça.

Paslanmaz ve muadili çelikler hariç
3 parçadan imal edilmektedir.

MANUFACTURING PROCESS:
Preferably one piece except for
stainless and allied steel, which can
be manufactured in 3 pieces

Ölçüler		150 LB							300 LB							600 LB						
DN	NPS	B	d	C	E	b1	b2	F	B	d	C	E	b1	b2	F	B	d	C	E	b1	b2	F
15	1/2	44	16.0	60	25	6.5	4	16	51	16.0	67	30	6.5	4	16	51	16.0	67	30	6.5	4	16
20	3/4	54	22.0	70	30	6.5	4	16	63	22.0	83	35	6.5	4	16	63	22.0	83	35	6.5	4	16
25	1	63	28.5	79	35	6.5	4	16	70	28.5	89	40	6.5	4	16	70	28.5	89	40	9.5	6	19
32	1 1/4	73	35.0	89	40	6.5	4	16	79	35.0	98	45	6.5	4	16	79	35.0	98	50	9.5	6	19
40	1 1/2	82	41.5	98	50	6.5	4	16	92	41.5	114	55	6.5	4	23	92	41.5	114	55	9.5	6	23
50	2	101	54.0	121	50	6.5	4	19	108	54.0	127	28	6.5	4	16	108	54.0	127	28	9.5	6	16
65	2 1/2	120	66.5	140	50	6.5	4	19	127	66.5	149	35	6.5	4	23	127	63.5	149	35	12.5	8	23
80	3	133	79.5	152	60	6.5	4	19	146	79.5	168	40	9.5	6	23	146	79.5	168	40	16.0	10	23
-	3 1/2	159	92.0	178	45	6.5	4	19	162	92.0	184	45	9.5	6	23	159	92.0	184	45	16.0	10	23
100	4	171	108.0	191	50	6.5	4	19	178	108.0	200	50	12.5	8	23	190	105.0	216	55	16.0	10	23
125	5	193	133.5	216	55	9.5	6	22	212	133.5	235	60	12.5	8	23	238	130.0	267	70	22.5	14	23
150	6	219	159.0	241	60	9.5	6	22	247	159.0	270	45	16.0	8	23	263	155.5	292	45	25.5	16	23
200	8	276	209.5	298	70	12.5	8	22	305	209.5	330	55	19.0	10	23	317	203.0	349	55	32.0	20	23
250	10	336	260.5	362	65	16.0	8	26	359	260.5	387	45	25.5	14	23	390	257.0	432	45	38.0	24	23
300	12	406	305.0	432	70	22.5	10	26	419	305.0	451	50	28.5	18	23	454	305.0	489	40	44.5	30	23
350	14	441	336.5	476	70	25.5	14	29	476	336.5	514	45	32.0	20	23	489	336.5	527	40	51.0	36	23
400	16	505	387.5	540	70	25.5	14	29	530	387.5	572	50	36.5	22	23	562	387.5	603	50	57.0	40	23
450	18	540	438.0	578	70	25.5	14	32	587	438.0	629	45	41.5	24	23	609	438.0	654	55	63.0	50	23
500	20	597	489.0	635	65	28.5	18	32	645	489.0	686	50	44.5	24	23	679	489.0	724	50	70.0	64	23
550	22	657	546.0	692	65	35.0	20	35	702	546.0	743	50	44.5	24	23	730	540.0	778	55	70.0	64	23
600	24	708	590.5	750	75	35.0	20	35	765	590.5	813	60	54.0	40	23	787	590.5	838	55	82.0	68	23

Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



e=Kalınlık Thickness

Line Spades and Spacer

İMALAT YÖNTEMİ

Tercihen tek parça.

Paslanmaz ve muadili çelikler hariç

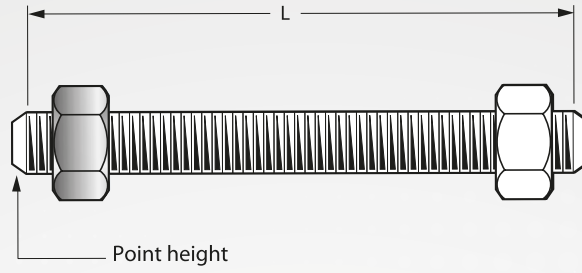
2 parçadan imal edilmektedir.

MANUFACTURING PROCESS:

Preferably one piece except for stainless and allied steel, which can be manufactured in 2 pieces

Ölçüler Sizes		150 LB							300 LB							600 LB						
DN	NPS	B	d	C	E	b1	b2	F	B	d	C	E	b1	b2	F	B	d	C	E	b1	b2	F
25	1	63	28.5	117	32	6.5	4	12.5	70	28.5	125	32	6.5	4	12.5	70	28.5	125	32	9.5	6	12.5
32	1 1/4	73	35.0	125	32	6.5	4	12.5	79	35.0	135	32	6.5	4	12.5	79	35.0	135	32	9.5	6	12.5
40	1 1/2	82	41.5	127	32	6.5	4	12.5	92	41.5	140	32	6.5	4	12.5	92	41.5	140	32	9.5	6	12.5
50	2	101	54.0	140	32	6.5	6	12.5	108	54.0	145	32	6.5	4	12.5	108	54.0	145	32	9.5	6	12.5
65	2 1/2	120	66.5	155	32	6.5	4	12.5	127	66.5	160	32	6.5	4	12.5	127	63.5	160	32	12.5	8	12.5
80	3	133	79.5	160	32	6.5	4	12.5	146	79.5	170	32	9.5	6	12.5	146	79.5	170	32	16.0	10	12.5
-	3 1/2	159	92.0	170	32	6.5	4	12.5	162	92.0	180	32	9.5	6	12.5	159	85.5	185	32	16.0	10	12.5
100	4	171	108.0	180	32	6.5	4	12.5	178	108.0	190	32	12.5	8	12.5	190	105.0	200	32	16.0	10	12.5
125	5	193	133.5	190	32	9.5	6	12.5	212	133.5	205	32	12.5	8	12.5	238	130.0	230	32	22.5	14	12.5
150	6	219	159.0	203	32	9.5	6	19.0	247	159.0	225	32	16.0	8	19.0	263	155.5	240	32	25.5	16	12.5
200	8	276	209.5	235	38	12.5	8	19.0	305	209.5	255	38	19.0	10	19.0	317	203.0	275	38	32.0	20	19.0
250	10	336	260.5	265	38	16.0	8	19.0	359	260.5	285	38	25.5	14	19.0	390	257.0	320	38	38.0	24	19.0
300	12	406	305.0	305	38	22.5	10	19.0	419	305.0	325	38	28.5	18	19.0	454	305.0	345	38	44.5	30	19.0
350	14	441	336.5	330	38	25.5	14	19.0	476	336.5	355	38	32.0	20	19.0	489	336.5	365	38	51.0	36	19.0
400	16	505	387.5	360	38	25.5	14	19.0	530	387.5	385	38	36.5	22	19.0	562	387.5	405	38	57.0	40	19.0
450	18	540	438.0	380	38	25.5	14	19.0	587	438.0	420	38	41.5	24	19.0	609	438.0	435	38	63.0	50	19.0
500	20	597	489.0	415	38	28.5	20	19.0	644	489.0	450	38	44.5	24	19.0	679	489.0	470	38	70.0	64	19.0
600	24	708	590.5	470	38	35.0	20	19.0	765	590.5	520	38	54.0	40	19.0	787	590.5	535	45	82.0	68	19.0

Ölçüler mm olarak verilmiştir. Dimensions in mm.



Somunlu Saplama Cıvatası
Stud Bolt With Nuts

Nominal pipe size		Saplama Cıvatası / Stud bolts											
		150 LB				300 LB				600 LB			
		Cıvata Adedi Numb. Of bolts	Cıvata Ölçüsü Diameter of bolts		L	Cıvata Adedi Numb. Of bolts	Cıvata Ölçüsü Diameter of bolts		L	Cıvata Adedi Numb. Of bolts	Cıvata Ölçüsü Diameter of bolts		L
			UNC	ISO			1.6 mm RF	UNC			ISO	1.6 mm RF		UNC	ISO	6,4 mm RF
DN	NPS	inches	mm	mm	inches	mm	mm	inches	mm	mm			
15	1/2	4	1/2	M 14	60	4	1/2	M 14	65	4	1/2	M 14	75
20	3/4	4	1/2	M 14	65	4	5/8	M 16	80	4	5/8	M 16	90
25	1	4	1/2	M 14	65	4	5/8	M 16	80	4	5/8	M 16	90
32	1 1/4	4	1/2	M 14	70	4	5/8	M 16	85	4	5/8	M 16	95
40	1 1/2	4	1/2	M 14	70	4	3/4	M 20	90	4	3/4	M 20	110
50	2	4	5/8	M 16	85	8	5/8	M 16	90	8	5/8	M 16	110
65	2 1/2	4	5/8	M 16	90	8	3/4	M 20	100	8	3/4	M 20	120
80	3	4	5/8	M 16	90	8	3/4	M 20	110	8	3/4	M 20	125
-	3 1/2	8	5/8	M 16	90	8	3/4	M 20	110	8	7/8	M 24	140
100	4	8	5/8	M 16	90	8	3/4	M 20	115	8	7/8	M 24	145
125	5	8	3/4	M 20	95	8	3/4	M 20	120	8	1	M 27	165
150	6	8	3/4	M 20	100	12	3/4	M 20	125	12	1	M 27	170
200	8	8	3/4	M 20	110	12	7/8	M 24	140	12	1 1/8	M 30	190
250	10	12	7/8	M 24	115	16	1	M 27	160	16	1 1/4	M 33	215
300	12	12	7/8	M 24	120	16	1 1/8	M 30	170	20	1 1/4	M 33	225
350	14	12	1	M 27	135	20	1 1/8	M 30	175	20	1 3/8	M 36	235
400	16	16	1	M 27	135	20	1 1/4	M 33	190	20	1 1/2	M 39	255
450	18	16	1 1/8	M 30	150	24	1 1/4	M 33	195	20	1 5/8	M 42	275
500	20	20	1 1/8	M 30	160	24	1 1/4	M 33	205	24	1 5/8	M 42	290
600	24	20	1 1/4	M 33	175	24	1 1/2	M 39	230	24	1 7/8	M 48	330

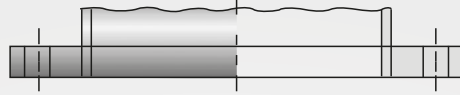
Ölçüler mm olarak verilmiştir. *Dimensions in mm.*

Malzeme Grubu Material Group	Sembol Nominal Designation	Dövme Forgings	Dökme Castings	Levha Plates
1.1	C-S,	A 105	A 216 Gr. WCB	A 515 Gr. 70
	C-Mn-Si	A 350 Gr. LF2 Cl. 1	-	A 516 Gr. 70
	C-Mn-Si	-	-	A 537 Cl. 1
	C-Mn-Si-V	A 350 Gr. LF6 Cl. 1	-	-
1.2	3½Ni	A 350 Gr. LF3	-	-
	C-Mn-Si	-	A 216 Gr. WCC	-
	C-Mn-Si	-	A 352 Gr. LCC	-
	C-Mn-Si-V	A 350 Gr. LF6 Cl. 2	-	-
	2½Ni	-	A 352 Gr. LC2	A 203 Gr. B
1.3	3½Ni	-	A352 Gr. LC3	A 203 Gr. E
	C-Si	-	A 352 Gr. LCB	A 515 Gr. 65
	C-Mn-Si	-	-	A 516 Gr. 65
	2½Ni	-	-	A 203 Gr. A
	3½Ni	-	-	A 203 Gr. D
	C-½Mo	-	A 217 Gr. WC1	-
1.4	C-Si	-	-	A 515 Gr. 60
	C-Mn-Si	A 350 Gr. LF1 Cl. 1	-	A 516 Gr. 60
1.5	C-½Mo	A 182 Gr. F1	-	A 204 Gr.1 A
	C-½Mo	-	-	A 204 Gr.1 B
1.7	½Cr-½Mo	A 182 Gr. F2	-	-
	Ni-½Cr-½Mo	-	A 217 Gr. WC4	-
	¾Ni-¾Cr-1Mo	-	A 217 Gr. WC5	-
1.9	1¼Cr-½Mo	-	A 217 Gr. WC6	-
	1¼Cr-½Mo-Si	A 182 Gr. F11 Cl. 2	-	A 387 Gr. 11 Cl. 2
1.10	2¼Cr-1Mo	A 182 Gr. F22 Cl. 3	A 217 Gr. WC9	A 387 Gr. 22 Cl. 2
1.11	C-½Mo	-	-	A 240 Gr. C
1.13	5Cr-½Mo	A 182 Gr. F5a	A 217 Gr. C5	-
1.14	9Cr-1Mo	A182 Gr. F9	A 217 Gr. C12	-
1.15	9Cr-1Mo-V	A 182 Gr. F91	A 217 Gr. C12A	A 387 Gr. 91 Cl. 2
1.17	1Cr-½Mo	A 182 Gr. F12 Cl. 2	-	-
	5Cr-½Mo	A 182 Gr. F5	-	-
2.1	18Cr-8Ni	A 182 Gr. F304	A 351 Gr. CF3	A 240 Gr. 304
	18Cr-8Ni	A 182 Gr. F304H	A 351 Gr. CF8	A 240 Gr. 304H
2.2	16Cr-12Ni-2Mo	A 182 Gr. F316	A 351 Gr. CF3M	A 240 Gr. 316
	16Cr-12Ni-2Mo	A 182 Gr. F316H	A 351 Gr. CF8M	A 240 Gr. 316H
	18Cr-13Ni-3Mo	A 182 Gr. F317	-	A 240 Gr. 317
	19Cr-10Ni-3Mo	-	A 351 Gr. CG8M	-
2.3	18Cr-8Ni	A 182 Gr. F304L	-	A 240 Gr. 304L
	16Cr-12Ni-2Mo	A182 Gr. F316L	-	A 240 Gr. 316L
	18Cr-13Ni-3Mo	A 182 GR. F317L	-	A 240 Gr. 317L
2.4	18Cr-10Ni-Ti	A 182 Gr. F321	-	A 240 Gr. 321
	18Cr-10Ni-Ti	A 182 Gr. F321H	-	A 240 Gr. 321H
2.5	18Cr-10Ni-Cb	A 182 Gr. F347	-	A 240 Gr. 347
	18Cr-10Ni-Cb	A 182 Gr. F347H	-	A 240 Gr. 347H
	18Cr-10Ni-Cb	A 182 Gr. F348	-	A 240 Gr. 348
	18Cr-10Ni-Cb	A 182 Gr. F348H	-	A 240 Gr. 348H

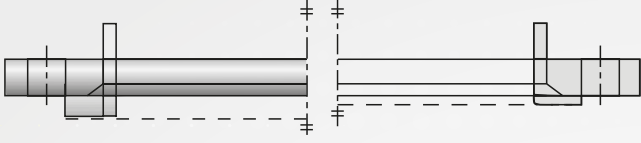
Sıcaklık Temp.	Class 150 flanşlar için İzin Verilen Çalışma Basıncı Maximum Allowable Operating Pressure for Flanges Class 150 (bar)																
	Malzeme Grubu/ Material Group																
°C	1.1	1.2	1.3	1.4	1.5	1.7	1.9	1.10	1.13	1.14	1.15	1.17	2.1	2.2	2.3	2.4	2.5
-29 ila 38	19,6	19,8	18,4	16,3	18,4	19,8	19,8	19,8	20,0	20,0	20,0	19,8	19,0	19,0	15,9	19,0	19,0
50	19,2	19,5	18,2	16,0	18,4	19,5	19,5	19,5	19,5	19,5	19,5	19,5	18,3	18,4	15,3	18,6	18,7
100	17,7	17,7	17,4	14,9	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7	15,7	16,2	13,3	17,0	17,4
150	15,8	15,8	15,8	14,4	15,8	15,8	15,8	15,8	15,8	15,8	15,8	15,8	14,2	14,8	12,0	15,7	15,8
200	13,8	13,8	13,8	13,8	13,8	13,8	13,8	13,8	13,8	13,8	13,8	13,8	13,2	13,7	11,2	13,8	13,8
250	12,1	12,1	12,1	12,1	12,1	12,1	12,1	12,1	12,1	12,1	12,1	12,1	12,1	12,1	10,5	12,1	12,1
300	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,0	10,2	10,2
325	9,3	9,3	9,3	9,3	9,3	9,3	9,3	9,3	9,3	9,3	9,3	9,3	9,3	9,3	9,3	9,3	9,3
350	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4
375	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4
400	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5
425	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5
450	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6
475	3,7	3,7	3,7	3,7	3,7	3,7	3,7	3,7	3,7	3,7	3,7	3,7	3,7	3,7	-	3,7	3,7
500	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	-	2,8	2,8
538	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4	1,4

Sıcaklık Temp.	Class 300 Flanşlar için İzin Verilen Çalışma Basıncı Maximum Allowable Operating Pressure for Flanges Class 300 (bar)																
	Malzeme Grubu/ Material Group																
°C	1.1	1.2	1.3	1.4	1.5	1.7	1.9	1.10	1.13	1.14	1.15	1.17	2.1	2.2	2.3	2.4	2.5
-29 ila 38	51,1	51,7	48,0	42,6	48,0	51,7	51,7	51,7	51,7	51,7	51,7	51,7	49,6	49,6	41,4	49,6	49,6
50	50,1	51,7	47,5	41,8	48,0	51,7	51,7	51,7	51,7	51,7	51,7	51,5	47,8	48,1	40,0	48,6	48,8
100	46,6	51,5	45,3	38,8	47,9	51,5	51,5	51,5	51,5	51,5	51,5	50,4	40,9	42,2	34,8	44,2	45,3
150	45,1	50,2	43,9	37,6	47,3	50,3	49,7	50,3	50,3	50,3	50,3	48,2	37,0	38,5	31,4	41,0	42,5
200	43,8	48,6	42,5	36,4	45,8	48,6	48,0	48,6	48,6	48,6	48,6	46,3	34,5	35,7	29,2	38,3	39,9
250	41,9	46,3	40,8	34,9	44,5	46,3	46,3	46,3	46,3	46,3	46,3	44,8	32,5	33,4	27,5	36,0	37,8
300	39,8	42,9	38,7	33,2	42,9	42,9	42,9	42,9	42,9	42,9	42,9	42,9	30,9	31,6	26,1	34,1	36,1
325	38,7	41,4	37,6	32,2	41,4	41,4	41,4	41,4	41,4	41,4	41,4	41,4	30,2	30,9	25,5	33,3	35,4
350	37,6	40,0	36,4	31,2	40,3	40,3	40,3	40,3	40,3	40,3	40,3	40,3	29,6	30,3	25,1	32,6	34,8
375	36,4	37,8	35,0	30,4	38,9	38,9	38,9	38,9	38,9	38,9	38,9	38,9	29,0	29,9	24,8	32,0	34,2
400	34,7	34,7	32,6	29,3	36,5	36,5	36,5	36,5	36,5	36,5	36,5	36,5	28,4	39,4	24,3	31,6	33,9
425	28,8	28,8	27,3	25,8	35,2	35,2	35,2	35,2	35,2	35,2	35,2	35,2	28,0	29,1	23,9	31,1	33,6
450	23,0	23,0	21,6	21,4	33,7	33,7	33,7	33,7	33,7	33,7	33,7	33,7	27,4	28,8	23,4	30,8	33,5
475	17,4	17,1	15,7	14,1	31,7	31,7	31,7	31,7	27,9	31,7	31,7	27,9	26,9	28,7	-	30,5	31,7
500	11,8	11,6	11,1	10,3	24,1	26,7	25,7	28,2	21,4	28,2	28,2	21,4	26,5	28,2	-	28,2	28,2
538	5,9	5,9	5,9	5,9	11,3	13,9	14,9	18,4	13,7	17,5	25,2	13,7	24,4	25,2	-	25,2	25,2
550	-	-	-	-	-	12,6	12,7	15,6	12,0	15,0	25,0	12,0	23,6	25,0	-	25,0	25,0
575	-	-	-	-	-	7,2	8,8	10,5	8,9	10,5	24,0	8,8	20,8	24,0	-	24,0	24,0
600	-	-	-	-	-	-	6,1	6,9	6,2	7,2	19,5	6,1	16,9	19,9	-	20,3	21,6
625	-	-	-	-	-	-	4,3	4,5	4,0	5,0	14,6	4,0	13,8	15,8	-	15,8	18,3
650	-	-	-	-	-	-	2,8	2,8	2,4	3,5	9,9	2,4	11,3	12,7	-	12,6	14,1
675	-	-	-	-	-	-	-	-	-	-	-	-	9,3	10,3	-	9,9	12,4
700	-	-	-	-	-	-	-	-	-	-	-	-	8,0	8,4	-	7,9	10,1
725	-	-	-	-	-	-	-	-	-	-	-	-	6,8	7,0	-	6,3	7,9
750	-	-	-	-	-	-	-	-	-	-	-	-	5,8	5,9	-	5,0	5,9
775	-	-	-	-	-	-	-	-	-	-	-	-	4,6	4,6	-	4,0	4,6
800	-	-	-	-	-	-	-	-	-	-	-	-	3,5	3,5	-	3,1	3,5
816	-	-	-	-	-	-	-	-	-	-	-	-	2,8	2,8	-	2,6	2,8

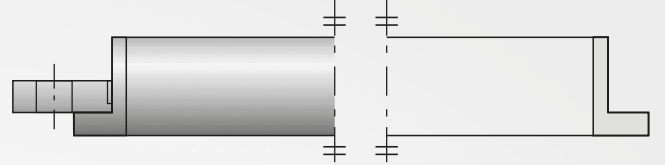
Sıcaklık Temp.	Class 600 için İzin Verilen Çalışma Basıncı Maximum Allowable Operating Pressure for Class 600 (bar)																
	Malzeme Grubu/ Material Group																
°C	1.1	1.2	1.3	1.4	1.5	1.7	1.9	1.10	1.13	1.14	1.15	1.17	2.1	2.2	2.3	2.4	2.5
-29 ila 38	102,1	103,4	96,0	85,1	96,0	103,4	103,4	103,4	103,4	103,4	103,4	103,4	99,3	99,3	82,7	99,3	99,3
50	100,2	103,4	94,9	83,5	96,0	103,4	103,4	103,4	103,4	103,4	103,4	103,0	95,6	96,2	80,0	97,1	97,5
100	93,2	103,0	90,7	77,7	95,9	103,0	103,0	103,0	103,0	103,0	103,0	100,9	81,7	84,4	69,6	88,5	90,6
150	90,2	100,3	87,9	75,1	94,7	100,3	99,5	100,3	100,3	100,3	100,3	96,4	74,0	77,0	62,8	82,0	84,9
200	87,6	97,2	85,1	72,8	91,6	97,2	95,9	97,2	97,2	97,2	97,2	92,5	69,0	71,3	58,3	76,6	79,9
250	83,9	92,7	81,6	69,8	89,0	92,7	92,7	92,7	92,7	92,7	92,7	89,6	65,0	66,8	54,9	72,0	75,6
300	79,6	85,7	77,4	66,4	85,7	85,7	85,7	85,7	85,7	85,7	85,7	85,7	61,8	63,2	52,1	68,3	72,2
325	77,4	82,6	75,2	64,5	82,6	82,6	82,6	82,6	82,6	82,6	82,6	82,6	60,4	61,8	51,0	66,6	70,7
350	75,1	80,0	72,8	62,5	80,4	80,4	80,4	80,4	80,4	80,4	80,4	80,4	59,3	60,7	50,1	65,2	69,5
375	72,7	75,7	69,9	60,7	77,6	77,6	77,6	77,6	77,6	77,6	77,6	77,6	58,1	59,8	49,5	64,1	68,4
400	69,4	69,4	65,2	58,7	73,3	73,3	73,3	73,3	73,3	73,3	73,3	73,3	56,9	58,9	48,6	63,2	67,8
425	57,5	57,5	54,6	51,5	70,0	70,0	70,0	70,0	70,0	70,0	70,0	70,0	56,0	58,3	47,7	62,3	67,2
450	46,0	46,0	43,2	42,7	67,7	67,7	67,7	67,7	67,7	67,7	67,7	67,7	54,8	57,7	46,8	61,7	66,9
475	34,9	34,2	31,3	28,2	63,4	63,4	63,4	63,4	55,7	63,4	63,4	55,7	53,9	57,3	-	61,1	63,4
500	23,5	23,2	22,1	20,6	48,1	53,4	51,5	56,5	42,8	56,5	56,5	42,8	53,0	56,5	-	56,5	56,5
538	11,8	11,8	11,8	11,8	22,7	27,9	29,8	36,9	27,4	35,0	50,0	27,4	48,9	50,0	-	50,0	50,0
550	-	-	-	-	-	25,2	25,4	31,3	24,1	30,0	49,8	24,1	47,1	49,8	-	49,8	49,8
575	-	-	-	-	-	14,4	17,6	21,1	17,8	20,9	47,9	17,6	41,7	47,9	-	47,9	47,9
600	-	-	-	-	-	-	12,2	13,8	12,5	14,4	39,0	12,1	33,8	39,8	-	40,5	42,9
625	-	-	-	-	-	-	8,5	8,9	8,0	9,9	29,2	8,0	27,6	31,6	-	31,6	36,6
650	-	-	-	-	-	-	5,7	5,7	4,7	7,1	19,9	4,7	22,5	25,3	-	25,3	28,1
675	-	-	-	-	-	-	-	-	-	-	-	-	18,7	20,6	-	19,8	25,2
700	-	-	-	-	-	-	-	-	-	-	-	-	16,1	16,8	-	15,8	20,0
725	-	-	-	-	-	-	-	-	-	-	-	-	13,5	14,0	-	12,7	15,4
750	-	-	-	-	-	-	-	-	-	-	-	-	11,6	11,7	-	10,0	11,7
775	-	-	-	-	-	-	-	-	-	-	-	-	9,0	9,0	-	8,0	9,0
800	-	-	-	-	-	-	-	-	-	-	-	-	7,0	7,0	-	6,3	7,0
816	-	-	-	-	-	-	-	-	-	-	-	-	5,9	5,9	-	5,2	5,9



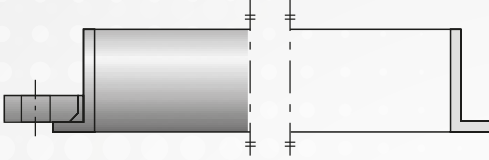
Type 01 Düz flanş / Plate flange



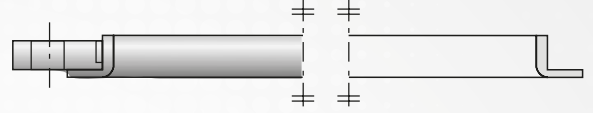
Type 02 Oynak flanş kaynaklı düz yaka (tip 32) veya oynak boru uçlu (tip33)
Loose plate flange with weld-on collar or lapped pipe end



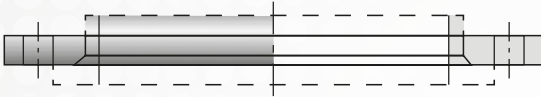
Type 02 Kaynak halkalı boyunlu oynak flanş (tip 35)
Loose plate flange with weld ring neck



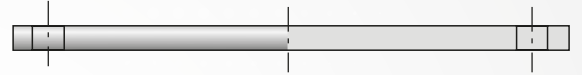
Type 02 Uzun boyunlu yakalı oynak flanş (tip 36)
Loose plate flange with pressed collar
with long neck



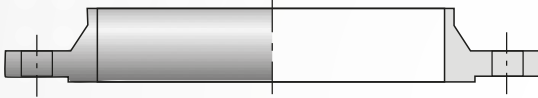
Type 02 Yakalı oynak flanş (tip 37)
Loose plate flange with pressed collar



Type 04 Kaynak boyun yakalı oynak flanş (tip 34)
Loose plate flange with weld-neck collar



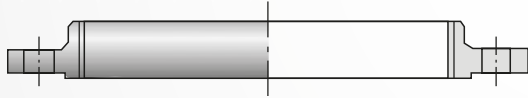
Type 05 Kör flanş
Blind flange



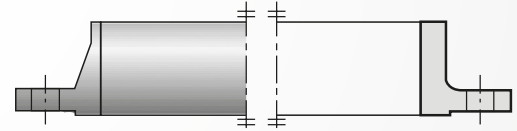
Type 11 Kaynak boyunlu flanş
Welding neck flange



Type 12 Slip-on flanş
Slip-on flange



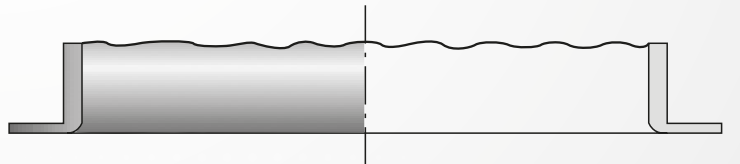
Type 13 Dişli flanş
Threaded flange



Type 21 İntegral flanş
Integral flange



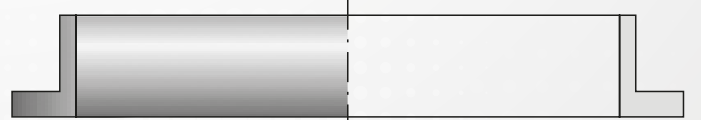
Type 32 Kaynaklı düz yaka
Weld-on collar plate



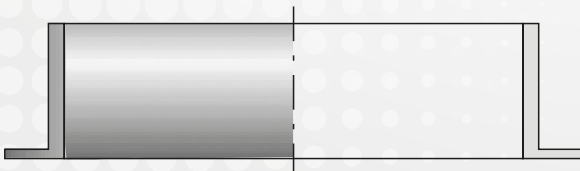
Type 33 Oynak boru uçlu / Lapped pipe end



Type 34 Kaynak boyunlu yaka
Weld-neck collar



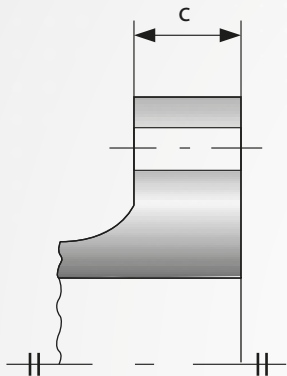
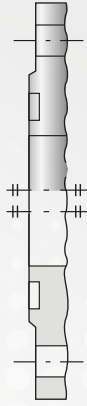
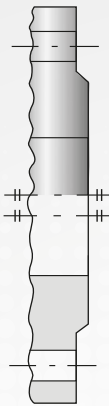
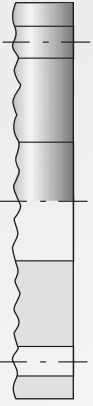
Type 35 Kaynak halkalı boyunlu
Welding neck



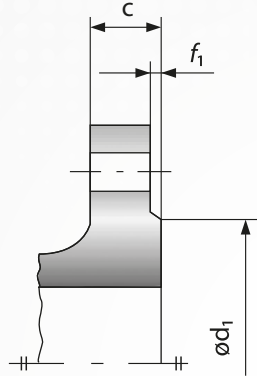
Type 36 Uzun boyunlu yaka
Pressed collar with long neck



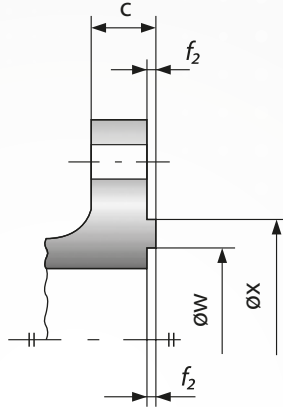
Type 37 Pres yakalı
Pressed Collar



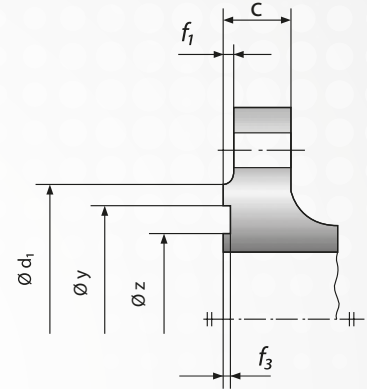
Tip A: Düz Alın - Flat Face



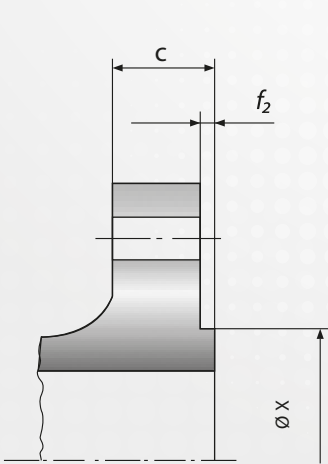
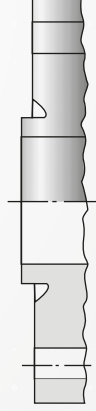
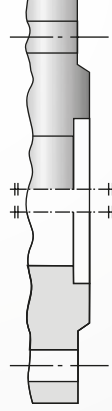
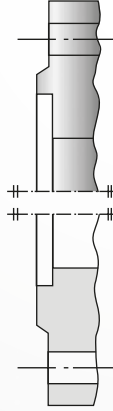
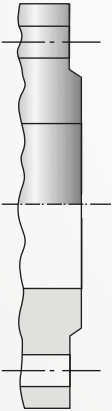
Tip B: Faturalı Alın - Raised Face



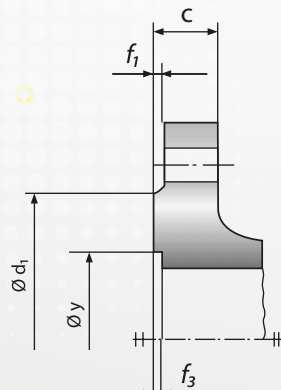
Tip C: Dilli - Tongue



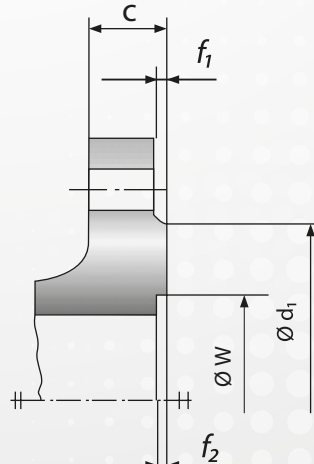
Tip D: Yivli - Groove



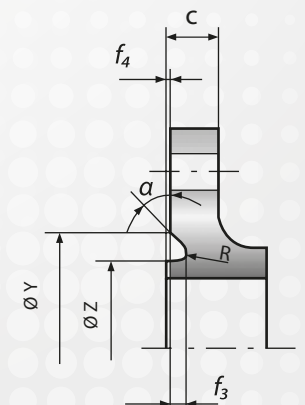
Tip E: Spigot



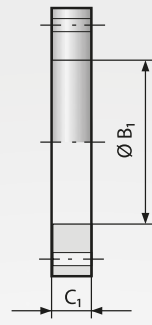
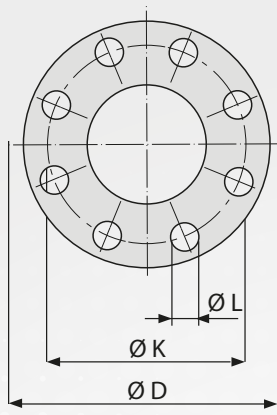
Tip F: Girintili - Recess



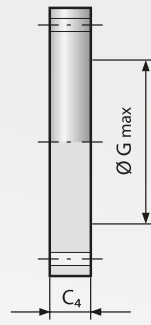
Tip H: O-ringli Spigot



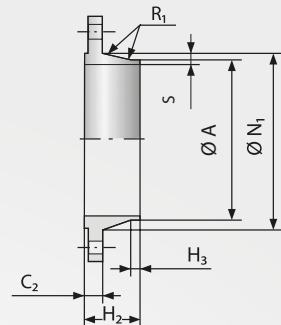
Tip H: O-ringli Yivli - O-ring Groove



Type 01 Düz flaş
Plate flange



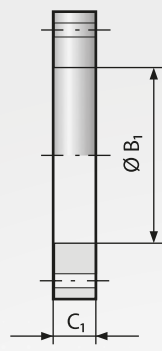
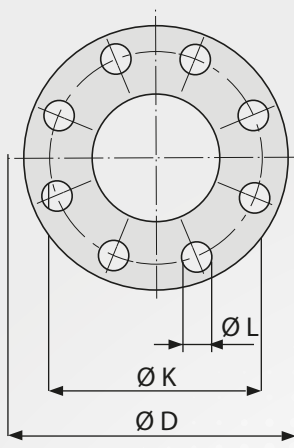
Type 05 Kör flaş
Blind flange



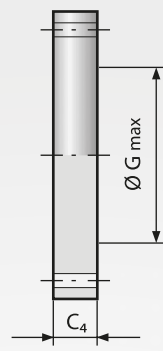
Type 11 Kaynak boyunlu flaş
Welding neck flange

DN	Birleşme Mesafeleri / Mating dimensions					Boyun dış çapı Outside diameter of neck A	İç Çap Bore Diameter B ₁	Kalınlık Flange thickness			Alın Çapı Diameter of shoulder G _{max}	Yükseklik Length		Boyun çapı Neck diameter N ₁	Köşe Çapı Corner Radii R ₁	Et Kalınlığı Wall thickness S					
	Dış Çap Outside Diameter D	Civata delik eksenini Diameter of bolt circle K	Civata delik çapı Diameter of bolt hole L	Civata deliği Bolting				C ₁	C ₂	C ₄		H ₂	H ₃								
								Flaş tipi / Flange type													
	01, 05, 11							11	01	01		11	05				05	11	11	11	11	11
10	75	50	11	4	M10	17.2	18.0	12	12	12	-	28	6	26	4	2					
15	80	55	11	4	M10	21.3	22.0	12	12	12	-	30	6	30	4	2					
20	90	65	11	4	M10	26.9	27.5	14	14	14	-	32	6	38	4	2.3					
25	100	75	11	4	M10	33.7	34.5	14	14	14	-	35	6	42	4	2.6					
32	120	90	14	4	M12	42.4	43.5	16	14	14	-	35	6	55	6	2.6					
40	130	100	14	4	M12	48.3	49.5	16	14	14	-	38	7	62	6	2.6					
50	140	110	14	4	M12	60.3	61.5	16	14	14	-	38	8	74	6	2.9					
65	160	130	14	4	M12	76.1	77.5	16	14	14	55	38	9	88	6	2.9					
80	190	150	18	4	M16	88.9	90.5	18	16	16	70	42	10	102	8	3.2					
100	210	170	18	4	M16	114.3	116.0	18	16	16	90	45	10	130	8	3.6					
125	240	200	18	8	M16	139.7	141.5	20	18	18	115	48	10	155	8	4					
150	265	225	18	8	M16	168.3	170.5	20	18	18	140	48	12	184	10	4.5					
200	320	280	18	8	M16	219.1	221.5	22	20	20	190	55	15	236	10	6.3					
250	375	335	18	12	M16	273.0	276.5	24	22	22	235	60	15	290	12	6.3					
300	440	395	22	12	M20	323.9	327.5	24	22	22	285	62	15	342	12	7.1					
350	490	445	22	12	M20	355.6	359.5	26	22	22	330	62	15	385	12	7.1					
400	540	495	22	16	M20	406.4	411.0	28	22	22	380	65	15	438	12	7.1					
450	595	550	22	16	M20	457.0	462.0	30	22	24	425	65	15	492	12	7.1					
500	645	600	22	20	M20	508.0	513.5	30	24	24	475	68	15	538	12	7.1					
600	755	705	26	20	M24	610.0	616.5	32	30	30	575	70	16	640	12	7.1					

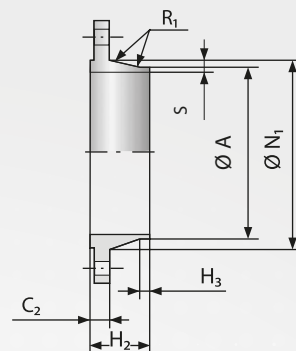
Ölçüler mm olarak verilmiştir. Dimensions in mm.



Type 01 Düz flanş
Plate flange



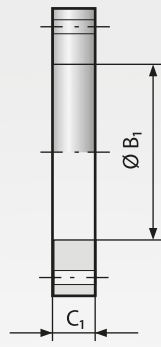
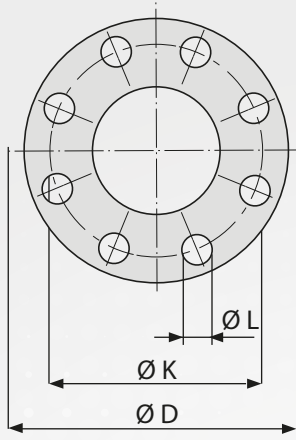
Type 05 Kör flanş
Blind flange



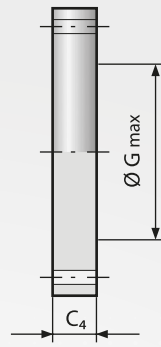
Type 11 Kaynak boyunlu flanş
Welding neck flange

DN	Birleşme Mesafeleri / Mating dimensions					Boyun dış çapı Outside diameter of neck A	İç Çap Bore Diameters B1	Kalınlık Flange thickness C1, C2, C4				Alın Çapı Diameter of shoulder Gmax	Yükseklik Length H2, H3		Boyun çapı Neck diameter N1	Köşe Çapı Corner Radii R1	Et Kalınlığı Wall thickness S				
	Dış Çap Outside Diameter D	Civata delik eksenini Diameter of bolt circle K	Civata delik çapı Diameter of bolt hole L	Civata deliği Bolting Adet Number, Ölçü Size				C1	C2	C4	H2		H3								
	Flanş tipi / Flange type																				
	01, 05, 11							11	01	01	11		05	05				11	11	11	11	11
10	75	50	11	4	M10	17.2	18.0	12	12	12	-	28	6	26	4	2					
15	80	55	11	4	M10	21.3	22.0	12	12	12	-	30	6	30	4	2					
20	90	65	11	4	M10	26.9	27.5	14	14	14	-	32	6	38	4	2.3					
25	100	75	11	4	M10	33.7	34.5	14	14	14	-	35	6	42	4	2.6					
32	120	90	14	4	M12	42.4	43.5	16	14	14	-	35	6	55	6	2.6					
40	130	100	14	4	M12	48.3	49.5	16	14	14	-	38	7	62	6	2.6					
50	140	110	14	4	M12	60.3	61.5	16	14	14	-	38	8	74	6	2.9					
65	160	130	14	4	M12	76.1	77.5	16	14	14	55	38	9	88	6	2.9					
80	190	150	18	4	M16	88.9	90.5	18	16	16	70	42	10	102	8	3.2					
100	210	170	18	4	M16	114.3	116.0	18	16	16	90	45	10	130	8	3.6					
125	240	200	18	8	M16	139.7	141.5	20	18	18	115	48	10	155	8	4					
150	265	225	18	8	M16	168.3	170.5	20	18	18	140	48	12	184	10	4.5					
200	320	280	18	8	M16	219.1	221.5	22	20	20	190	55	15	236	10	6.3					
250	375	335	18	12	M16	273.0	276.5	24	22	22	235	60	15	290	12	6.3					
300	440	395	22	12	M20	323.9	327.5	24	22	22	285	62	15	342	12	7.1					
350	490	445	22	12	M20	355.6	359.5	26	22	22	330	62	15	385	12	7.1					
400	540	495	22	16	M20	406.4	411.0	28	22	22	380	65	15	438	12	7.1					
450	595	550	22	16	M20	457.0	462.0	30	22	24	425	65	15	492	12	7.1					
500	645	600	22	20	M20	508.0	513.5	30	24	24	475	68	15	538	12	7.1					
600	755	705	26	20	M24	610.0	616.5	32	30	30	575	70	16	640	12	7.1					
700	860	810	26	24	M24	711.0	*	40	30	40	670	76	16	740	12	8					
800	975	920	30	24	M27	813.0		44	30	44	770	76	16	842	12	8					
900	1075	1020	30	24	M27	914.0		48	34	48	860	78	16	942	12	8					
1000	1175	1120	30	28	M27	1016.0		52	38	52	960	82	16	1045	16	8					

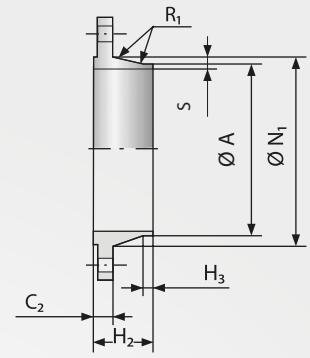
*Üreticiye göre değişiklikler gösterebilir. May vary according to manufacturer. Ölçüler mm olarak verilmiştir. Dimensions in mm.



Type 01 Düz flanş
Plate flange



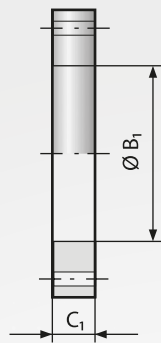
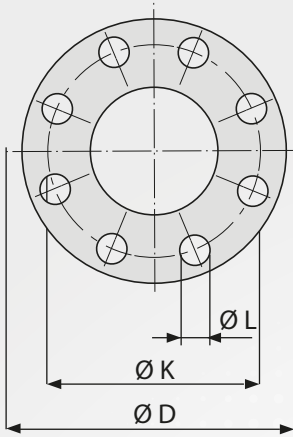
Type 05 Kör flanş
Blind flange



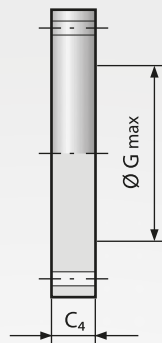
Type 11 Kaynak boyunlu flanş
Welding neck flange

DN	Birleşme Mesafeleri Mating dimensions					Boyun dış çapı Outside diameter of neck A	İç Çap Bore Diameters B ₁	Kalınlık Flange thickness C ₁ C ₂ C ₄				Alın Çapı Diameter of shoulder G _{max}	Yükseklik Length H ₂ H ₃		Boyun çapı Neck diameter N ₁	Köşe Çapı Corner Radii R ₁	Et Kalınlığı Wall thickness S
	Dış Çap Outside Diameter D	Civata delik eksenini Diameter of bolt circle K	Civata delik çapı Diameter of bolt hole L	Civata deliği Bolting				H ₂	H ₃								
				Adet Number	Ölçü Size												
	Flanş tipi / Flange type																
	01, 05, 11					11	01	01	11	05	05	11	11	11	11	11	11
10	90	60	14	4	M12	17.2	18.0	14	16	16	-	35	6	28	4	2	
15	95	65	14	4	M12	21.3	22.0	14	16	16	-	38	6	32	4	2	
20	105	75	14	4	M12	26.9	27.5	16	18	18	-	40	6	40	4	2.3	
25	115	85	14	4	M12	33.7	34.5	16	18	18	-	40	6	46	4	2.6	
32	140	100	18	4	M16	42.4	43.5	18	18	18	-	42	6	56	6	2.6	
40	150	110	18	4	M16	48.3	49.5	18	18	18	-	45	7	64	6	2.6	
50	165	125	18	4	M16	60.3	61.5	20	18	18	-	45	8	74	6	2.9	
65	185	145	18	8	M16	76.1	77.5	20	18	18	55	45	10	92	6	2.9	
80	200	160	18	8	M16	88.9	90.5	20	20	20	70	50	10	105	6	3.2	
100	220	180	18	8	M16	114.3	116.0	22	20	20	90	52	12	131	8	3.6	
125	250	210	18	8	M16	139.7	141.5	22	22	22	115	55	12	156	8	4	
150	285	240	22	8	M20	168.3	170.5	24	22	22	140	55	12	184	10	4.5	
200	340	295	22	8	M20	219.1	221.5	24	24	24	190	62	16	234	10	6.3	
250	395	350	22	12	M20	273.0	276.5	26	26	26	235	68	16	292	12	6.3	
300	445	400	22	12	M20	323.9	327.5	26	26	26	285	68	16	342	12	7.1	
350	505	460	22	16	M20	355.6	359.5	30	26	26	330	68	16	385	12	7.1	
400	565	515	26	16	M24	406.4	411.0	32	26	26	380	72	16	440	12	7.1	
450	615	565	26	20	M24	457.0	462.0	36	28	28	425	72	16	488	12	7.1	
500	670	620	26	20	M24	508.0	513.5	38	28	28	475	75	16	542	12	7.1	
600	780	725	30	20	M27	610.0	616.5	42	30	34	575	82	18	642	12	8	
700	895	840	30	24	M27	711.0	*	50	35	38	670	85	18	746	12	8.8	
800	1015	950	33	24	M30	813.0		56	38	48	770	96	18	850	12	8.8	
900	1115	1050	33	28	M30	914.0		62	38	50	860	99	20	950	12	12.5	
1000	1230	1160	36	28	M33	1016.0		70	44	54	960	105	20	1052	16	12.5	

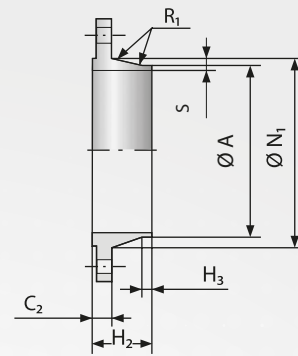
*Üreticiye göre değişiklikler gösterebilir. May vary according to manufacturer. Ölçüler mm olarak verilmiştir. Dimensions in mm.



Type 01 Düz flanş
Plate flange



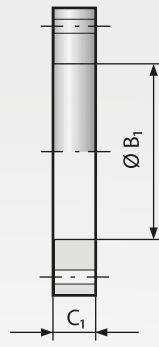
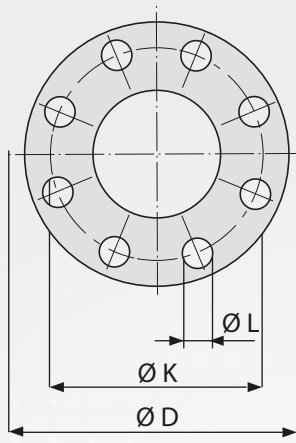
Type 05 Kör flanş
Blind flange



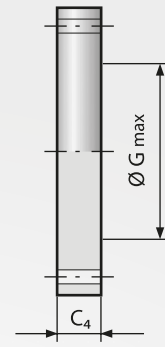
Type 11 Kaynak boyunlu flanş
Welding neck flange

DN	Birleşme Mesafeleri / Mating dimensions					Boyun dış çapı Outside diameter of neck A	İç Çap Bore Diameters B ₁	Kalınlık Flange thickness				Alın Çapı Diameter of shoulder G _{max}	Yükseklik Length		Boyun çapı Neck diameter N ₁	Köşe Çapı Corner Radii R ₁	Et Kalınlığı Wall thickness S
	Dış Çap Outside Diameter D	Civata delik eksenleri Diameter of bolt circle K	Civata delik çapı Diameter of bolt hole L	Civata deliği Bolting				C ₁	C ₂	C ₄	H ₂		H ₃				
				Adet Number	Ölçü Size												
	Flanş tipi Flange type							01	01	11	05		05	11			
	01, 05, 11					11	01	01	11	05	05	11	11	11	11	11	
10	90	60	14	4	M12	17.2	18.0	14	16	16	-	35	6	28	4	2	
15	95	65	14	4	M12	21.3	22.0	14	16	16	-	38	6	32	4	2	
20	105	75	14	4	M12	26.9	27.5	16	18	18	-	40	6	40	4	2.3	
25	115	85	14	4	M12	33.7	34.5	16	18	18	-	40	6	46	4	2.6	
32	140	100	18	4	M16	42.4	43.5	18	18	18	-	42	6	56	6	2.6	
40	150	110	18	4	M16	48.3	49.5	18	18	18	-	45	7	64	6	2.6	
50	165	125	18	4	M16	60.3	61.5	20	18	18	-	45	8	74	6	2.9	
65	185	145	18	8	M16	76.1	77.5	20	18	18	55	45	10	92	6	2.9	
80	200	160	18	8	M16	88.9	90.5	20	20	20	70	50	10	105	6	3.2	
100	220	180	18	8	M16	114.3	116.0	22	20	20	90	52	12	131	8	3.6	
125	250	210	18	8	M16	139.7	141.5	22	22	22	115	55	12	156	8	4	
150	285	240	22	8	M20	168.3	170.5	24	22	22	140	55	12	184	10	4.5	
200	340	295	22	12	M20	219.1	221.5	26	24	24	190	62	16	235	10	6.3	
250	405	355	26	12	M24	273.0	276.5	29	26	26	235	70	16	292	12	6.3	
300	460	410	26	12	M24	323.9	327.5	32	28	28	285	78	16	344	12	7.1	
350	520	470	26	16	M24	355.6	359.5	35	30	30	330	82	16	390	12	8	
400	580	525	30	16	M27	406.4	411.0	38	32	32	380	85	16	445	12	8	
450	640	585	30	20	M27	457.0	462.0	42	34	40	425	83	16	490	12	8	
500	715	650	33	20	M30	508.0	513.5	46	36	44	475	84	16	548	12	8	
600	840	770	36	20	M33	610.0	616.5	55	40	54	575	88	18	670	12	10	
700	910	840	36	24	M33	711.0	*	63	40	58	670	104	18	755	12	10	
800	1025	950	39	24	M36	813.0		74	41	62	770	108	20	855	12	12.5	
900	1125	1050	39	28	M36	914.0		82	48	64	860	118	20	955	12	12.5	
1000	1255	1170	42	28	M39	1016.0		90	59	68	960	137	22	1058	16	12.5	

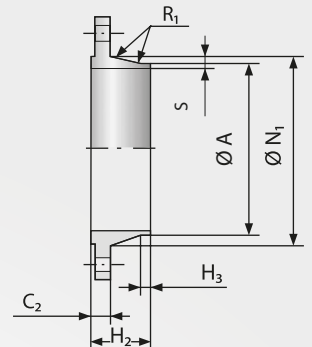
*Üreticiye göre değişiklikler gösterebilir. May vary according to manufacturer. Ölçüler mm olarak verilmiştir. Dimensions in mm.



Type 01 Düz flanş
Plate flange



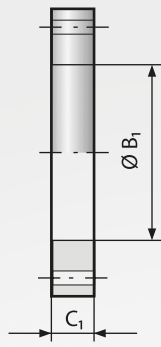
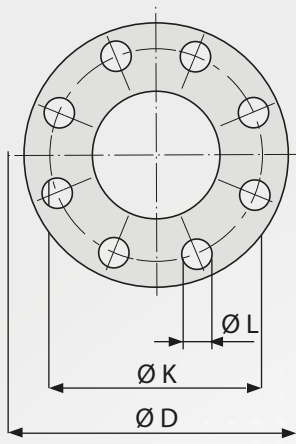
Type 05 Kör flanş
Blind flange



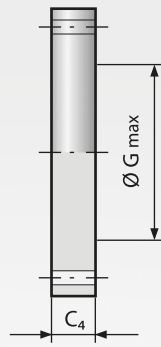
Type 11 Kaynak boyunlu flanş
Welding neck flange

DN	Birleşme Mesafeleri Mating dimensions					Boyun dış çapı Outside diameter of neck A	İç Çap Bore Diameters B ₁	Kalınlık Flange thickness C ₁ C ₂ C ₄			Alın Çapı Diameter of shoulder G _{max}	Yükseklik Length H ₂ H ₃		Boyun çapı Neck diameter N ₁	Köşe Çapı Corner Radii R ₁	Et Kalınlığı Wall thickness S				
	Dış Çap Outside Diameter D	Civata delik eksenleri Diameter of bolt circle K	Civata delik çapı Diameter of bolt hole L	Civata deliği Bolting				Flanş tipi Flange type												
				Adet Number	Ölçü Size				01, 05, 11	11		01	01				11	05	05	11
	Flanş tipi Flange type																			
10	90	60	14	4	M12	17.2	18.0	14	16	16	-	35	6	28	4	2				
15	95	65	14	4	M12	21.3	22.0	14	16	16	-	38	6	32	4	2				
20	105	75	14	4	M12	26.9	27.5	16	18	18	-	40	6	40	4	2.3				
25	115	85	14	4	M12	33.7	34.5	16	18	18	-	40	6	46	4	2.6				
32	140	100	18	4	M16	42.4	43.5	18	18	18	-	42	6	56	6	2.6				
40	150	110	18	4	M16	48.3	49.5	18	18	18	-	45	7	64	6	2.6				
50	165	125	18	4	M16	60.3	61.5	20	20	20	-	48	8	75	6	2.9				
65	185	145	18	8	M16	76.1	77.5	22	22	22	55	52	10	90	6	2.9				
80	200	160	18	8	M16	88.9	90.5	24	24	24	70	58	12	105	8	3.2				
100	235	190	22	8	M20	114.3	116.0	26	24	24	90	65	12	134	8	3.6				
125	270	220	26	8	M24	139.7	141.5	28	26	26	115	68	12	162	8	4				
150	300	250	26	8	M24	168.3	170.5	30	28	28	140	75	12	192	10	4.5				
200	360	310	26	12	M24	219.1	221.5	32	30	30	190	80	16	244	10	6.3				
250	425	370	30	12	M27	273.0	276.5	35	32	32	235	88	18	298	12	7.1				
300	485	430	30	16	M27	323.9	327.5	38	34	34	285	92	18	352	12	8				
350	555	490	33	16	M30	355.6	359.5	42	38	38	332	100	20	398	12	8				
400	620	550	36	16	M33	406.4	411.0	48	40	40	380	110	20	452	12	8.8				
450	670	600	36	20	M33	457.0	462.0	54	46	50	425	110	20	500	12	8.8				
500	730	660	36	20	M33	508.0	513.5	58	48	51	475	125	20	558	12	10				
600	845	770	39	20	M36	610.0	616.5	68	48	66	575	125	20	660	12	11				
700	960	875	42	24	M39	711.0	*	85	50	*	-	129	20	760	12	14.2				
800	1085	990	48	24	M45	813.0		95	53		-	138	22	864	12	16				
900	1185	1090	48	28	M45	914.0		*	57		-	148	24	968	12	17.5				
1000	1320	1210	56	28	M52	1016.0		-	63		-	160	24	1070	16	20				

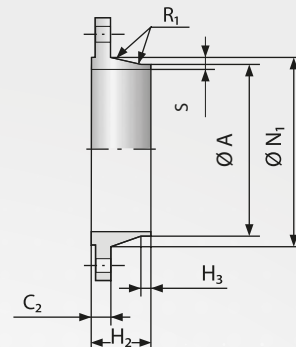
*Üreticiye göre değişiklikler gösterebilir. May vary according to manufacturer. Ölçüler mm olarak verilmiştir. Dimensions in mm.



Type 01 Düz flanş
Plate flange



Type 05 Kör flanş
Blind flange



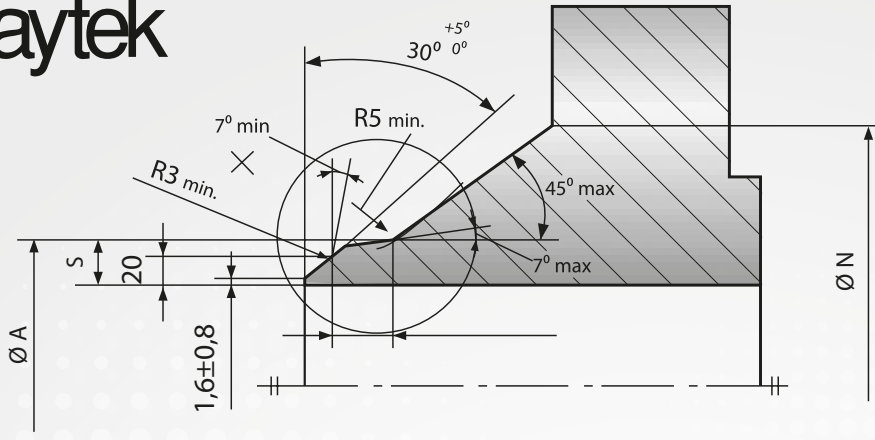
Type 11 Kaynak boyunlu flanş
Welding neck flange

DN	Birleşme Mesafeleri Mating dimensions					Boyun dış çapı Outside diameter of neck	İç Çap Bore Diameters	Kalınlık Flange thickness			Alın Çapı Diameter of shoulder	Yükseklik Length		Boyun çapı Neck diameter	Köşe Çapı Corner Radii	Et Kalınlığı Wall thickness	
	Dış Çap Outside Diameter	Civata delik eksenleri Diameter of bolt circle	Civata delik çapı Diameter of bolt hole	Civata deliği Bolting				C ₁	C ₂	C ₄		H ₂	H ₃				N ₁	R_{1}	S
	D	K	L	Adet Number	Ölçü Size	A	B ₁	C ₁	C ₂	C ₄	G _{max}	H ₂	H ₃	N ₁	R ₁	S	
	Flanş tipi Flange type					11	01	01	11	05	05	11	11	11	11	11	
	01, 05, 11																
10	90	60	14	4	M12	17.2	18.0	14	16	16	-	35	6	28	4	2	
15	95	65	14	4	M12	21.3	22.0	14	16	16	-	38	6	32	4	2	
20	105	75	14	4	M12	26.9	27.5	16	18	18	-	40	6	40	4	2.3	
25	115	85	14	4	M12	33.7	34.5	16	18	18	-	40	6	46	4	2.6	
32	140	100	18	4	M16	42.4	43.5	18	18	18	-	42	6	56	6	2.6	
40	150	110	18	4	M16	48.3	49.5	18	18	18	-	45	7	64	6	2.6	
50	165	125	18	4	M16	60.3	61.5	20	20	20	-	48	8	75	6	2.9	
65	185	145	18	8	M16	76.1	77.5	22	22	22	55	52	10	90	6	2.9	
80	200	160	18	8	M16	88.9	90.5	24	24	24	70	58	12	105	8	3.2	
100	235	190	22	8	M20	114.3	116.0	26	24	24	90	65	12	134	8	3.6	
125	270	220	26	8	M24	139.7	141.5	28	26	26	115	68	12	162	8	4	
150	300	250	26	8	M24	168.3	170.5	30	28	28	140	75	12	192	10	4.5	
200	375	320	30	12	M27	219.1	221.5	36	34	36	190	88	16	244	10	6.3	
250	450	385	33	12	M30	273.0	276.5	42	38	38	235	105	18	306	12	7.1	
300	515	450	33	16	M30	323.9	327.5	52	42	42	285	115	18	362	12	8	
350	580	510	36	16	M33	355.6	359.5	58	46	46	330	125	20	408	12	8.8	
400	660	585	39	16	M36	406.4	411.0	65	50	50	380	135	20	462	12	11	
450	685	610	39	20	M36	457.0	462.0	*	57	57	425	135	20	500	12	12.5	
500	755	670	42	20	M39	508.0	513.5		57	57	475	140	20	562	12	14.2	
600	890	795	48	20	M45	610.0	616.5		72	72	575	150	20	666	12	16	

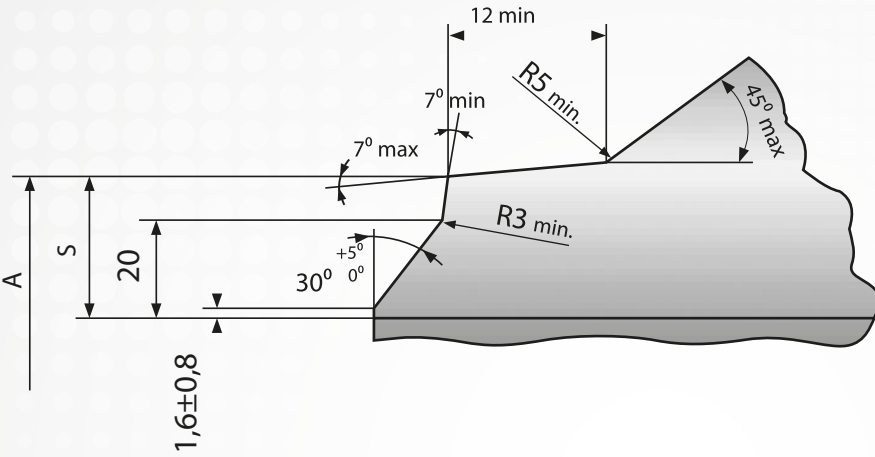
*Üreticiye göre değişiklikler gösterebilir. May vary according to manufacturer. Ölçüler mm olarak verilmiştir. Dimensions in mm.

Tolerans Tolerances	Flanş Tipi / Flange Type	Ölçü / Size	Tolerans (mm) / Tolerances (mm)	
Boyun Dış Çapı, A Outside Diameter of Neck, A	11,21,34	≤ DN 125	+3,0 0	
		>DN 125 ≤ DN 1200	+4,5 0	
		>DN 1200	+6,0 0	
İç Çap B1,B2,B3 Bore Diameter B1,B2,B3	01,02,04,12,32	≤ DN 100	+0,5 0	
		>DN 100 ≤ DN 400	+1,0 0	
		>DN 400 ≤ DN 600	+1,5 0	
		>DN 600	+3,0 0	
Et Kalınlığı, S W.T.,S	11,34b		Her iki yüzü işlenmiş boyun Machined faces (both faces)	Tek yüzü işlenmiş ya da işlenmemiş boyun Neck one face machined or unmachined
		≤ DN 100	+1,0 0	+2,0 0
		>DN 100 ≤ DN 400	+1,5 0	+2,5 0
		>DN 400	+2,0 0	+3,5 0
Dış Çap D Outside Diameter, D	Diğer Tipler Other Types	≤ DN 150	±2,0	
		>DN 150 ≤ DN 500	±3,0	
		>DN 500 ≤ DN 1200	±5,0	
		>DN 1200 ≤ DN 1800	±7,0	
		>DN 1800	±10,0	
Yükseklik H ₁ , H ₂ , H ₃ , H ₄ , H ₅ Length Through Hub H ₁ , H ₂ , H ₃ , H ₄ , H ₅	11,12,13,34, 35,36,37	≤ DN 80	±1,5	
		>DN 80 ≤ DN 250	±2,0	
		>DN 250	±3,0	
Yaka Kalınlığı, F Collar Thickness, F	35	≤ 18 mm	±1,0 mm	
		>18 mm ≤ 50 mm	±1,5	
	36	≤ 18 mm	±10 %	
37	≤ 5 mm	±0,2 mm		
Flanş Kalınlığı C ₁ , C ₂ , C ₃ , C ₄ Flange Thickness C ₁ , C ₂ , C ₃ , C ₄	Tüm tipler (Her iki yüzü işlenmiş) All Types (machined on both faces)	≤ 18 mm	+1,0 -1,3	
		>18 mm ≤ 50 mm	±1,5	
		>50 mm	±2,0	
	Tüm tipler (Sadece ön yüzü işlenmiş) All Types (machined on front face only)	≤ 18 mm	+2,0 -1,3	
		>18 mm ≤ 50 mm	+4,0 -1,5	
		>50 mm	+7,0 -2,0	

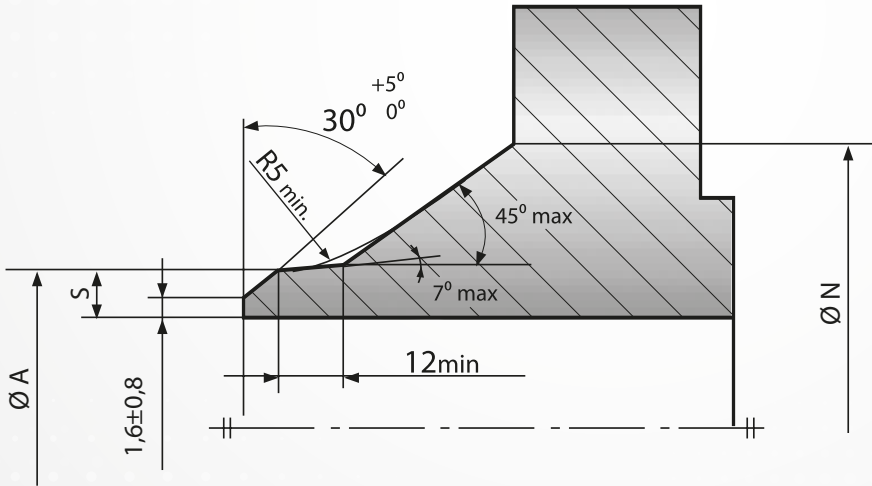
		Flanş Tipi / Flange Type	Ölçü / Size		Tolerans (mm) / Tolerances (mm)
Boyun Çapı N_1, N_2, N_3 Neck Diameter N_1, N_2, N_3		11,21,34	\leq DN 50		-2,0 0
			$>$ DN 50 \leq DN 150		-4,0 0
			$>$ DN 150 \leq DN 300		-6,0 0
			$>$ DN 300 \leq DN 600		-8,0 0
			$>$ DN 600 \leq DN 4000		-10,0 0
Conta Yüzeyi d_1 Facing Diameter d_1	Tüm tipler All types	\leq DN 250		+2,0 -1,0	
		$>$ DN 250		+3,0 -1,0	
Conta Yüzeyi Yüksekliği f_1 Facing Height f_1	Tüm tipler (B,D,F,G tipi conta yüzeyi) All types (facing type B,D,F and G)	\leq DN 32	2 mm	-1 0	
		$>$ DN 32 to DN 250	3 mm	-2 0	
		$>$ DN 250 to DN 500	4 mm	-3 0	
		$>$ DN 500	5 mm	-4 0	
Conta Yüzeyi Yüksekliği f_2 Facing Height f_2	Tüm tipler (C,E,G tipi conta yüzeyi) All types	Tüm Ölçüler	All DN	+0,5 0	
Conta Yüzeyi Yüksekliği f_3 Facing Height f_3	Tüm tipler (C,E,G tipi conta yüzeyi) All types	Tüm Ölçüler	All DN	+0,5 0	
	Tüm tipler (C,E,G tipi conta yüzeyi) All types	Tüm Ölçüler	All DN	+0,2 0	
Conta Yüzeyi Yüksekliği f_4 Facing Height f_4	Tüm tipler (C,E,G tipi conta yüzeyi) All types	Tüm Ölçüler	All DN	+0,5 0	
Conta Yüzeyi Facing	W	Tüm tipler All types	Tüm Ölçüler	All DN	+0,5 0
	X				-0,5 0
	Y				+0,5 0
	Z				-0,5 0
Civata Delik Eksen K Diameter of Bolt Circle	Tüm tipler All types	M10 - M 24 arası ölçüler	bolt sizes M10 to M24	\pm 1,0	
		M27 - M 45 arası ölçüler	bolt sizes M27 to M45	\pm 1,5	
Saplama Delik Merkezleri Arası Uzaklık Center-to-Center of adjacent	Tüm tipler All types	M10 - M 24 arası ölçüler	bolt sizes M10 to M24	\pm 1,0	
		M27 - M 45 arası ölçüler	bolt sizes M27 to M45	\pm 1,5	
Conta Yüzeyi Eksenleri Arası Uyuşmazlık Eccentricity of Machined Facing Diameters	Tüm tipler All types	\leq DN 65		1,0 0	
		$>$ DN 65		2,0 0	
Civata Yatak Yüzeyi ve Flanş Bağlantı Yüzeyi Arası Paralellik Parallelism between bolting bearing surfaces and Flange Jointing	Tüm tipler (işlenmiş yatak yüzeyi) (machined bearings)	Tüm Ölçüler	All DN	1°	
	Tüm tipler (işlenmemiş yatak yüzeyi) (unmachined bearings)			2°	



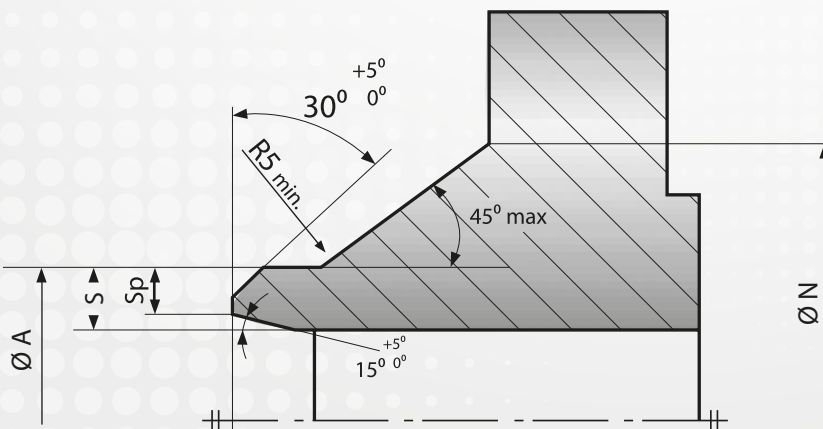
Et kalınlığı $S \geq 22$ mm olan flanşlarda kaynak ağızı bağlantısı
Welding end connection for $S \geq 22$ mm W.T.



Et kalınlığı S, 22 mm'ye kadar flanşlarda kaynak ağızı bağlantısı
Welding end connection for W.T. S up to 22mm



Sp İnceltilmiş et kalınlığı "Eşit olmayan et kalınlıkları için kabul edilebilir kaynak ağızı dizaynı"
Sp Reduced Flange W.T.



Grup Group	Dövme Forgings			Sac Flat Products			Döküm Castings		
	Malzeme Adı Material Name	Standart Standard	Material No Material Number	Malzeme Adı Material Name	Standart Standard	Material No Material Number	Malzeme Adı Material Name	Standart Standard	Material No Material Number
3E0	-	-	-	P235GH	EN 10028-2	1.0345	GP240GH	EN 10213-2	1.0619
3E0	-	-	-	-	-	-	-	-	-
3E0	P245GH	EN 10222-2	1.0352	P265GH	EN 10028-2	1.0425	GP280GH	EN 10213-2	1.0625
3E1	P280GH	EN 10222-2	1.0426	P295GH	EN 10028-2	1.0481	-	-	-
4E0	16Mo3	EN 10222-2	1.5415	16Mo3	EN 10028-2	1.5415	G20Mo5	EN 10213-2	1.5419
5E0	13CrMo4-5	EN 10222-2	1.7335	13CrMo4-5	EN 10028-2	1.7335	G17CrMo5-5	EN 10213-2	1.7357
6E0	11CrMo9-10	EN 10222-2	1.7383	12CrMo9-10	EN 10028-2	1.7375	G17CrMo9-10	EN 10213-2	1.7379
	-	-	-	10CrMo9-10	EN 10028-2	1.7381	-	-	-
6E1	X16CrMo5-1 +NT	EN 10222-2	1.7366	-	-	-	GX15CrMo5	EN 10213-2	1.7365
7E2	15NiMn6	EN 10222-3	1.6228	15NiMn6	EN 10028-4	1.6228	G9Ni10	EN 10213-3	1.5636
	-	-	-	11MnNi5-3	EN 10028-4	1.6212	-	-	-
	13MnNi6-3	EN 10222-3	1.6217	13MnNi6-3	EN 10028-4	1.6217	-	-	-
8E2	P285NH	EN 10222-4	1.0477	P275NH	EN 10028-3	1.0487	-	-	-
	P285QH	EN 10222-4	1.0478	-	-	-	-	-	-
8E3	P355NH	EN 10222-4	1.0565	P355N	EN 10028-3	1.0562	-	-	-
	P355QH1	EN 10222-4	1.0571	P355NH	EN 10028-3	1.0565	-	-	-
9E0	X20CrMoV11-1	EN 10222-2	1.4922	-	-	-	GX23CrMo V12-1	EN 10213-2	1.4931
9E1	X10CrMo VNb9-1	EN 10222-2	1.4903	X10CrMo VNb9-1	EN 10028-2	1.4903	-	-	-

PN	Grup Group	Kalınlık için Ref. Reference value for Thickness R (mm)																												
			RT	100	150	200	250	300	350	400	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600				
2,5	3E0	≤ 50	2,5	2,3	2,2	2,0	1,9	1,7	1,6	1,4	0,8																			
	3E0	50 < vR ≤ 150	2,5	2,1	2,0	1,9	1,7	1,6	1,5	1,4	0,8																			
	3E1	≤ 50	2,5	2,5	2,5	2,5	2,4	2,2	2,0	1,8	1,0																			
	3E1	50 < vR ≤ 150	2,5	2,5	2,3	2,2	2,0	1,9	1,7	1,6	1,0																			
	4E0	≤ 60	2,5	2,5	2,5	2,5	2,4	2,1	2,0	1,8	1,7	1,6	1,4	1,3	1,2	1,1	0,8	0,7	0,5											
	4E0	60 < vR ≤ 90	2,5	2,5	2,5	2,5	2,3	2,0	1,9	1,7	1,6	1,5	1,4	1,3	1,2	1,1	0,8	0,7	0,5											
	4E0	90 < vR ≤ 150	2,5	2,5	2,5	2,3	2,1	1,9	1,7	1,5	1,4	1,4	1,3	1,2	1,1	1,1	0,8	0,7	0,5											
	5E0	≤ 60	2,5	2,5	2,5	2,5	2,5	2,5	2,3	2,2	2,1	2	1,9	1,8	1,7	1,6	1,3	1,1	0,9	0,7	0,5	0,4	0,3							
	5E0	60 < vR ≤ 90	2,5	2,5	2,5	2,5	2,5	2,4	2,2	2,0	1,9	1,8	1,8	1,7	1,6	1,6	1,3	1,1	0,9	0,7	0,5	0,4	0,3							
	5E0	90 < vR ≤ 150	2,5	2,5	2,5	2,5	2,5	2,2	2,1	1,9	1,8	1,7	1,7	1,6	1,6	1,6	1,3	1,1	0,9	0,7	0,5	0,4	0,3							
	6E0	≤ 150	2,5	2,5	2,5	2,5	2,5	2,5	2,4	2,3	2,2	2,0	1,9	1,8	1,7	1,6	1,4	1,2	1,0	0,9	0,8	0,6	0,6	0,5	0,4	0,4				
	6E1	≤ 150	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,1	1,7	1,3	1,1	0,9	0,8	0,7	0,5	0,5	0,4							
	8E2	35 < vR ≤ 70	2,5	2,5	2,5	2,3	2,1	1,8	1,6	1,4																				
	8E2	70 < vR ≤ 100	2,5	2,5	2,3	2,1	1,9	1,6	1,4	1,1																				
	8E2	100 < vR ≤ 150	2,5	2,4	2,2	1,9	1,7	1,4	1,1	0,9																				
	8E3	50 < vR ≤ 100	2,5	2,5	2,5	2,5	2,5	2,4	2,2	1,9																				
	8E3	100 < vR ≤ 150	2,5	2,5	2,5	2,5	2,5	2,3	2,1	1,7																				
	9E0	≤ 150	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,2	1,9	1,7	1,5	1,3	1,1	0,9	0,8	0,7				
9E1	≤ 130	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,3	2,1	1,9	1,7	1,5	1,4	1,2	1,1					

vR=C1, C2, C4

PN	Grup Group	Kalınlık için Ref. Reference value for Thickness R (mm)	Maksimum Sıcaklık / Max. Allowable Temperature TS °C																											
			RT	100	150	200	250	300	350	400	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600				
			Maksimum Basınç / Max. Allowable Pressure PS bar																											
10	3E0	≤ 50	10,0	9,2	8,8	8,3	7,6	6,9	6,4	5,9	3,2																			
	3E0	50 < vR ≤ 150	10,0	8,5	8,3	7,7	7,0	6,4	6,0	5,7	3,2																			
	3E1	≤ 50	10,0	10,0	10,0	10,0	9,7	8,8	8,0	7,3	4,0																			
	3E1	50 < vR ≤ 150	10,0	10,0	9,5	9,0	8,3	7,6	7,0	6,4	4,0																			
	4E0	≤ 60	10,0	10,0	10,0	10,0	9,7	8,5	8,0	7,4	6,9	6,4	5,9	5,4	4,9	4,4	3,5	2,8	2,2											
	4E0	60 < vR ≤ 90	10,0	10,0	10,0	10,0	9,2	8,0	7,6	6,9	6,4	6,0	5,6	5,2	4,8	4,4	3,5	2,8	2,2											
	4E0	90 < vR ≤ 150	10,0	10,0	10,0	9,2	8,5	7,6	7,0	6,3	5,9	5,6	5,3	5,0	4,7	4,4	3,5	2,8	2,2											
	5E0	≤ 60	10,0	10,0	10,0	10,0	10,0	10,0	9,5	9,0	8,4	8,0	7,6	7,2	6,8	6,5	5,5	4,4	3,7	2,9	2,3	1,9	1,5							
	5E0	60 < vR ≤ 90	10,0	10,0	10,0	10,0	10,0	9,7	9,0	8,3	7,8	7,5	7,2	6,9	6,6	6,5	5,5	4,4	3,7	2,9	2,3	1,9	1,5							
	5E0	90 < vR ≤ 150	10,0	10,0	10,0	10,0	10,0	9,1	8,4	7,9	7,3	7,1	6,9	6,7	6,5	6,5	5,5	4,4	3,7	2,9	2,3	1,9	1,5							
	6E0	≤ 150	10,0	10,0	10,0	10,0	10,0	10,0	9,7	9,2	8,8	8,3	7,8	7,3	6,9	6,4	5,6	4,9	4,2	3,7	3,2	2,7	2,4	2,0	1,8	1,6				
	6E1	≤ 150	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	8,4	6,9	5,3	4,5	3,8	3,3	2,8	2,3	2,0	1,7						
	8E2	35 < vR ≤ 70	10,0	10,0	10,0	9,3	8,6	7,4	6,5	5,6																				
	8E2	70 < vR ≤ 100	10,0	10,0	9,4	8,6	7,9	6,5	5,6	4,6																				
	8E2	100 < vR ≤ 150	10,0	9,7	8,8	7,9	7,0	5,6	4,6	3,7																				
	8E3	50 < vR ≤ 100	10,0	10,0	10,0	10,0	10,0	9,8	9,0	7,9																				
	8E3	100 < vR ≤ 150	10,0	10,0	10,0	10,0	10,0	9,3	8,4	7,0																				
	9E0	≤ 150	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	8,9	7,9	7,0	6,0	5,2	4,5	3,8	3,2	2,8				
9E1	≤ 130	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	9,5	8,7	7,9	7,1	6,3	5,7	5,0	4,4					

vR=C1, C2, C4

PN	Grup Group	Kalınlık için Ref. Reference value for Thickness R (mm)	Maksimum Sıcaklık / Max. Allowable Temperature TS °C																											
			RT	100	150	200	250	300	350	400	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600				
			Maksimum Basınç / Max. Allowable Pressure PS bar																											
25	3E0	≤ 50	25,0	23,2	22,0	20,8	19,0	17,2	16,0	14,8	8,2																			
	3E0	50 < vR ≤ 150	25,0	21,4	20,8	19,4	17,7	16,0	15,1	14,2	8,2																			
	3E1	≤ 50	25,0	25,0	25,0	25,0	24,4	22,0	20,2	18,4	10,1																			
	3E1	50 < vR ≤ 150	25,0	25,0	23,8	22,7	20,8	19,1	17,7	16,0	10,1																			
	4E0	≤ 60	25,0	25,0	25,0	25,0	24,4	21,4	20,2	18,6	17,2	16,0	14,7	13,5	12,3	11,0	8,8	7,0	5,5											
	4E0	60 < vR ≤ 90	25,0	25,0	25,0	25,0	23,2	20,2	19,0	17,3	16,0	15,0	14,0	13,0	12,0	11,0	8,8	7,0	5,5											
	4E0	90 < vR ≤ 150	25,0	25,0	25,0	23,2	21,4	19,0	17,5	15,8	14,7	14,0	13,2	12,5	11,8	11,0	8,8	7,0	5,5											
	5E0	≤ 60	25,0	25,0	25,0	25,0	25,0	25,0	23,8	22,5	21,0	20,0	19,0	18,0	17,0	16,3	13,8	11,1	9,2	7,2	5,8	4,7	3,9							
	5E0	60 < vR ≤ 90	25,0	25,0	25,0	25,0	25,0	24,4	22,5	20,9	19,6	18,8	18,0	17,2	16,5	16,3	13,8	11,1	9,2	7,2	5,8	4,7	3,9							
	5E0	90 < vR ≤ 150	25,0	25,0	25,0	25,0	25,0	22,9	21,1	19,8	18,4	17,9	17,3	16,8	16,2	16,3	13,8	11,1	9,2	7,2	5,8	4,7	3,9							
	6E0	≤ 150	25,0	25,0	25,0	25,0	25,0	25,0	24,4	23,2	22,0	20,8	19,6	18,4	17,2	16,0	14,0	12,2	10,7	9,2	8,0	6,9	6,0	5,2	4,5	4,0				
	6E1	≤ 150	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	21,2	17,3	13,4	11,4	9,6	8,3	7,0	5,9	5,1	4,4							
	8E2	35 < vR ≤ 70	25,0	25,0	25,0	23,4	21,5	18,6	16,3	14,0																				
	8E2	70 < vR ≤ 100	25,0	25,0	23,5	21,6	19,8	16,3	14,0	11,6																				
	8E2	100 < vR ≤ 150	25,0	24,4	22,1	19,8	17,5	14,0	11,6	9,2																				
	8E3	50 < vR ≤ 100	25,0	25,0	25,0	25,0	25,0	24,5	22,6	19,8																				
	8E3	100 < vR ≤ 150	25,0	25,0	25,0	25,0	25,0	23,3	21,0	17,5																				
	9E0	≤ 150	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	22,3	19,8	17,5	15,2	13,2	11,3	9,6	8,2	7,0				
9E1	≤ 130	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	23,9	21,7	19,7	17,8	15,9	14,2	12,6	11,1					

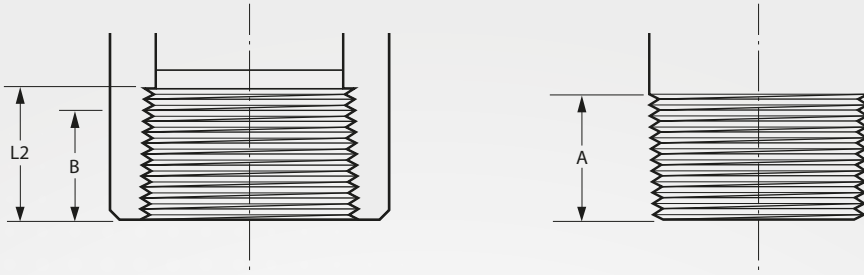
vR=C1, C2, C4

PN	Grup Group	Kalınlık için Ref. Reference value for Thickness R (mm)	Maksimum Sıcaklık / Max. Allowable Temperature TS °C																											
			RT	100	150	200	250	300	350	400	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600				
			Maksimum Basınç / Max. Allowable Pressure PS bar																											
25	3E0	≤ 50	25,0	23,2	22,0	20,8	19,0	17,2	16,0	14,8	8,2																			
	3E0	50 < vR ≤ 150	25,0	21,4	20,8	19,4	17,7	16,0	15,1	14,2	8,2																			
	3E1	≤ 50	25,0	25,0	25,0	25,0	24,4	22,0	20,2	18,4	10,1																			
	3E1	50 < vR ≤ 150	25,0	25,0	23,8	22,7	20,8	19,1	17,7	16,0	10,1																			
	4E0	≤ 60	25,0	25,0	25,0	25,0	24,4	21,4	20,2	18,6	17,2	16,0	14,7	13,5	12,3	11,0	8,8	7,0	5,5											
	4E0	60 < vR ≤ 90	25,0	25,0	25,0	25,0	23,2	20,2	19,0	17,3	16,0	15,0	14,0	13,0	12,0	11,0	8,8	7,0	5,5											
	4E0	90 < vR ≤ 150	25,0	25,0	25,0	23,2	21,4	19,0	17,5	15,8	14,7	14,0	13,2	12,5	11,8	11,0	8,8	7,0	5,5											
	5E0	≤ 60	25,0	25,0	25,0	25,0	25,0	25,0	23,8	22,5	21,0	20,0	19,0	18,0	17,0	16,3	13,8	11,1	9,2	7,2	5,8	4,7	3,9							
	5E0	60 < vR ≤ 90	25,0	25,0	25,0	25,0	25,0	24,4	22,5	20,9	19,6	18,8	18,0	17,2	16,5	16,3	13,8	11,1	9,2	7,2	5,8	4,7	3,9							
	5E0	90 < vR ≤ 150	25,0	25,0	25,0	25,0	25,0	22,9	21,1	19,8	18,4	17,9	17,3	16,8	16,2	16,3	13,8	11,1	9,2	7,2	5,8	4,7	3,9							
	6E0	≤ 150	25,0	25,0	25,0	25,0	25,0	25,0	24,4	23,2	22,0	20,8	19,6	18,4	17,2	16,0	14,0	12,2	10,7	9,2	8,0	6,9	6,0	5,2	4,5	4,0				
	6E1	≤ 150	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	21,2	17,3	13,4	11,4	9,6	8,3	7,0	5,9	5,1	4,4						
	8E2	35 < vR ≤ 70	25,0	25,0	25,0	23,4	21,5	18,6	16,3	14,0																				
	8E2	70 < vR ≤ 100	25,0	25,0	23,5	21,6	19,8	16,3	14,0	11,6																				
	8E2	100 < vR ≤ 150	25,0	24,4	22,1	19,8	17,5	14,0	11,6	9,2																				
	8E3	50 < vR ≤ 100	25,0	25,0	25,0	25,0	25,0	24,5	22,6	19,8																				
	8E3	100 < vR ≤ 150	25,0	25,0	25,0	25,0	25,0	23,3	21,0	17,5																				
	9E0	≤ 150	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	22,3	19,8	17,5	15,2	13,2	11,3	9,6	8,2	7,0				
9E1	≤ 130	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	25,0	23,9	21,7	19,7	17,8	15,9	14,2	12,6	11,1					

vR=C1, C2, C4

Standart / Standard	Karbon Çeliği Carbon Steel			Alaşımlı Çelik Alloy Steel		
	A 105 / A 105 M – 98	A 350 / A 350 M – 99 LF1	A 350 / A 350 M – 99 LF 2	A 350 / A 350 M - 99 LF 3	A 182 / A 182 M - 98a F 5	
ASTM						
AISI	1020	1030			501	
UNS					K 41545	
AFNOR	A 48 CP	A 42 AP	A 48 FP	12 N 14	Z 10 CD 5-05	
British Standard BS 1503 – 1989	221 490	224-430 LT 40	224-490 LT 50	503 490	625 590	
DIN	C 35	A St 41	St 45 N	10 Ni 14	12 Cr Mo 19-05	
Kimyasal Kompozisyon / Chemical Composition						
Karbon / Carbon	≤ 0,35	≤ 0,30	≤ 0,30	≤ 0,20	≤ 0,15	
Manganez / Manganese	0,60 1,05	0,60 1,35	0,60 1,35	≤ 0,90	0,30 0,60	
Kükürt / Sulfur	≤ 0,040	≤ 0,040	≤ 0,040	≤ 0,040	≤ 0,030	
Fosfor / Phosphorus	≤ 0,035	≤ 0,035	≤ 0,035	≤ 0,035	≤ 0,030	
Silisyum / Silicon	0,10 0,35	0,15 0,30	0,15 0,30	0,20 0,35	≤ 0,50	
Krom / Chromium	≤ 0,30	≤ 0,30	≤ 0,30	≤ 0,30	4,0 6,0	
Nikel / Nickel	≤ 0,40	≤ 0,40	≤ 0,40	3,3 3,7	≤ 0,50	
Molibden / Molybdenum	≤ 0,12	≤ 0,12	≤ 0,12	≤ 0,12	0,44 0,65	
Bakır / Copper	≤ 0,40	≤ 0,40	≤ 0,40	≤ 0,40		
Vanadyum / Vanadium	≤ 0,05	≤ 0,05	≤ 0,05	≤ 0,03		
Niyobyum / Columbium	≤ 0,02	≤ 0,02	≤ 0,02	≤ 0,02		
Titanyum / Titanium						
Mekanik Özellikler / Mechanical Properties						
Çekme Mukavemeti / Tensile strength	ksi	≥ 70	60 to 85	70 to 95	70 to 95	≥ 70
Akma Mukavemeti / Yield stress mini	ksi	36	30	36	37,5	40
Uzama Yüzdesi / Elongation mini	%	22	25	22	22	20
Ezilme Yüzdesi / Reduction of area mini	%	30	38	30	35	35
Maksi Sertlik / Hardness maxi	HB	187	197	197	197	143 – 217
Darbe Testi / Impact test T° of test	°F		- 20	Class 1 : - 50 Class 2 : - 0	- 150	
Energy/average	ft. lb		≥ 13	Class 1 : ≥ 15 Class 2 : ≥ 20	≥ 15	
Energy mini	ft. lb		≥ 10	Class 1 : ≥ 12 Class 2 : ≥ 15	≥ 12	

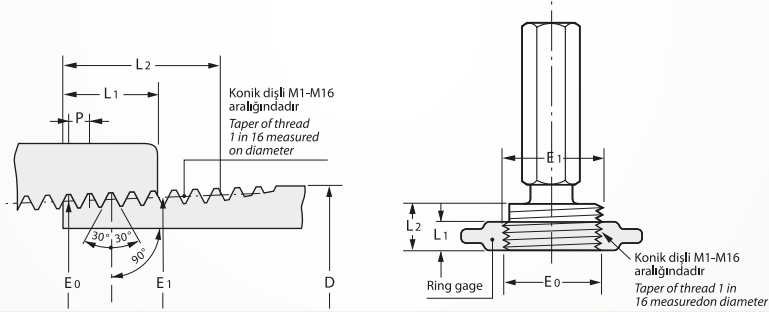
Standart / Standard	Alaşımli Çelik Stainless steel		Paslanmaz Çelik Alloy steel				
	A 182 / A 182 M - 98a F 11 Cl 2	A 182 / A 182 M - 98a F 22 Cl 3	A 182 / A 182 M-98 F 304 L	A 182 / A 182 M-98 F 316 L	A 182 / A 182 M-98a F 321	A 182 / A 182 M-98 F 347	
ASTM			304 L	316 L	321	347	
AISI							
UNS	K 11572	K 21590	S 30403	S 31603	S 32100	S 34700	
AFNOR	15 CD 4-05	10 CD 9-10	Z 2 CN 18-10	Z 2 CND 17-12	Z 6 CNT 18-10	Z 6 CNNb 18-10	
British Standard BS 1503 – 1989	621 460	622 560	304 S 11	316 S 11	321 S 31	347 S 31	
DIN	13 Cr Mo 4-4	10 Cr Mo 9-10	X 2 Cr Ni 19-11	X 2 Cr Ni Mo 17-12-2	X 6 Cr Ni Ti 18-10	X 6 Cr Ni Nb 18-10	
Kimyasal Kompozisyon / Chemical Composition							
Karbon / Carbon	0,10 0,20	0,05 0,15	≤ 0,035	≤ 0,035	≤ 0,08	≤ 0,08	
Manganez / Manganese	0,30 0,80	0,30 0,60	≤ 2,0	≤ 2,0	≤ 2,0	≤ 2,0	
Kükürt / Sulfur	≤ 0,040	≤ 0,040	≤ 0,030	≤ 0,030	≤ 0,030	≤ 0,030	
Fosfor / Phosphorus	≤ 0,040	≤ 0,040	≤ 0,045	≤ 0,045	≤ 0,045	≤ 0,045	
Silisyum / Silicon	0,50 1,00	≤ 0,50	≤ 1,00	≤ 1,00	≤ 1,00	≤ 1,00	
Krom / Chromium	1,00 1,50	2,00 2,50	18,00 20,00	16,00 18,00	≥ 17,00	17,00 20,00	
Nikel / Nickel			8,00 13,00	10,00 15,00	9,00 12,00	9,00 13,00	
Molibden / Molybdenum	0,44 0,65	0,87 1,13		2,00 3,00			
Bakır / Copper							
Vanadyum / Vanadium							
Niyobyum / Columbium						≥ 10 C ≤ 1,10	
Titanyum / Titanium					≥ 5 C ≤ 0,70		
Mekanik Özellikler / Mechanical Properties							
Çekme Mukavemeti / Tensile strength	ksi	≥ 70	≥ 75	≥ 70	≥ 70	≥ 75	≥ 75
Akma Mukavemeti / Yield stress mini	ksi	40	45	25	25	30	30
Uzama Yüzdesi / Elongation mini		20	20	30	30	30	30
Ezilme Yüzdesi / Reduction of area mini	%	30	30	50	50	50	50
Maksi Sertlik / Hardness maxi	HB	143-207	156-207				
T° of test	°F						
Energy/average	ft. lb						
Energy mini	ft. lb						



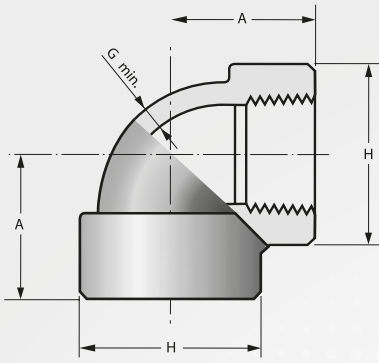
Nominal pipe size	İç Dişli / Internal Thread*				Dış Dişli / External Thread*	
	B min.		L ₂ min.		A min.	
	mm	inches	mm	inches	mm	inches
1/8	6,4	0.25	6,7	0.2639	10,0	0.38
1/4	8,1	0.32	10,2	0.4018	11,0	0.44
3/8	9,1	0.36	10,4	0.4078	13,0	0.50
1/2	10,9	0.43	13,6	0.5337	14,0	0.56
3/4	12,7	0.50	13,9	0.5457	16,0	0.62
1	14,7	0.58	17,3	0.6828	19,0	0.75
1 1/4	17,0	0.67	18,0	0.7068	21,0	0.81
1 1/2	17,8	0.70	18,4	0.7235	21,0	0.81
2	19,0	0.75	19,2	0.7565	22,0	0.88
2 1/2	23,6	0.93	28,9	1.138	27,0	1.06
3	25,9	1.02	30,5	1.200	28,0	1.12
4	27,7	1.09	33,0	1.300	32,0	1.25

* Dişli uzunluğu min. B'dir. Diş uzunluğu L₂'den küçük olamaz.

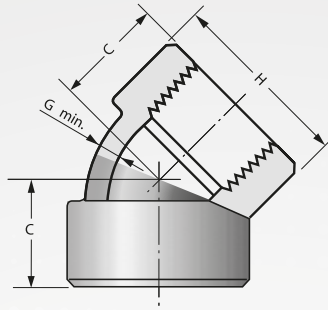
* Dimension B is minimum length of perfect thread. The length of useful thread shall not be less than L₂



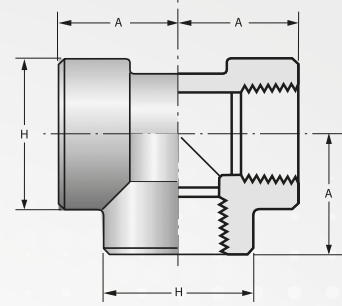
Boru ölçüsü	Boru dişli çapı	Dişli adeti	Dişli mesafesi	Dıştan Sona Mesafe	İçten Sona Mesafe	Etkili Dişli Uzunluğu	El ile Sıkıştırma Uzunluğu	Dişli Başına Çap Artışı
Nominal pipe size	Outside diameter of pipe	Number of threads per inch.	Pitch of thread	Pitch diameter at external thread end	Pitch diameter at internal thread end	Effective threads length	Length of hand tightening	Increase in diameter per thread
inches	inches	n	inches	E ₀	E ₁	L ₂	L ₁	0,0625/n
1/8	0.405	27	0.03704	0.36351	0.37360	0.2639	0,1615	0.00231
1/4	0.540	18	0.05556	0.47739	0.49163	0.4018	0,2278	0.00347
3/8	0.675	18	0.05556	0.61201	0.62701	0.4078	0,240	0.00347
1/2	0.840	14	0.07143	0.75843	0.77843	0.5337	0,320	0.00446
3/4	1.050	14	0.07143	0.96768	0.98887	0.5457	0,339	0.00446
1	1.315	11.5	0.08696	1.21363	1.23863	0.6828	0,400	0.00543
1 1/4	1.660	11.5	0.08696	1.55713	1.58338	0.7068	0,420	0.00543
1 1/2	1.900	11.5	0.08696	1.79609	1.82234	0.7235	0,420	0.00543
2	2.375	11.5	0.08696	2.26902	2.29627	0.7565	0,436	0.00543
2 1/2	2.875	8	0.12500	2.71953	2.76216	1.1375	0,682	0.00781
3	3.500	8	0.12500	3.34062	3.38850	1.2000	0,766	0.00781
3 1/2	4.000	8	0.12500	3.83750	3.88881	1.2500	0,821	0.00781
4	4.500	8	0.12500	4.33438	4.38712	1.3000	0,844	0.00781



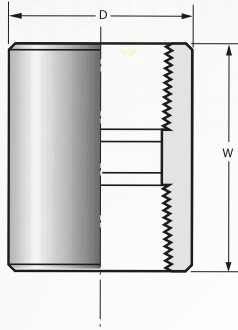
90° Dirsek
90° Elbow



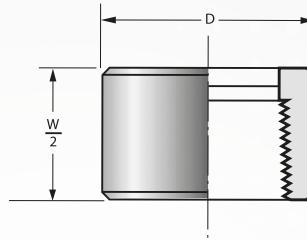
45° Dirsek
45° Elbow



Tee
Tee



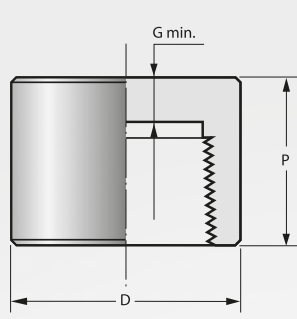
Manşon
Coupling



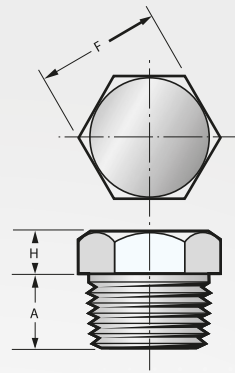
Yarım Manşon
Half Coupling

Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	3000 LB						6000 LB					
	A	H	G	C	W	D	A	H	G	C	W	D
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/8	21	22	3.1	17	32	16	25	25	6.3	19	32	22
1/4	25	25	3.3	19	35	19	28	33	6.6	22	35	25
3/8	28	33	3.5	22	38	22	33	38	6.9	25	38	32
1/2	33	38	4.0	25	48	28	38	46	8.1	28	48	38
3/4	38	46	4.3	28	51	35	44	56	8.5	33	51	44
1	44	56	4.9	33	60	44	51	62	9.9	35	60	57
1 1/4	51	62	5.2	35	67	57	60	75	10.5	43	67	64
1 1/2	60	75	5.5	43	79	64	64	84	11.0	44	79	76
2	64	84	7.1	44	86	76	83	102	12.0	52	86	92
2 1/2	83	102	7.6	52	92	92	95	121	15.2	64	92	108
3	95	121	8.8	64	108	108	106	146	16.6	79	108	127
4	114	152	11.1	79	121	140	114	152	18.6	79	121	159

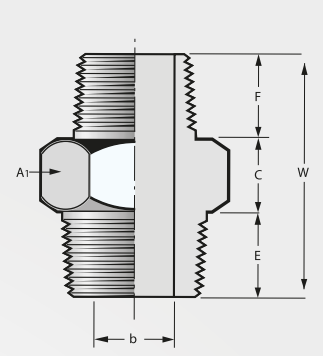
Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



Kep
Cap



Altıköşe başlı tapa
Hexagonal head plug

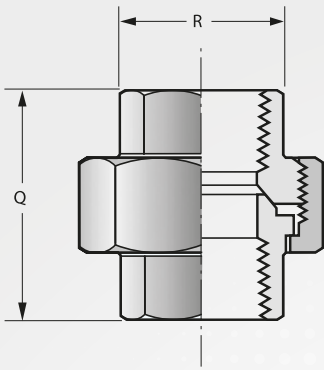


Altıköşe Nipel
Hexagonal Nipple

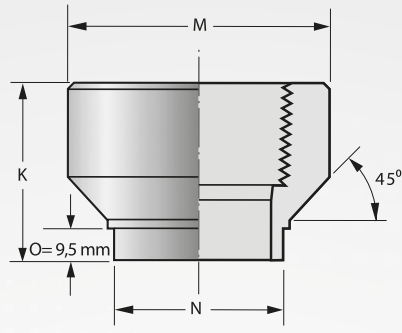
Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	3000 LB										
	P	D	G	A min.	F nominal	H min.	A ₁ min.	E min.	C min.	W min.	b*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/8	19	16	4.8	10.0	11.0	6	11	10	6	26	5
1/4	25	19	4.8	11.0	16.0	6	15	15	6	36	8
3/8	25	22	4.8	13.0	18.0	8	18	16	8	40	11
1/2	32	28	6.4	14.0	22.0	8	22	20	8	48	14
3/4	37	35	6.4	16.0	27.0	10	27	21	10	52	19
1	41	44	9.7	19.0	36.0	10	35	25	10	60	24
1 1/4	44	57	9.7	21.0	46.0	17	45	26	14	66	32
1 1/2	44	64	11.2	21.0	50.0	16	50	26	16	68	38
2	48	76	12.7	22.0	65.0	18	62	27	17	71	49
2 1/2	60	92	15.7	27.0	75.0	19	76	37	20	94	58
3	65	108	19.0	28.0	90.0	21	93	40	22	102	73
4	68	140	22.4	32.0	115.0	25	119	43	24	110	96

Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	6000 LB										
	P	D	G	A min.	F nominal	H min.	A ₁ min.	E min.	C min.	W min.	b*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/8	27	22	6.4	10.0	11.0	6	11	10	6	26	2
1/4	27	25	6.4	11.0	16.0	6	15	15	6	36	6
3/8	27	32	6.4	13.0	18.0	8	18	16	8	40	8
1/2	33	38	7.9	14.0	22.0	8	22	20	8	48	11
3/4	38	44	7.9	16.0	27.0	10	27	21	10	52	13
1	43	57	11.2	19.0	36.0	10	35	25	10	60	17
1 1/4	46	64	11.2	21.0	46.0	14	45	26	14	66	24
1 1/2	48	76	12.7	21.0	50.0	16	50	26	16	68	30
2	51	92	15.7	22.0	65.0	18	62	27	17	71	39
2 1/2	64	108	19.0	27.0	75.0	19	76	37	20	94	52
3	68	127	22.4	28.0	90.0	21	93	40	22	102	59
4	75	159	28.4	32.0	115.0	25	119	43	24	110	80

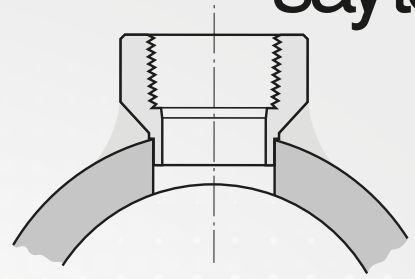
*Üreticiye göre değişiklikler gösterebilir. May vary according to manufacturer.



Rekor / Union

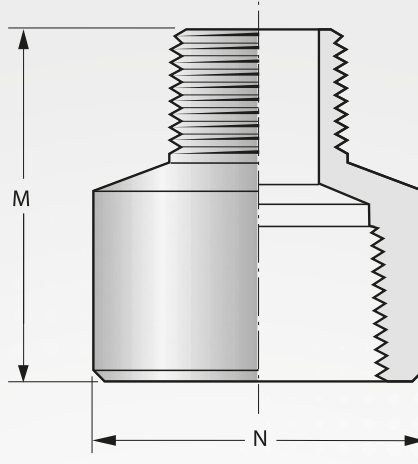


Boss / Welding Boss



Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	3000 LB					6000 LB				
	K*	M*	N*	Q*	R*	K*	M*	N*	Q*	R*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/8	30.5	28.0	10.6	42.5	17.6	30.5	28.0	10.6	54	19.1
1/4	30.5	28.0	14.0	42.5	22.2	30.5	28.0	14.0	54	23.8
3/8	30.5	32.0	17.4	47.5	26.1	30.5	32.0	17.4	57	28.2
1/2	33.5	38.0	21.6	52.0	31.5	33.5	38.0	21.6	69	34.1
3/4	35.0	44.5	26.9	57.0	37.4	35.0	44.5	26.9	72	41.5
1	43.0	57.5	33.6	63.0	45.7	43.0	57.5	33.6	80	50.1
1 1/4	48.0	63.5	42.4	68.0	55.2	48.0	63.5	42.4	89	58.9
1 1/2	51.0	76.1	48.5	78.0	61.9	51.0	76.1	48.5	108	67.0
2	57.5	92.0	60.9	91.0	75.5	57.5	92.0	60.9	114	83.4
2 1/2	72.0	113.0	46.6	120.0	92.0	72.0	113.0	76.6	130	101.9
3	79.0	141.0	90.5	120.0	109.4	79.0	141.0	90.5	150	120.2
4	-	-	-	148.0	200.0	-	-	-	-	-

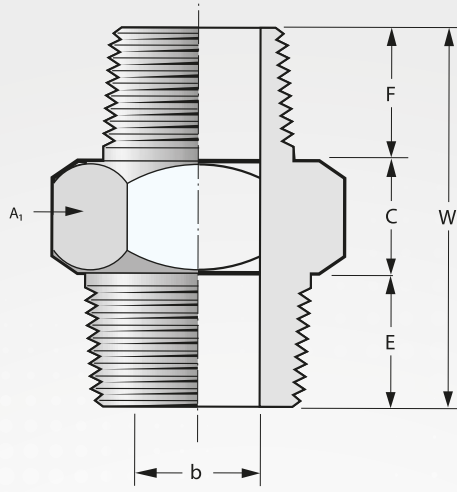
*Üreticiye göre değişiklikler gösterebilir. *May vary according to manufacturer.*
Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



Dişi - Erkek Redüksiyon
Female - Male Reducer

Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	3000	
	M*	N*
	mm	mm
3/8 x 1/4	42	22
1/2 x 3/8	49	28
1/2 x 1/4	49	28
3/4 x 1/2	59	35
1 x 3/4	63	45
1 x 1/2	61	45
1 x 1/4	60	45
1 1/4 x 1	68	60
1 1/2 x 1	72	65
1 1/2 x 3/4	67	65
1 1/2 x 1/2	67	65
2 x 1/2	70	76
2 x 1	75	76
2 1/2 x 2	92	95
3 x 2	95	110
4 x 3	113	140
4 x 2	100	140

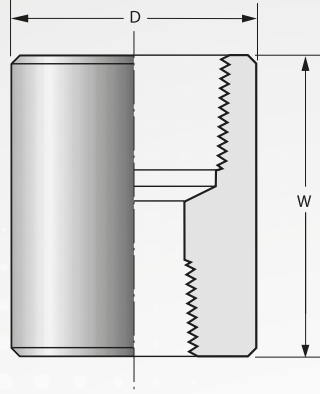
*Üreticiye göre değişiklikler gösterebilir. *May vary according to manufacturer.*
Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



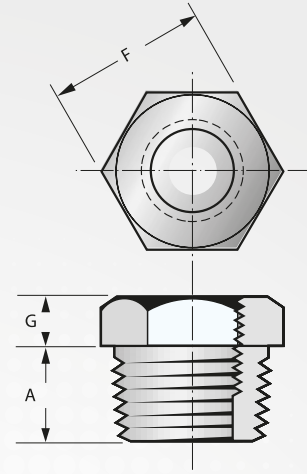
Altı köşe Redüksiyon Nipel
Reducing Hexagonal Nipple

Nominal Boru Ölçüsü	3000 LB						6000 LB					
	A (min)	E (min)	F (min)	C (min)	W (min)	b	A (min)	E (min)	F (min)	C (min)	W (min)	b
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/4 x 1/8	15	15	10	6	31	5	15	15	10	6	31	2
3/8 x 1/4	18	16	15	8	39	8	18	16	15	8	39	6
1/2 x 3/8	22	20	16	8	44	11	22	20	16	8	44	8
1/2 x 1/4	22	20	15	8	43	8	22	20	15	8	43	6
3/4 x 1/2	27	21	20	9	50	14	27	21	20	9	50	11
3/4 x 3/8	27	21	16	9	46	11	27	21	16	9	46	8
1 x 3/4	35	25	21	10	56	19	35	25	21	10	56	13
1 x 1/2	35	25	20	10	55	14	35	25	20	10	55	11
1 1/2 x 1	50	26	25	16	67	24	50	26	25	16	67	17
1 1/2 x 3/4	50	26	21	16	63	19	50	26	21	16	63	13
1 1/2 x 1/2	50	26	20	16	62	14	50	26	20	16	62	11
2 x 1 1/2	62	27	26	17	70	38	62	27	26	17	70	30
2 x 1	62	27	25	18	70	24	62	27	25	18	70	17
2 x 3/4	62	27	21	17	65	19	62	27	21	17	65	13
2 x 1/2	62	27	20	18	65	14	62	27	20	18	65	11

Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



Red Manşon
Red. Coupling



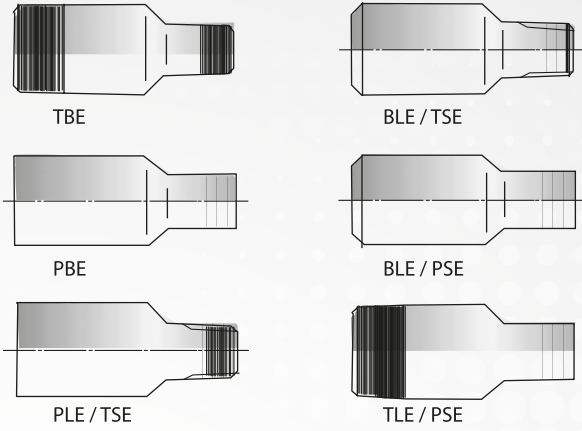
Altıköşe Başlı Bushing
Hex. Head Bushing

Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	3000 LB		6000 LB
	W	D	D
	mm	mm	mm
3/8 x 1/4	38.10	22.35	31.75
1/2 x 3/8	47.75	28.45	38.10
1/2 x 1/4	47.75	28.45	38.10
3/4 x 1/2	50.80	35.05	44.45
3/4 x 1/4	50.80	35.05	44.45
1 x 3/4	60.45	44.45	57.15
1 x 1/2	60.45	44.45	57.15
1 x 1/4	60.45	44.45	57.15
1 1/4 x 1	66.55	57.15	63.50
1 1/2 x 1	79.25	63.50	76.20
1 1/2 x 3/4	79.25	63.50	76.20
1 1/2 x 1/2	79.25	63.50	76.20
2 x 1 1/2	85.85	76.20	91.95
2 x 1	85.85	76.20	91.95
2 1/2 x 2	91.95	91.95	107.95
3 x 2	107.95	107.95	127.00
4 x 3	120.65	139.70	157.75
4 x 2	120.65	139.70	158.75

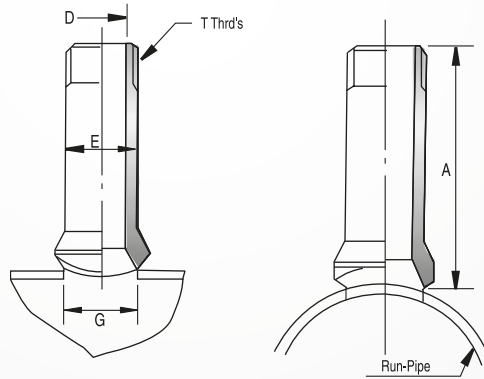
Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	3000 LB - 6000 LB		
	A min.	F nominal	G min
	mm	mm	mm
3/8 x 1/4	12.5	18.0	4
1/2 x 3/8	14.5	22.0	5
1/2 x 1/4	14.5	22.0	5
3/4 x 1/2	16.0	27.0	6
3/4 x 1/4	16.0	27.0	6
1 x 3/4	19.0	36.0	6
1 x 1/2	19.0	36.0	6
1 x 1/4	19.0	36.0	6
1 1/4 x 1	20.5	46.0	7
1 1/2 x 1	20.5	50.0	8
1 1/2 x 3/4	20.5	50.0	8
1 1/2 x 1/2	20.5	50.0	8
2 x 1 1/2	22.0	65.0	9
2 x 1	22.0	65.0	9
2 1/2 x 2	27.0	75.0	10
3 x 2	28.5	90.0	10
4 x 3	32.0	115.0	13
4 x 2	32.0	115.0	13

Ölçüler mm olarak verilmiştir. *Dimensions in mm.*

Şişe Tipi Nipel / Swaged Nipple		
Büyük Ölçü Large end Size	Küçük Ölçü Small end Size	Uzunluk Length (mm)
1/2	3/8 - 1/8	70
3/4	1/2 - 1/8	76
1	3/4 - 1/8	89
1 1/4	1 - 1/8	102
1 1/2	1 1/4 - 1/8	114
2	1 1/2 - 1/8	165
2 1/2	2 - 1/8	178
3	2 1/2 - 1/8	203
3 1/2	3 - 1/8	203
4	3 1/2 - 1/8	229



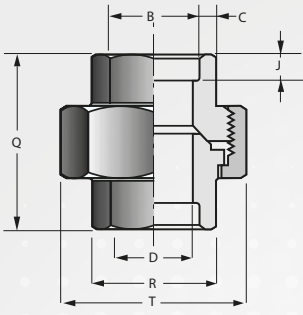
- TBE İki ucu dişli / Threaded both end
PBE Düz uç / Plain both end
PLE/TSE Büyük ölçü düz-küçük ölçü dişli / Plain large end-Threaded small end
BLE/TSE Büyük ölçü eğimli küçük ölçü eğimli / Beveled large end-Threaded small end
BLE/PSE Büyük ölçü eğimli küçük ölçü düz / Beveled large end-Plain small end
TLE/PSE Büyük ölçü dişli küçük ölçü düz / Threaded large end-Plain small end



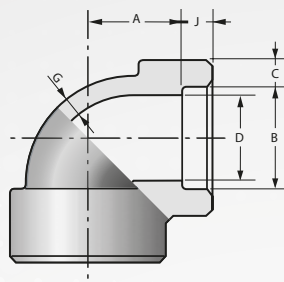
Nipolet / Nipple Outlet

Nipolet /Nipple Outlet						
Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	d	H	L	L ₁	L ₂	Ağırlık Weight (kg)
36- 3/4	1/2	88.9	23.9	14.0	21.3	0.36
36- 1	3/4	88.9	30.2	18.8	26.7	0.56
36-1 1/4	1	88.9	36.6	24.4	33.3	0.84
36-1 1/2	1 1/4	88.9	44.5	32.5	42.2	1.22
36-2	1 1/2	88.9	50.8	38.1	48.3	2.00
36-2 1/2	2	88.9	65.0	49.3	60.5	3.12

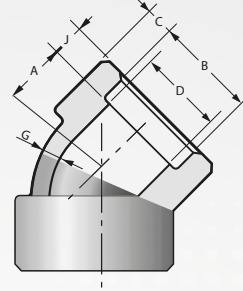
Ölçüler mm olarak verilmiştir. *Dimensions in mm.*
Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.*



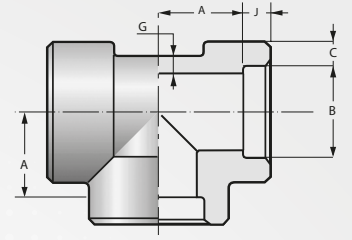
Rekor / Union



90° Dirsek / 90° Elbow



45° Dirsek / 45° Elbow



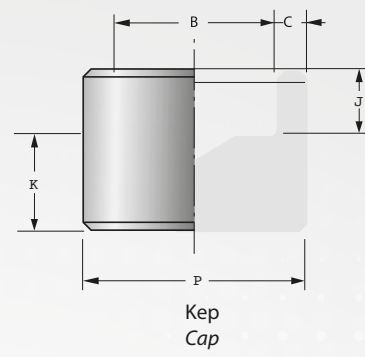
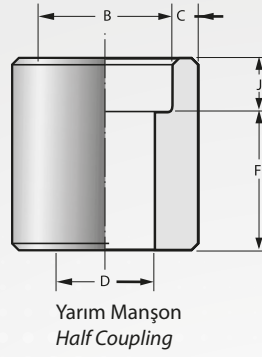
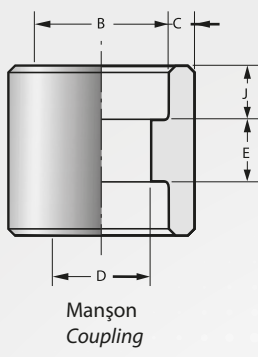
Tee / Tee

Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	3000 LB						6000 LB					
	A 90°	A 45°	A	Q*	R*	T*	A 90°	A 45°	A	Q*	R*	T*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/8	11.0	8.0	11.0	42.5	17.6	32	11.0	8.0	11.0	54	19.1	40
1/4	11.0	8.0	11.0	42.5	22.2	36	13.5	8.0	13.5	54	23.8	46
3/8	13.5	8.0	13.5	47.5	26.1	41	15.5	11.0	15.5	57	28.2	51
1/2	15.5	11.0	15.5	52.0	31.5	46	19.0	12.5	19.0	69	34.1	60
3/4	19.0	13.0	19.0	57.0	37.4	56	22.5	14.0	22.5	72	41.5	72
1	22.5	14.0	22.5	63.0	45.7	65	27.0	17.5	27.0	80	50.1	80
1 1/4	27.0	17.5	27.0	68.0	55.2	80	32.0	20.5	32.0	89	58.9	94
1 1/2	32.0	20.5	32.0	78.0	61.9	88	38.0	25.5	38.0	108	67.0	100
2	38.0	25.5	38.0	91.0	75.5	105	41.0	28.5	41.0	114	83.4	122
2 1/2	41.0	28.5	41.0	120.0	92.0	122	57.2	32.0	57.2	130	101.9	144
3	57.0	32.0	57.0	120.0	109.4	144	63.5	35.0	63.5	150	120.2	180
4	66.5	41.0	66.5	148.0	137.5	200	71.5	44.5	71.5	170	149.6	240

Nominal Boru Ölçüsü Nominal Pipe Size (NPS)		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	
B	Mini	10.80	14.20	17.60	21.80	27.20	33.90	42.70	48.80	61.20	73.90	89.80	115.20	
	Maxi	11.20	14.60	18.00	22.20	27.60	34.30	43.10	49.20	61.70	74.40	90.30	115.70	
D	3000 lb	Mini	6.10	8.50	11.80	15.00	20.20	25.90	34.30	40.10	51.70	61.20	76.40	100.70
		Maxi	7.60	10.00	13.30	16.60	21.70	27.40	35.80	41.60	53.30	64.20	79.40	103.80
	6000 lb	Mini	3.20	5.60	8.40	11.00	14.80	19.90	28.70	33.20	42.10	-	-	-
		Maxi	4.80	7.10	9.90	12.50	16.30	21.50	30.20	34.70	43.60	-	-	-
C	3000 lb	Avg	3.18	3.80	4.00	4.65	4.90	5.69	6.07	6.35	6.93	8.76	9.52	10.69
		Mini	3.18	3.30	3.50	4.09	4.27	4.98	5.28	5.54	6.04	7.67	8.30	9.35
	6000 lb	Avg	3.95	4.60	5.05	5.95	6.96	7.92	7.92	8.92	10.92	-	-	-
		Mini	3.43	4.01	4.37	5.18	6.04	6.93	6.93	7.80	9.50	-	-	-
G mini	3000 lb	2.40	3.00	3.20	3.75	3.90	4.55	4.85	5.10	5.55	7.00	7.60	8.55	
	6000 lb	3.15	3.70	4.00	4.80	5.55	6.35	6.35	7.15	8.75	-	-	-	
J Mini		10.00	10.00	10.00	10.00	13.00	13.00	13.00	13.00	16.00	16.00	16.00	19.00	

Ölçüler mm olarak verilmiştir. *Dimensions in mm.*

*Üreticiye göre değişiklikler gösterebilir. *May vary according to manufacturer.*



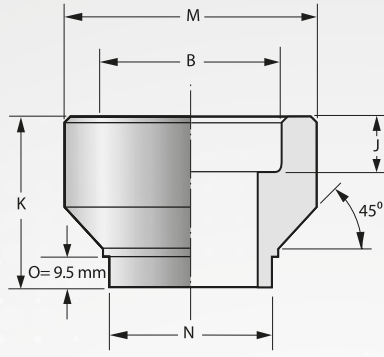
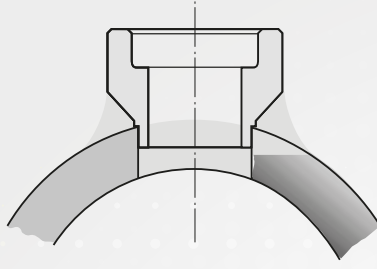
Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	Manşon - E Coupling - E		Yarım manşon - F Half - coupling - F	
	3000 LB	6000 LB	3000 LB	6000 LB
	mm	mm	mm	mm
1/8	6.5	6.5	16.0	16.0
1/4	6.5	6.5	16.0	16.0
3/8	6.5	6.5	17.5	17.5
1/2	9.5	9.5	22.5	22.5
3/4	9.5	9.5	24.0	24.0
1	12.5	12.5	28.5	28.5
1 1/4	12.5	12.5	30.0	30.0
1 1/2	12.5	12.5	32.0	32.0
2	19.0	19.0	41.0	41.0
2 1/2	19.0	19.0	43.0	43.0
3	19.0	19.0	44.5	44.5
4	19.0	19.0	48.0	48.0

Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	3000 LB		6000 LB	
	K	P*	K	P*
	mm	mm	mm	mm
1/8	4.8	18	6.4	19
1/4	4.8	22	6.4	23.1
3/8	4.8	26	6.4	26.7
1/2	6.4	32	7.9	34
3/4	6.4	38	7.9	41
1	9.6	45	11.2	50
1 1/4	9.6	55	11.2	58
1 1/2	11.2	60	12.7	66.5
2	12.7	75	15.7	85
2 1/2	15.7	95	19.0	100
3	19.0	110	22.4	120
4	22.4	140	28.4	150

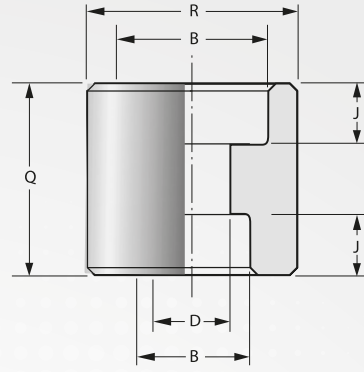
*Üreticiye göre değişiklikler gösterebilir.
May vary according to manufacturer.

Nominal Boru Ölçüsü Nominal Pipe Size (NPS)		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	
B	Mini	10.80	14.20	17.60	21.80	27.20	33.90	42.70	48.80	61.20	73.90	89.80	115.20	
	Maxi	11.20	14.60	18.00	22.20	27.60	34.30	43.10	49.20	61.70	74.40	90.30	115.70	
D	3000 lb	Mini	6.10	8.50	11.80	15.00	20.20	25.90	34.30	40.10	51.70	61.20	76.40	100.70
		Maxi	7.60	10.00	13.30	16.60	21.70	27.40	35.80	41.60	53.30	64.20	79.40	103.80
	6000 lb	Mini	3.20	5.60	8.40	11.00	14.80	19.90	28.70	33.20	42.10	-	-	-
		Maxi	4.80	7.10	9.90	12.50	16.30	21.50	30.20	34.70	43.60	-	-	-
C	3000 lb	Avg	3.18	3.80	4.00	4.65	4.90	5.69	6.07	6.35	6.93	8.76	9.52	10.69
		Mini	3.18	3.30	3.50	4.09	4.27	4.98	5.28	5.54	6.04	7.67	8.30	9.35
	6000 lb	Avg	3.95	4.60	5.05	5.95	6.96	7.92	7.92	8.92	10.92	-	-	-
		Mini	3.43	4.01	4.37	5.18	6.04	6.93	6.93	7.80	9.50	-	-	-
G mini	3000 lb	2.40	3.00	3.20	3.75	3.90	4.55	4.85	5.10	5.55	7.00	7.60	8.55	
	6000 lb	3.15	3.70	4.00	4.80	5.55	6.35	6.35	7.15	8.75	-	-	-	
J Mini		10.00	10.00	10.00	10.00	13.00	13.00	13.00	13.00	16.00	16.00	16.00	19.00	

Ölçüler mm olarak verilmiştir. *Dimensions in mm.*



Boss



Redüsiyon Manşon / Reducing Couplings

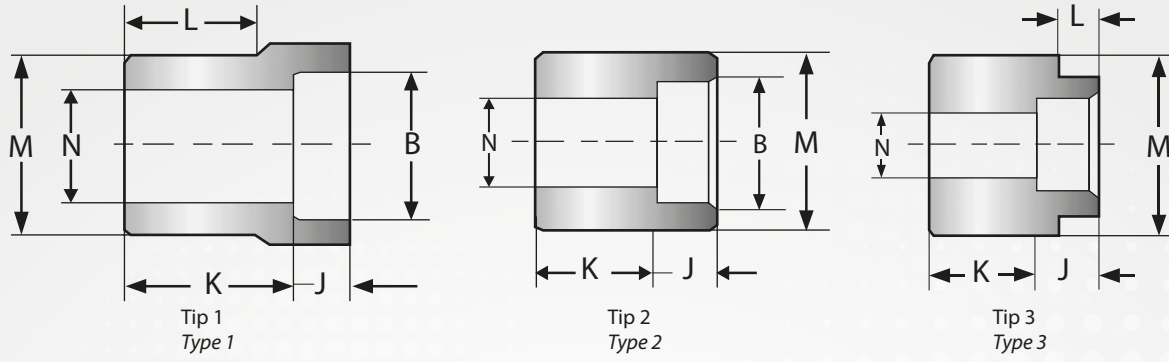
Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	3000 LB - 6000 LB		
	K*	M*	N*
	mm	mm	mm
1/8	30.5	28.0	10.6
1/4	30.5	28.0	14.0
3/8	30.5	32.0	17.4
1/2	33.5	38.0	21.6
3/4	35.0	44.5	26.9
1	43.0	57.5	33.6
1 1/4	48.0	63.5	42.4
1 1/2	51.0	76.1	48.5
2	57.5	92.0	60.9
2 1/2	72.0	113.0	76.6
3	79.0	141.0	90.5
4	84.0	180.0	115.0

Nominal Boru Ölçüsü Nominal Pipe Size (NPS)	3000 LB		6000 LB	
	Q*	R*	Q*	R*
	mm	mm	mm	mm
3/8 x 1/4	25.4	24.9	25.4	26.7
1/2 x 3/8	28.7	31.0	28.7	33.0
1/2 x 1/4	28.7	31.0	28.7	33.0
3/4 x 1/2	35.0	36.0	35.0	40.1
3/4 x 1/4	35.0	36.0	35.0	40.1
1 x 3/4	38.1	45.2	38.1	50.0
1 x 1/2	38.1	45.2	38.1	50.0
1 x 1/4	38.1	45.2	38.1	50.0
1 1/4 x 1	38.1	55.1	38.1	57.9
1 1/2 x 1	38.1	60.0	38.1	65.0
1 1/2 x 3/4	38.1	60.0	38.1	65.0
1 1/2 x 1/2	38.1	60.0	38.1	65.0
2 x 1 1/2	51.3	74.9	51.3	82.0
2 x 1	51.3	74.9	51.3	82.0

Nominal Boru Ölçüsü Nominal Pipe Size (NPS)		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	
B	Mini	10.80	14.20	17.60	21.80	27.20	33.90	42.70	48.80	61.20	73.90	89.80	115.20	
	Maxi	11.20	14.60	18.00	22.20	27.60	34.30	43.10	49.20	61.70	74.40	90.30	115.70	
D	3000 lb	Mini	6.10	8.50	11.80	15.00	20.20	25.90	34.30	40.10	51.70	61.20	76.40	100.70
		Maxi	7.60	10.00	13.30	16.60	21.70	27.40	35.80	41.60	53.30	64.20	79.40	103.80
	6000 lb	Mini	3.20	5.60	8.40	11.00	14.80	19.90	28.70	33.20	42.10	-	-	-
		Maxi	4.80	7.10	9.90	12.50	16.30	21.50	30.20	34.70	43.60	-	-	-
C	3000 lb	Avg	3.18	3.80	4.00	4.65	4.90	5.69	6.07	6.35	6.93	8.76	9.52	10.69
		Mini	3.18	3.30	3.50	4.09	4.27	4.98	5.28	5.54	6.04	7.67	8.30	9.35
	6000 lb	Avg	3.95	4.60	5.05	5.95	6.96	7.92	7.92	8.92	10.92	-	-	-
		Mini	3.43	4.01	4.37	5.18	6.04	6.93	6.93	7.80	9.50	-	-	-
G mini	3000 lb	2.40	3.00	3.20	3.75	3.90	4.55	4.85	5.10	5.55	7.00	7.60	8.55	
	6000 lb	3.15	3.70	4.00	4.80	5.55	6.35	6.35	7.15	8.75	-	-	-	
J Mini		10.00	10.00	10.00	10.00	13.00	13.00	13.00	13.00	16.00	16.00	16.00	19.00	

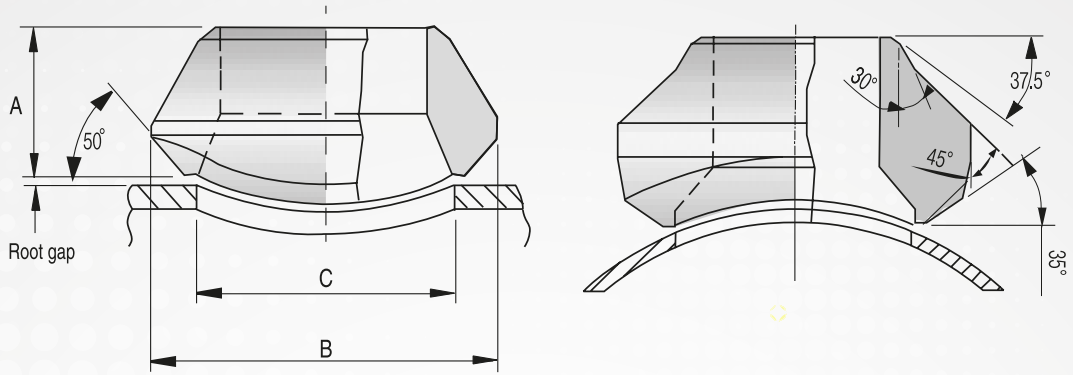
Ölçüler mm olarak verilmiştir. *Dimensions in mm.*

*Üreticiye göre değişiklikler gösterebilir. *May vary according to manufacturer.*



Redüksiyon İnsert / Red. Insert

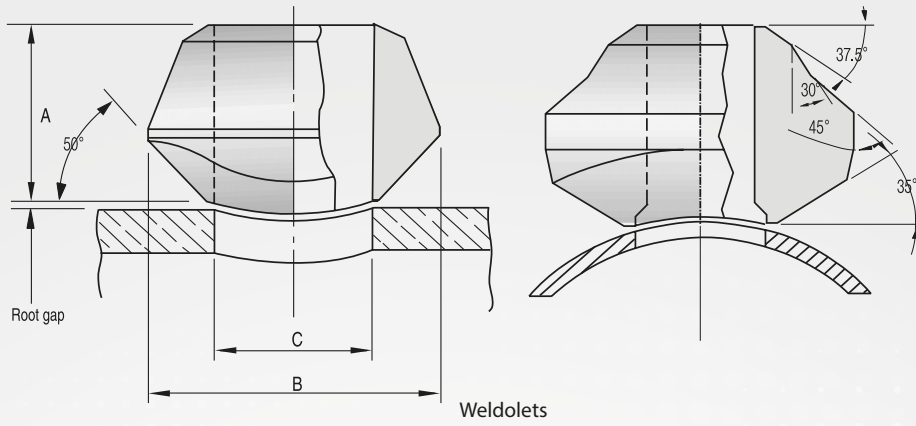
Nominal Boru Ölçüsü Nominal pipe sizes	TIP TYPE	3000 LB				TIP TYPE	6000 LB			
		M*	N*	K*	L*		M*	N*	K*	L*
		mm	mm	mm	mm		mm	mm	mm	mm
1/2 x 3/8	1	21.6	11.0	24.0	20.0	1	21.6	11.0	30.0	21.0
1/2 x 1/4	2	21.6	7.5	15.5						
1/2 x 1/8	3	21.6	5.5	15.5	7.0					
3/4 x 1/2	1	26.9	14.0	27.0	22.0	1	26.9	12.0	33.5	23.0
3/4 x 3/8	2	26.9	11.0	15.5		2	26.9	11.0	25.5	
3/4 x 1/4	3	26.9	7.5	15.5	7.0					
3/4 x 1/8	3	26.9	5.5	15.5	7.0					
1 x 3/4	1	33.6	19.0	28.5	23.0	1	33.6	15.5	42.0	26.0
1 x 1/2	2	33.6	14.0	24.0		1	33.6	12.0	40.0	24.0
1 x 3/8	3	33.6	11.0	23.0	7.0	3	33.6	11.0	28.5	7.0
1 x 1/4	3	33.6	7.5	24.0	7.0					
1 1/4 x 1	1	42.4	24.5	31.5	24.5	1	42.4	20.5	43.0	28.0
1 1/4 x 3/4	2	42.4	19.0	22.0		1	42.4	15.5	43.0	28.0
1 1/4 x 1/2	3	42.4	14.0	24.5	7.0	2	42.4	12.0	32.0	
1 1/4 x 3/8						3	42.4	11.0	32.5	7.0
1 1/2 x 1 1/4	1	48.5	32.5	33.5	27.0	1	48.5	29.5	51.0	32.0
1 1/2 x 1	2	48.5	24.5	33.5		1	48.5	20.5	49.0	28.0
1 1/2 x 3/4	3	48.5	19.0	22.0	8.0	2	48.5	15.5	35.0	
1 1/2 x 1/2	3	48.5	14.0	26.0	7.0	3	48.5	12.0	39.0	7.0
2 x 1 1/2	2	60.9	38.0	27.0		1	60.9	34.0	46.0	34.0
2 x 1 1/4	3	60.9	32.5	25.5	8.0	1	60.9	29.5	47.5	34.0
2 x 1	3	60.9	24.5	25.5	8.0	3	60.9	20.5	36.0	8.0
2 x 3/4	3	60.9	19.0	25.5	8.0	3	60.9	15.5	36.0	8.0
2 x 1/2	3	60.9	14.0	29.5	7.0	3	60.9	12.0	39.0	7.0
2 1/2 x 2	1	73.6	49.0	41.5	30.0	1	73.6	43.0	54.0	36.0
2 1/2 x 1 1/2	3	73.6	38.0	27.5	8.0	2	73.6	36.0	47.5	
2 1/2 x 1 1/4	3	73.6	32.5	29.5	8.0	3	73.6	29.5	42.0	8.0
2 1/2 x 1	3	73.6	24.5	29.5	8.0	3	73.6	20.5	44.0	8.0
2 1/2 x 3/4						3	73.6	15.5	44.0	8.0
2 1/2 x 1/2						3	73.6	12.0	46.5	7.0
3 x 2 1/2	1	89.6	59.0	46.0	33.5	1	89.6	54.0	63.5	38.0
3 x 2	3	89.6	49.0	41.5	10.0	2	89.6	43.0	54.0	
3 x 1 1/2	3	89.6	38.0	42.0	8.0	3	89.6	34.0	47.5	8.0
3 x 1 1/4	3	89.6	32.5	42.5	8.0	3	89.6	29.5	49.6	8.0
3 x 1	3	89.6	24.5	39.0	8.0	3	89.6	20.5	48.5	8.0



Weldolets

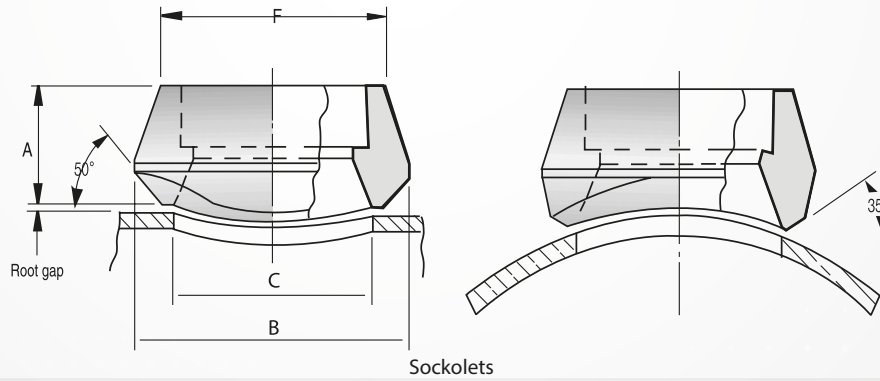
Outlet Size	A		B		C		Ağırlık / Weights	
	STD	XS	STD	XS	STD	XS	STD	XS
1/2	19.1	19.1	34.9	34.9	23.8	23.8	0.08	0.09
3/4	22.2	22.2	44.5	44.5	30.2	30.2	0.11	0.14
1	27.0	27.0	54.0	54.0	36.5	36.5	0.23	0.21
1 1/4	31.8	31.8	65.1	65.1	44.5	44.5	0.36	0.41
1 1/2	33.3	33.3	73.0	73.0	50.8	50.8	0.45	0.5
2	38.1	38.1	88.9	88.9	65.1	65.1	0.80	0.80
2 1/2	41.3	41.3	103.2	103.2	76.2	76.2	1.14	1.2
3	44.5	44.5	122.2	122.2	93.7	93.7	1.82	1.9
4	50.8	50.8	152.4	152.4	120.7	120.7	2.86	2.9
5	57.2	57.2	179.4	179.4	141.3	141.3	4.66	4.7
6	60.3	77.8	215.9	225.9	169.9	169.9	6.45	10.5
8	69.9	98.5	263.5	292.1	220.7	220.7	10.68	16.8
10	77.8	93.7	322.3	323.9	274.7	265.1	17.73	20.9
12	85.7	103.2	377.8	379.4	325.4	317.5	26.82	27.7
14	88.9	100.0	409.6	431.8	357.2	350.8	30.0	31.8
16	93.7	106.4	463.6	466.7	408.0	403.2	34.1	46.4
18	96.8	111.1	520.7	523.9	458.8	455.6	44.1	59.1
20	101.6	119.1	571.5	582.6	508.0	509.6	53.6	71.8
24	115.9	139.7	689.0	708.0	614.4	638.2	100.0	131.8
26	119.1	146.1	738.2	765.2	666.8	692.2	120.5	159.1

Ölçüler mm olarak verilmiştir. *Dimensions in mm.* Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.*



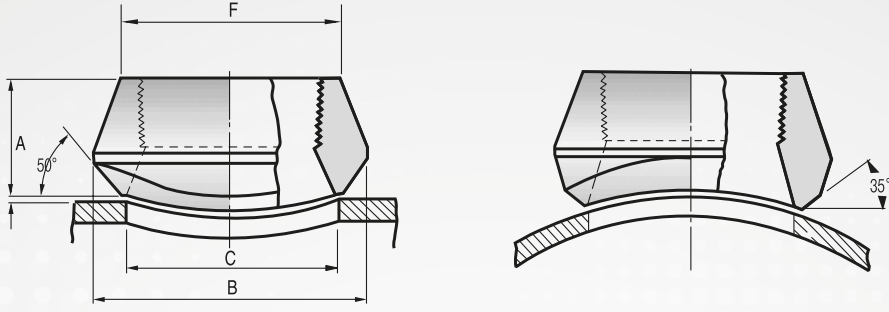
Outlet Size	A		B		C		Ağırlık / Weight (kg)	
	Sch160	XXS	Sch160	XXS	Sch160	XXS	Sch160	XXS
1/2	28.6	28.6	34.9	34.9	14.3	14.3	0.11	0.11
3/4	31.8	31.8	44.5	44.5	19.1	19.1	0.32	0.32
1	38.1	38.1	50.8	50.8	25.4	25.4	0.38	0.38
1 1/4	44.5	44.5	61.9	61.9	33.3	33.3	0.57	0.57
1 1/2	50.8	50.8	69.9	69.9	38.1	38.1	0.8	0.8
2	55.6	55.6	81.0	81.0	42.9	42.9	1.0	1.0
2 1/2	61.9	61.9	96.8	96.8	54.0	54.0	1.54	1.54
3	73.0	73.0	120.7	120.7	73.0	73.0	2.9	2.9
5	84.1	84.1	152.4	152.4	98.4	98.4	4.8	4.8
5	93.7	93.7	187.3	187.3	122.2	122.2	6.5	6.5
6	104.8	104.8	220.7	220.7	146.1	146.1	12.7	12.7
8	111.1	111.1	284.2	284.2	173.1	173.1	20.5	20.5
10	125.4	125.4	312.7	312.7	215.9	215.9	38.6	38.6

Ölçüler mm olarak verilmiştir. *Dimensions in mm.* Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.*



Outlet Size	A		B		C		F		Ağırlık / Weight (kg)	
	3000#	6000#	3000#	6000#	3000#	6000#	3000#	6000#	3000#	6000#
1/2	25.4	31.8	34.9	44.5	23.8	19.1	31.8	39.7	0.14	0.23
3/4	27.0	36.5	44.5	50.8	30.2	25.4	36.5	45.2	0.15	0.36
1	33.3	39.7	54.0	61.9	36.5	33.3	46.0	57.2	0.27	0.59
1 1/4	33.3	41.3	65.1	69.9	44.5	38.1	55.6	65.1	0.39	0.73
1 1/2	34.9	42.9	73.0	82.6	50.8	49.2	61.9	76.2	0.47	0.91
2	38.1	58.7	88.9	103.2	65.1	58.7	74.6	92.1	0.73	2.33
2 1/2	46.0	-	103.2	-	76.2	-	87.3	-	1.25	-
3	50.8	-	122.2	-	93.7	-	104.8	-	1.73	-
4	57.2	-	152.4	-	120.7	-	130.2	-	3.3	-

Ölçüler mm olarak verilmiştir. *Dimensions in mm.* Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.*



Thredolets

Outlet Size	A		B		C		F		Ağırlık / Weight(kg)	
	3000#	6000#	3000#	6000#	3000#	6000#	3000#	6000#	3000#	6000#
1/2	25.4	31.8	34.9	44.5	23.8	19.1	31.8	39.7	0.11	0.20
3/4	27.0	36.5	44.5	50.8	30.2	25.4	36.5	46.0	0.16	0.34
1	33.3	39.7	54.0	61.9	36.5	33.3	46.0	57.2	0.28	0.56
1 1/4	33.3	41.3	65.1	69.9	44.5	38.1	55.6	65.1	0.41	0.71
1 1/2	34.9	42.9	73.0	82.6	50.8	49.2	61.9	76.2	0.45	0.89
2	38.1	52.4	88.9	103.2	65.1	69.9	74.6	92.1	0.8	2.30
2 1/2	46.0	-	103.2	-	76.2	-	87.3	-	1.36	-
3	50.8	-	122.2	-	93.7	-	104.8	-	1.98	-
4	57.2	-	152.4	-	120.7	-	130.2	-	3.22	-

Ölçüler mm olarak verilmiştir. *Dimensions in mm.* Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.*

SINIFI	NPS	90° DİRSEK	45° DİRSEK	TEE	MANŞON	YARIM MANŞON	HEX. KÖR TAPA
3000 LB NPT	1/4	0.17	0.11	0.13	0.06	0.03	0.03
	3/8	0.29	0.23	0.37	0.11	0.09	0.06
	1/2	0.59	0.34	0.54	0.11	0.09	0.09
	3/4	0.63	0.54	0.85	0.20	0.11	0.14
	1	1.02	0.85	1.13	0.29	0.14	0.23
	1 1/4	1.25	0.97	1.42	0.71	0.34	0.51
	1 1/2	1.59	1.36	2.27	0.99	0.51	0.63
	2	2.47	1.93	3.06	1.42	0.71	1.02
	2 1/2	4.85	3.52	5.96	1.81	0.91	1.76
3	6.55	4.76	9.24	3.06	1.53	2.67	
4	13.80	8.68	17.90	7.60	3.80	5.90	

SINIFI	NPS	90° DİRSEK	45° DİRSEK	TEE	MANŞON	YARIM MANŞON	HEX. KÖR TAPA
6000 LB NPT	1/4	0.29	0.23	0.37	0.25	0.11	0.06
	3/8	0.59	0.34	0.54	0.43	0.11	0.09
	1/2	0.63	0.54	0.85	0.62	0.20	0.14
	3/4	1.02	0.85	1.13	1.03	0.29	0.23
	1	1.25	0.97	1.42	1.15	0.71	0.51
	1 1/4	1.59	1.36	2.27	1.54	0.99	0.63
	1 1/2	2.47	1.93	3.06	3.05	1.42	1.02
	2	4.85	3.52	5.96	5.14	1.81	1.76
	2 1/2	6.55	4.76	9.24	7.12	3.06	2.67
3	13.80	8.68	17.90	12.40	7.60	5.90	
4	21.00	13.00	27.00	17.00	11.00	8.00	

SINIFI	NPS	90° DİRSEK	45° DİRSEK	TEE	MANŞON	YARIM MANŞON	KEP
3000 LB SW	1/4	0.12	-	0.10	0.06	0.06	0.04
	3/8	0.11	0.18	0.16	0.06	0.08	0.05
	1/2	0.20	0.17	0.28	0.11	0.14	0.07
	3/4	0.28	0.23	0.37	0.17	0.20	0.13
	1	0.46	0.35	0.57	0.27	0.34	0.21
	1 1/4	0.65	0.65	0.87	0.35	0.48	0.37
	1 1/2	0.96	0.80	1.28	0.43	0.51	0.60
	2	1.50	1.20	1.80	0.72	1.00	0.99
	2 1/2	2.25	1.85	2.85	1.13	1.55	1.50
3	4.00	-	5.50	1.50	2.13	2.30	
4	-	-	-	2.50	3.65	4.00	

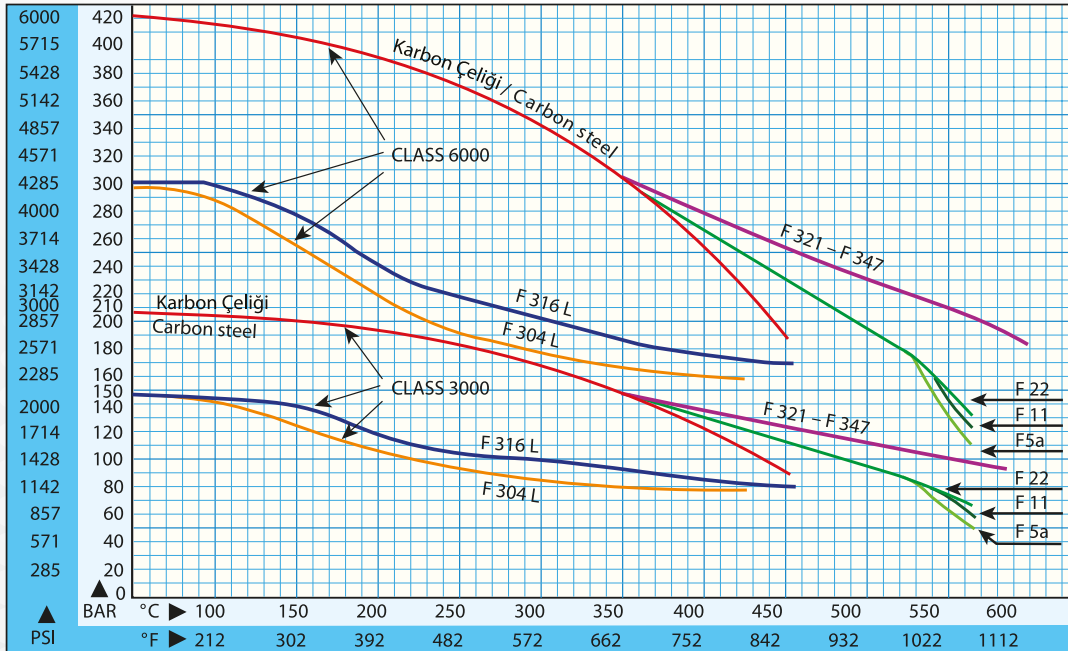
SINIFI	NPS	90° DİRSEK	45° DİRSEK	TEE	MANŞON	YARIM MANŞON	KEP
6000 LB SW	1/4	0.14	-	0.19	0.06	0.07	-
	3/8	0.12	0.19	0.17	0.07	0.05	-
	1/2	0.23	0.18	0.31	0.14	0.30	0.22
	3/4	0.60	0.50	0.86	0.25	0.43	0.35
	1	1.05	0.88	1.45	0.36	0.69	0.55
	1 1/4	1.40	0.69	1.03	0.46	0.93	0.89
	1 1/2	2.40	1.85	3.04	0.58	1.20	1.15
	2	3.65	2.93	4.44	1.20	2.05	2.05
	2 1/2	6.55	-	9.40	1.60	3.25	3.75
3	8.60	-	13.20	2.18	4.33	5.10	
4	-	-	-	3.95	6.45	8.20	

Ağırlıklar yaklaşık olarak verilmiştir. *Weights are approximate.* Ölçüler mm olarak verilmiştir. *Dimensions in mm.*

Dövme çelik bağlantı parçaları için izin verilen çalışma basıncı (Karbon Çeliği)
Max Allowable Operating Pressure for Forged Fittings (Carbon Steel)

Sıcaklık / Temperatures		Class					
		2000		3000		6000	
°C	°F	bar	psi	bar	psi	bar	psi
- 29 ile 38	- 20 to 100	137,9	2000	206,9	3000	413,8	6000
66	150	135,9	1970	203,4	2950	407,9	5915
93	200	133,8	1940	201,0	2915	402,0	5830
121	250	132,1	1915	198,3	2875	396,6	5750
149	300	130,7	1895	196,2	2845	392,4	5690
177	350	129,3	1875	193,8	2810	387,9	5625
204	400	127,6	1850	191,4	2775	382,8	5550
232	450	124,8	1810	187,2	2715	374,5	5430
260	500	119,7	1735	179,7	2605	359,3	5210
288	550	113,1	1640	169,7	2460	339,7	4925
316	600	106,2	1540	159,3	2310	318,6	4620
343	650	98,6	1430	148,3	2150	296,6	4300
371	700	90,0	1305	135,2	1960	270,3	3920
399	750	81,4	1180	122,4	1775	244,8	3550
427	800	70,0	1015	105,2	1525	210,3	3050
Normal Kullanım İçin / Normal Use Limit of Carbon Steel							
454	850	57,2	830	86,2	1250	172,4	2500
482	900	42,4	615	63,8	925	127,9	1855
Pratikte Kullanım İçin / Practical Use Limit of Carbon Steel							
510	950	29,3	425	44,1	640	88,6	1285
538	1000	16,2	235	24,1	350	49,3	715

Dövme çelik bağlantı parçalarının ani olmayan çalışma basıncını gösterir.
Pressure ratings indicate non-shock working pressure of the fittings



- Carbon steel ASTM A 105
- Alloy steel ASTM A 182 F 11
- Stainless steel ASTM A 182 F 347
- Alloy steel ASTM A 182 F 5a
- Stainless steel low carbon ASTM A 182 F 304 L
- Stainless steel ASTM A 182 F 321
- Alloy steel ASTM A 182 F 22
- Stainless steel carbon ASTM A 182 F 316 L

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