

**BRAND : "CC"**

**PRODUCT : - DUCTILE IRON FITTINGS**

**DESCRIPTION : PLUMBING & SANITARY INSTALLATION**



## DUCTILE IRON PIPES



**GRANDE ALLIANCE CORPORATION PTE LTD**

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# About Chong Cheong

Chong Cheong Foundry Works was set up in the year 1963. In 1987, the company was registered as CHONG CHEONG FOUNDRY WORKS PTE LTD.

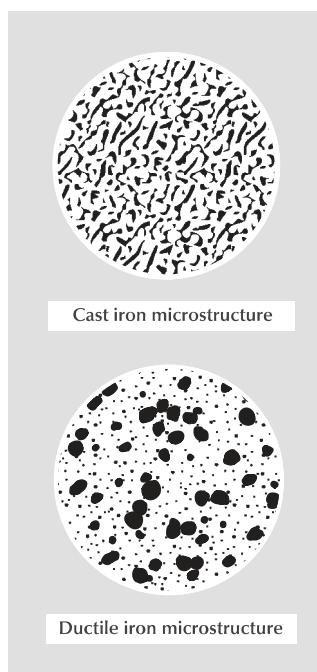
The company started out with the manufacturing of cast iron pipe fittings for Housing Development Board Projects. We later venture to produce Cast Iron Manhole Cover for PWD. In as early as 1975, we had our range of product tested and certified by SISIR under the Singapore Quality Mark Certification Scheme.

To ensure consistent quality, our products are regularly submitted for testing by PSB (formerly known as SISIR and now known as Tuv SUD PSB), or equivalent Singlas accredited laboratories.

## Mission

*To be the leading supplier of quality pipe products in Singapore through the continuous and combined effort of our dedicated and committed employee and management.*

## Properties & Advantages of Ductile Iron



- Ductile iron is also known as nodular cast iron, spheroidal graphite iron (SG); and spherulites graphite cast iron.
- Due to its graphite being in nodular form, ductile iron have high tensile strength, with a greater impact and fatigue resistance
- It also has high modulus of elasticity and good diametral stiffness which is suitable for laying underground, and can accommodate ground movement
- It is suitable for conveying of portable & waste water
- Ductile iron pipe together with its external zinc coating or epoxy / polyurethane coating has high corrosion resistant properties

### Coating & Lining for Ductile Pipes

Internal	External
> Cement Mortar Line	> Fusion Bonded Epoxy
> Fusion Bonded Epoxy	> Polyurethane
> Polyurethane	> Polyethylene
	> Metallic Zinc Coating with Black Bituminous Paint

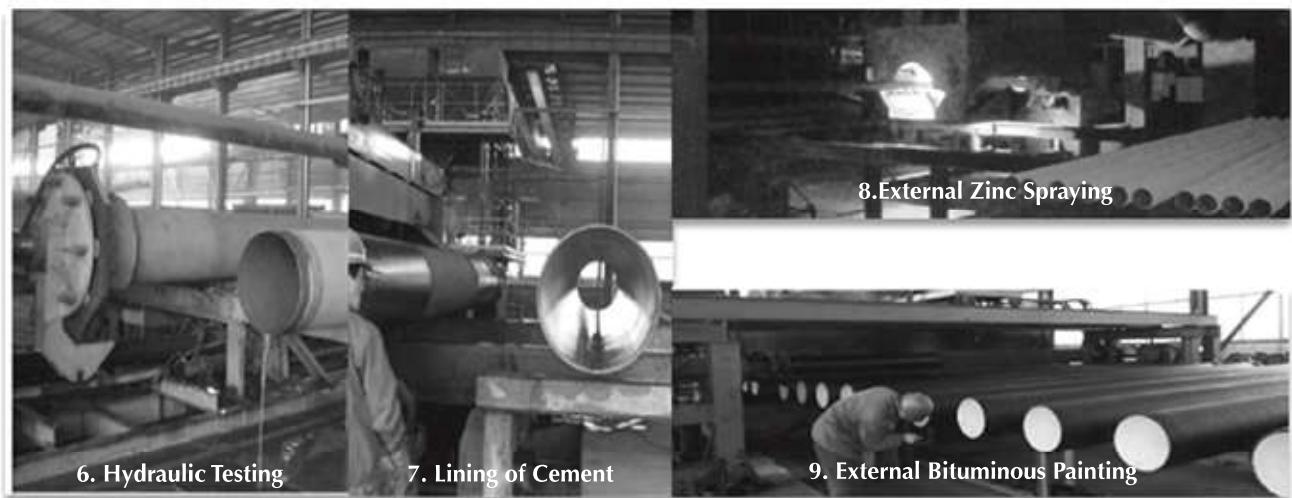
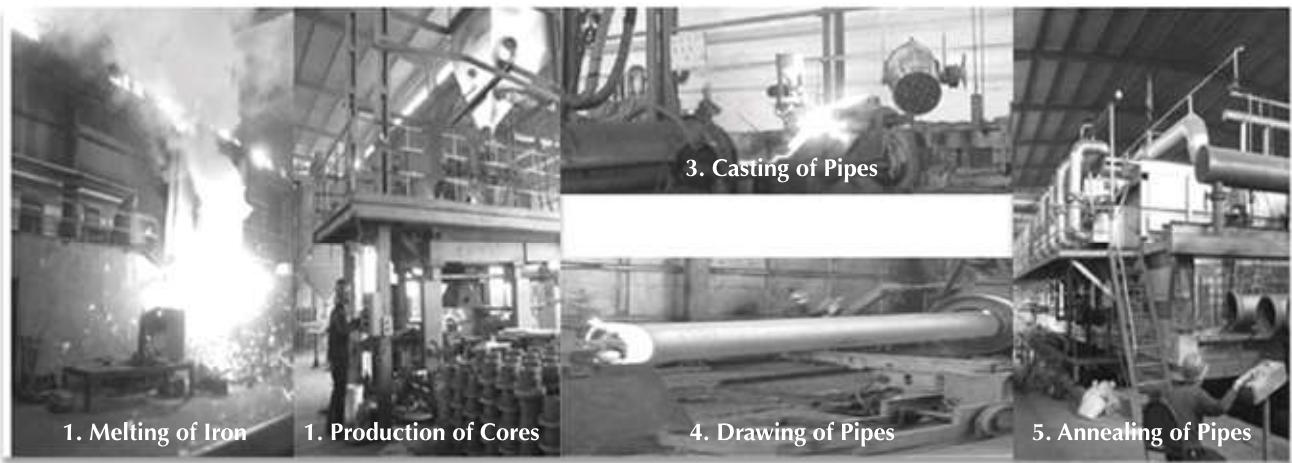
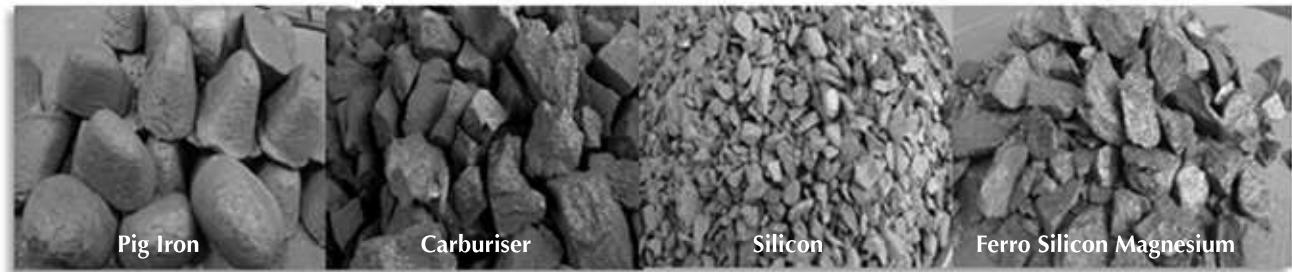
### Chemical Composition of Ductile Pipe

Carbon (C)	Silicon (Si)	Manganese (Mn)	Phosphorus (P)	Sulphur (S)	Magnesium (Mg)
3.5% - 4.0%	1.9% - 2.6%	0.15% - 0.45%	≤0.06%	≤0.02%	0.03% - 0.06%

### Mechanical Properties of Ductile Pipe

Pipe Size	Tensile Strength	Elongation (%)	Hardness (HB)
80mm - 1000mm	420 N/mm <sup>2</sup>	10	10
1100mm - 2000mm	420 N/mm <sup>2</sup>	7	7

# Ductile Iron Pipe Production



# Nominal thickness chart for push-on joint ductile iron pipes

DN (mm)	External Diameter DE (mm)		Nominal Pipe Wall Thickness (mm)							As per BSEN-598 (pressure pipe)	
	Nominal	Limit Deviations	Various Classes of Pipes								
			Class 20	Class 25	Class 30	Class 40	Class 50	Class 64	Class 100		
80	98	+1 / -2.7	-	-	-	4.4	4.4	4.4	4.8	4.8	
100	118	+1 / -2.8	-	-	-	4.4	4.4	4.4	5.5	4.8	
125	144	+1 / -2.8	-	-	-	4.5	4.5	4.8	6.5	4.8	
150	170	+1 / -2.9	-	-	-	4.5	4.5	5.3	7.4	4.8	
200	222	+1 / -3.0	-	-	-	4.7	5.4	6.5	9.2	4.9	
250	274	+1 / -3.1	-	-	-	5.5	6.4	7.8	11.1	5.3	
300	326	+1 / -3.3	-	-	5.1	6.2	7.4	8.9	12.9	5.6	
350	378	+1 / -3.4	-	5.1	6.3	7.1	8.4	10.2	14.8	6.0	
400	429	+1 / -3.5	-	5.5	6.5	7.8	9.3	11.3	16.5	6.3	
450	480	+1 / -3.6	-	6.1	6.9	8.6	10.3	12.6	18.4	6.7	
500	532	+1 / -3.8	-	6.5	7.5	9.3	11.2	13.7	20.2	7.0	
600	635	+1 / -4.0	-	7.6	8.7	10.9	13.1	16.1	23.8	7.7	
700	738	+1 / -4.3	7.3	8.8	9.9	12.4	15.0	18.5	27.5	9.6	
800	842	+1 / -4.5	8.1	9.6	11.1	14.0	16.9	21.0	-	10.4	
900	945	+1 / -4.8	8.9	10.6	12.3	15.5	18.8	23.4	-	11.2	
1000	1048	+1 / -5.0	9.8	11.6	13.4	17.1	20.7	-	-	12.0	
1100	1152	+1 / -6.0	10.6	12.6	14.7	18.7	22.7	-	-	14.4	
1200	1255	+1 / -5.8	11.4	13.6	15.8	20.2	-	-	-	15.3	
1400	1462	+1 / -6.6	13.1	15.7	18.2	-	-	-	-	17.1	
1500	1565	+1 / -7.0	13.9	16.7	19.4	-	-	-	-	17.9	
1600	1668	+1 / -7.4	14.8	17.7	20.6	-	-	-	-	18.9	
1800	1875	+1 / -8.2	16.4	19.7	23.0	-	-	-	-	20.7	
2000	2082	+1 / -9.0	18.1	21.8	25.4	-	-	-	-	22.5	

## Hydrostatic Pressure and Holding Time

Nominal Diameter	Pipes	Fittings	Holding Time
80 - 300	50 bar	25 bar	15 s (min)
350 - 600	40 bar	16 bar	
700 - 1000	32 bar	10 bar	

**CC** CHONG CHEONG

## DUCTILE IRON FITTINGS



GTION PTE LTD

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## Quality Assurance

All our pipes and fittings are manufactured adhering to strict quality control process by ISO 9000 Certified factories.

Our products are strictly monitored for defects before leaving our factories, ensuring reliability always.

We have your logistic requirements in mind by maintaining a stock level (commonly used) that will meet to your demand and definitely reducing your downtime that are so often caused by unavailability of materials.

Our ISO resolution and our pledge to all our valued customer:-

- A reliable product always from CC.
- Customer's confidence and satisfaction.
- On time supply and minimise customer complaints.

## BENEFITS OF CC DUCTILE IRON PIPE SYSTEM

### INHERENT HIGH IMPACT STRENGTH



- Making it a strong and durable material for pipes and fittings.
- It also offers rigidity when assembled to endure external forces which would considerably damage lesser material.

### SUPERIOR NOISE SUPPRESSION



- Cast iron significantly reduces noise caused by fluid transmission, expansion and contraction, does greatly reduces extra cost on sound insulation.

### LOW THERMAL EXPANSION



- Reduces complicated piping system and the need for expensive expansion joints.

### CORROSION RESISTANCE



- The most significant of all properties. Cast iron effectively resist corrosion from solutions commonly found in the drain, waste and kitchen effluents.
- Our CC Brand of cast iron fittings are also coated internally with black bituminous paint/epoxy paint to give that added corrosion resistant properties.

### FIRE PROOF & NON-TOXIC



- Give added protection and reduce risk due to its fireproof and non-toxic characteristic when subjected to above normal temperatures.

## Ductile iron

Cast iron used for pipes, fittings & accessories in which graphite is present substantially in spheroidal form.

## Tensile Strength, Elongation and Proof Stress

### Specification

Tensile Strength	Min. 420 N/mm <sup>2</sup>
Elongation	Min. 5%
0.2% Proof Stress	Min. 300 N/mm <sup>2</sup>

The proof stress shall only be measured upon special agreement and order conditions which shall be specified in the order.

0.102kgf/mm<sup>2</sup> = 1N/mm<sup>2</sup>

## Hydrostatic Test Pressure

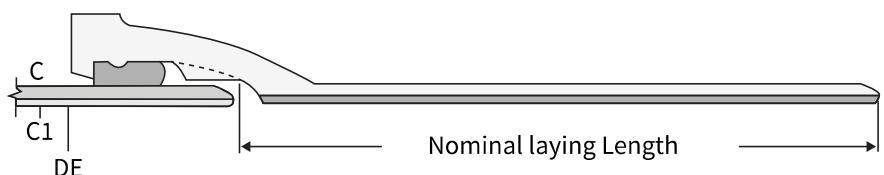
Nominal size DN	mm	Proof test pressure			Leak Tightness test pressure for fittings and for pipes with cast-on flanges		
		Centrifugally cast pipes with flexible joints	Pipes with screwed or welded-on flanges	PN 10 Flange	PN 16 Flange	PN 25 Flange	
80 - 300	50	bar	bar	16	25	32	25
350 - 600	40	bar	bar	16	25	32	16
700 - 800	32	bar	bar	16	25	32	10
900 - 1200	32	bar	bar	16	25	-	10
1400 - 1600	25	bar	bar	-	-	-	-

The works hydrostatic test pressure is less for fittings than for pipes because the shape of the fittings makes it difficult to provide sufficient restraint to high internal pressures during the test.

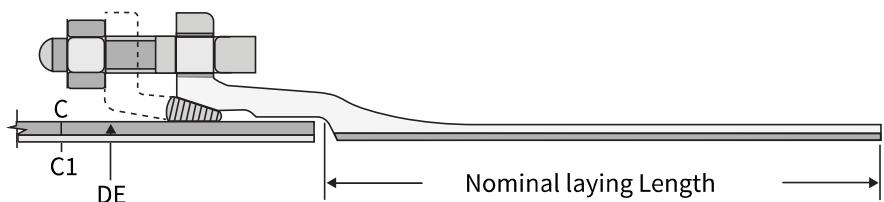
## Type of Ductile Iron Joints

- a) Tyton Style - Push-on Flexible Joint type
- b) Mechanical Joint Type
- c) Flange Joint with Rubber Gasket

Tyton Style - Push-on Flexible Joint type



Mechanical Joint Type



Flange Joint with Rubber Gasket



## PROJECT REFERENCE

Our CC DI fittings are seen applied in these various project references:



The Artra @ Alexandra View



Paya Lebar Quarter



Whistler Grand @ West Coast Vale



Google Data Centre @ Lok Yang Way



Funan Digital Mall



Digital Loyang 2 (Sin 12) Digital Realty Trust



Centrium Square



PUB Water Hub @ Toh Guan



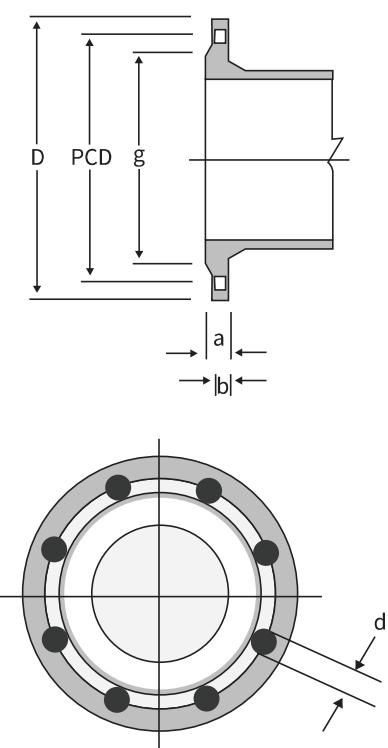
The Woodleigh Residences

Ductile iron fittings are suitable for usage in the transport and distribution of potable water. These are ideal for underground laying of main distribution lines.



Mandai Bird Park @ Mandai Road

## PN 10 FLANGES

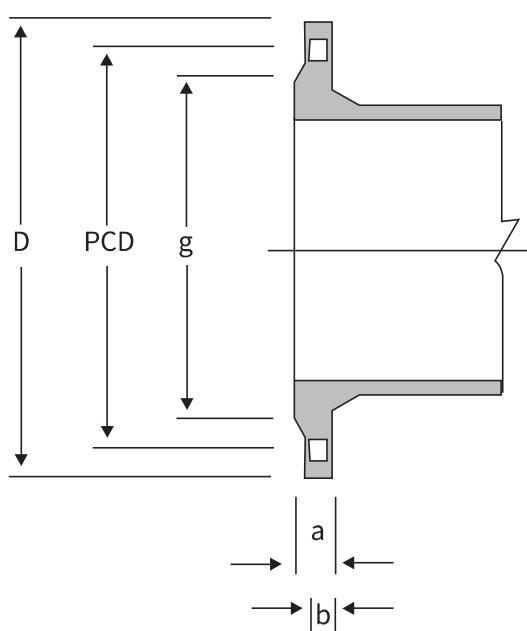


DN	D	g	a	b	Holes		
					PCD	No.	Dia.
mm	mm	mm	mm	mm	mm	No.	mm
80	200	133	19.0	16.0	160	8	19
100	220	153	19.0	16.0	180	8	19
150	285	209	19.0	16.0	240	8	23
200	340	264	20.0	17.0	295	8	23
250	400	319	22.0	19.0	350	12	23
300	455	367	24.5	20.5	400	12	23
350	505	427	24.5	20.5	460	16	23
400	565	477	24.5	20.5	515	16	28
450	615	527	25.5	21.5	565	20	28
500	670	582	26.5	22.5	620	20	28
600	780	682	30.0	25.0	725	20	31
700	895	797	32.5	27.5	840	24	31
800	1015	904	35.0	30.0	950	24	34
900	1115	1004	37.5	32.5	1050	28	34
1000	1230	1111	40.0	35.0	1160	28	37
1100	1340	1221	42.5	37.5	1270	32	37
1200	1455	1328	45.0	40.0	1380	32	40
1400	1675	1530	46.0	41.0	1590	36	43
1600	1915	1750	49.0	44.0	1820	40	49

For 10 bar nominal hydraulic operating pressure within the temperature range minus 10°C to 120°C.

PN 25 flanges are supplied to special order only.

## PN 16 FLANGES

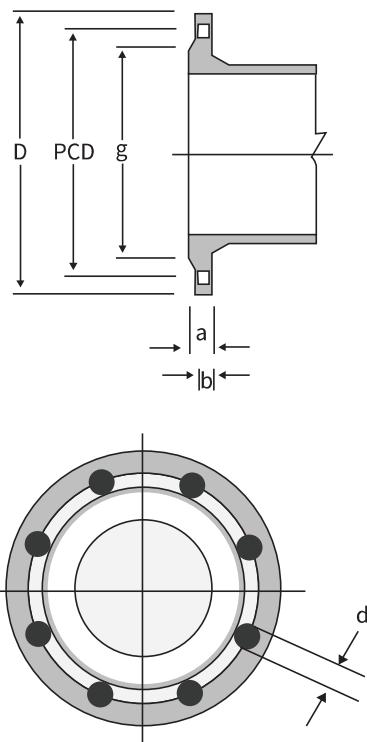


DN	D	g	a	b	Holes		
					PCD	No.	Dia.
mm	mm	mm	mm	mm	mm	No.	mm
80	200	133	19.0	16.0	160	8	19
100	220	153	19.0	16.0	180	8	19
150	285	209	19.0	16.0	240	8	23
200	340	264	20.0	17.0	295	12	23
250	400	319	22.0	19.0	355	12	28
300	455	367	24.5	20.5	410	12	28
350	520	432	26.5	22.5	470	16	28
400	580	484	28.0	24.0	525	16	31
450	640	544	30.0	26.0	585	20	31
500	715	606	31.5	27.5	650	20	34
600	840	721	36.0	31.0	770	20	37
700	910	791	39.5	34.5	840	24	37
800	1025	898	43.0	38.0	950	24	40
900	1125	998	46.5	41.5	1050	28	40
1000	1255	1115	50.0	45.0	1170	28	43
1100	1355	1215	53.5	48.5	1270	32	43
1200	1485	1328	57.0	52.0	1390	32	49
1400	1685	1530	60.0	55.0	1590	36	49
1600	1930	1750	65.0	60.0	1820	40	56

For 16 bar nominal hydraulic operating pressure within the temperature range minus 10°C to 120°C.

PN 16 flanges are supplied as standard for all working pressure up and including 16 bar.

## PN 25 FLANGES

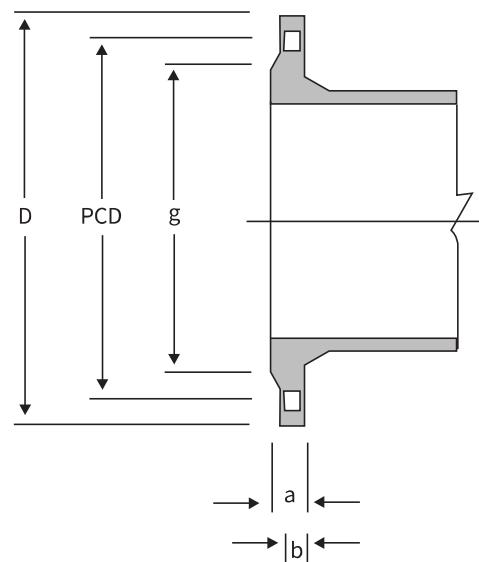


DN	D	g	a	b	Holes		
					PCD	No.	Dia. mm
80	200	133	19.0	16.0	160	8	19
100	235	159	19.0	16.0	190	8	23
150	300	214	20.0	17.0	250	8	28
200	360	274	22.0	19.0	310	12	28
250	425	331	24.5	21.5	370	12	31
300	485	389	27.5	23.5	430	16	31
350	555	446	30.0	26.0	490	16	34
400	620	503	32.0	28.0	550	16	37
450	670	553	34.5	30.5	600	20	37
500	730	613	36.5	32.5	660	20	37
600	845	718	42.0	37.0	770	20	40
700	960	820	46.5	41.5	875	24	43
800	1085	928	51.0	46.0	990	24	49
900	1185	1028	55.5	50.5	1090	28	49
1000	1320	1140	60.0	55.0	1210	28	56
1100	1420	1240	64.5	59.5	1310	32	56
1200	1530	1350	69.0	64.0	1420	32	56

For 25 bar nominal hydraulic operating pressure within the temperature range minus 10°C to 120°C.  
PN 25 flanges are supplied to special order only where working pressures are over 16 bar and up and including 25 bar.

## PN 40 FLANGES

DN	D	g	a	b	Holes		
					PCD	No.	Dia. mm
80	200	133	19.0	16.0	160	8	19
100	235	159	19.0	16.0	190	8	23
150	300	214	26.0	23.0	250	8	28
200	375	281	30.0	27.0	320	12	31
250	450	343	34.0	31.5	385	12	34
300	515	406	39.5	35.5	450	16	34



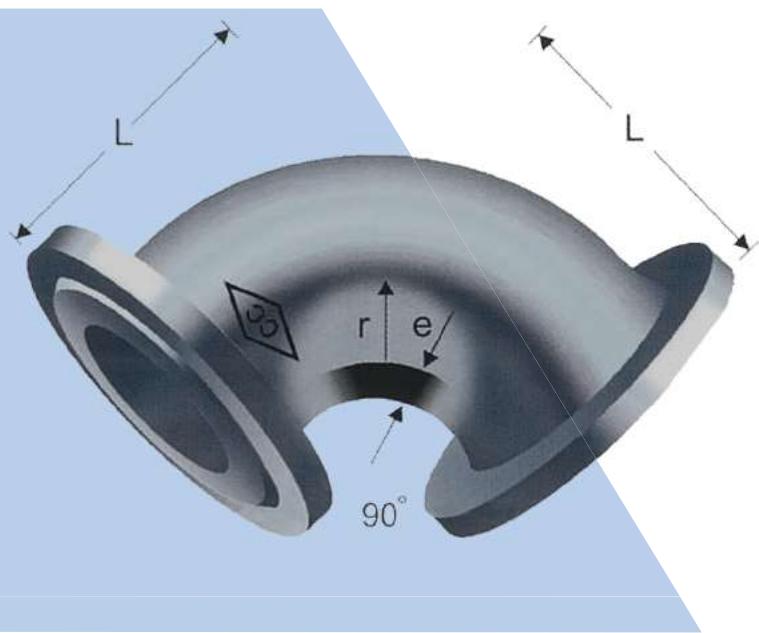
For 40 bar nominal hydraulic operating pressure within the temperature range minus 10°C to 120°C.  
PN 40 flanges are supplied to special order only where working pressures are over 25 bar and up and including 40 bar.



## OUR PRODUCTS

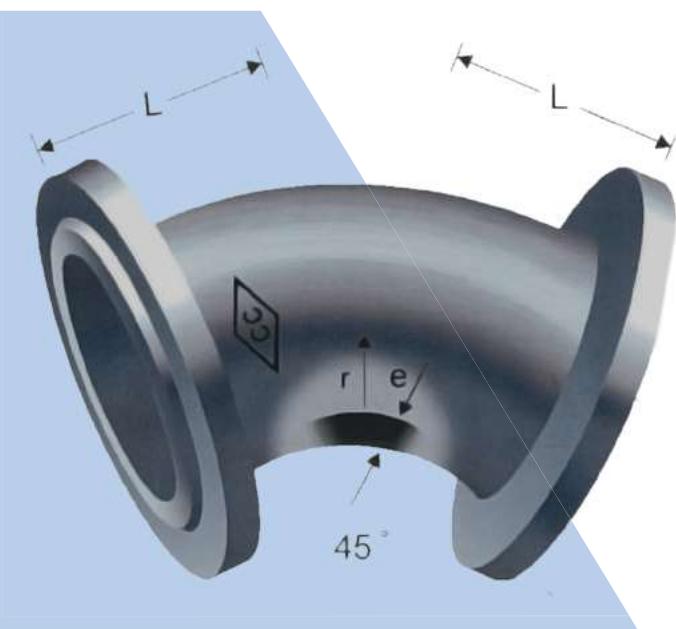


### DOUBLE-FLANGED 90° BEND, SHORT RADIUS, CLASS K12



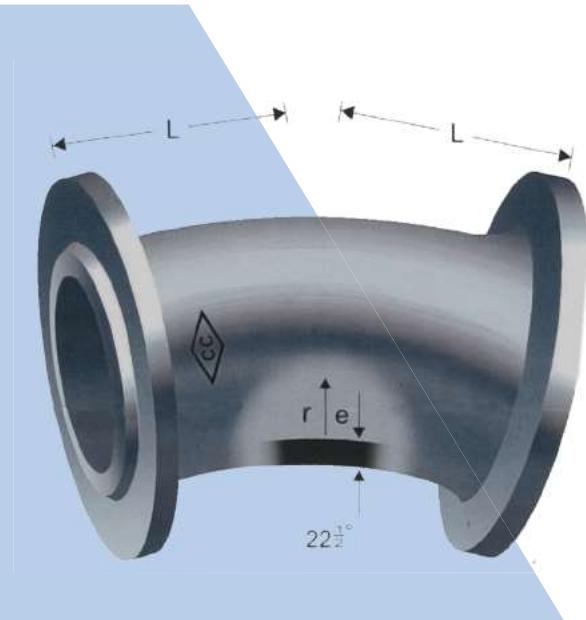
DN	e	L	r approx.	Mass PN 16 flanges	Extra mass for cement mortar lining
mm	mm	mm	mm	kg	kg
80	200	133	19.0	16.0	0.5
100	235	159	19.0	16.0	0.7
150	300	214	20.0	17.0	1.2
200	360	274	22.0	19.0	2.0
250	425	331	24.5	21.5	3.3
300	485	389	27.5	23.5	4.4
350	555	446	30.0	26.0	10.0
400	620	503	32.0	28.0	12.0
450	670	553	34.5	30.5	15.0
500	730	613	36.5	32.5	18.0
600	845	718	42.0	37.0	26.0
700	960	820	46.5	41.5	40.0
800	1085	928	51.0	46.0	52.0
900	1185	1028	55.5	50.5	64.0
1000	1320	1140	60.0	55.0	79.0
1100	1420	1240	64.5	59.5	94.0
1200	1530	1350	69.0	64.0	112.0

### DOUBLE-FLANGED 45° BENDS, CLASS K12



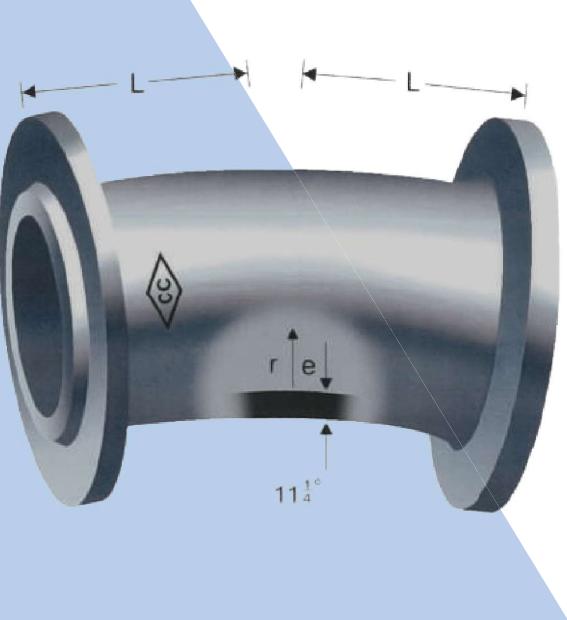
DN	e	L	r approx.	Mass PN 16 flanges	Extra mass for cement mortar lining
mm	mm	mm	mm	kg	kg
80	7.0	130	190	9.3	0.4
100	7.2	140	200	11.3	0.6
150	7.8	160	230	18.5	1.0
200	8.4	180	265	27.0	1.6
250	9.0	350	660	54.0	3.8
300	9.6	400	765	76.0	5.0
350	10.2	298	505	82.0	7.0
400	10.8	324	550	106.0	9.0
450	11.4	349	595	132.0	11.0
500	12.0	375	645	174.0	13.0
600	13.2	426	735	264.0	18.0
700	14.4	478	875	335.0	28.0
800	15.6	529	1000	444.0	36.0
900	16.8	581	1100	576.0	44.0
1000	18.0	632	1200	757.0	53.0
1100	19.2	683	1300	931.0	64.0
1200	20.4	735	1400	1187.0	74.0
1400	22.8	835	1595	1599.0	148.0
1600	25.2	940	1800	2273.0	190.0

## DOUBLE-FLANGED 22 1/2 BENDS, CLASS K12



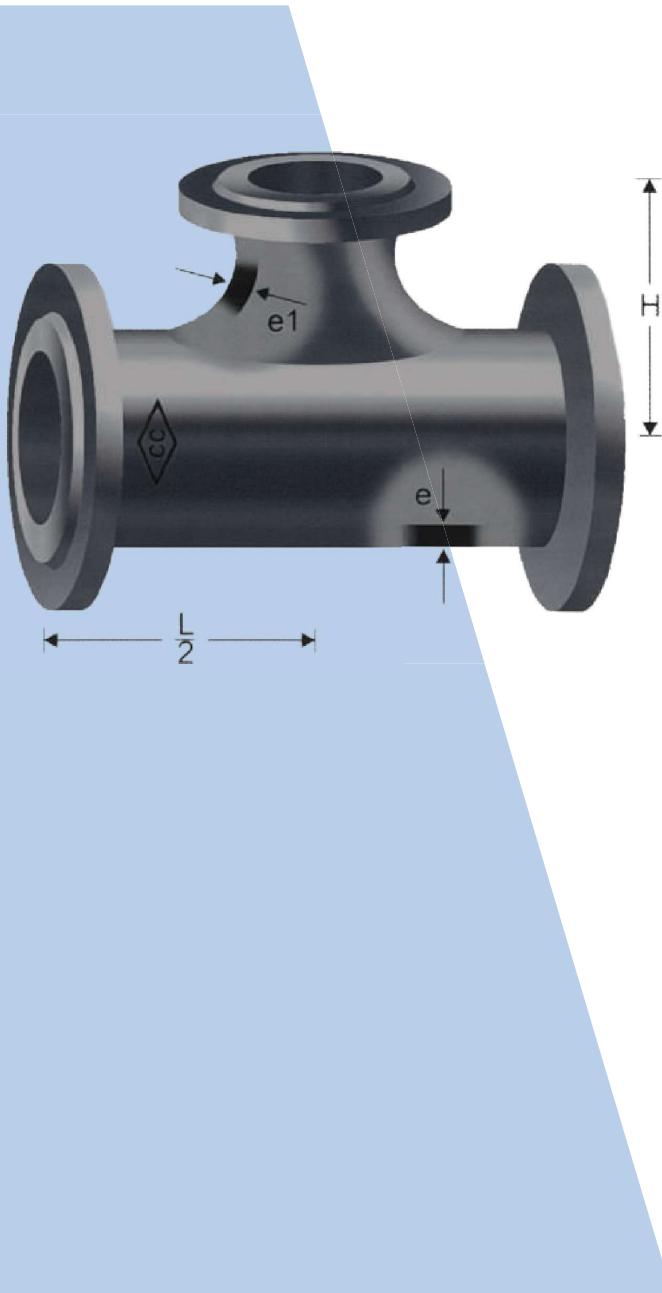
Nominal size DN	e	L	r approx.	Mass PN 16 flanges	Extra mass for cement mortar lining
mm	mm	mm	mm	kg	kg
80	7.0	130	395	9.2	0.4
100	7.2	140	410	11.5	0.6
150	7.8	160	480	18.6	1.0
200	8.4	180	555	27.0	1.6
250	9.0	350	1370	54.5	3.9
300	9.6	400	1535	77.5	5.0
350	10.2	298	1050	83.0	8.0
400	10.8	324	1145	107.0	10.0
450	11.4	349	1240	135.0	11.0
500	12.0	375	1340	176.0	14.0
600	13.2	426	1535	267.0	19.0
700	14.4	478	1825	342.0	29.0
800	15.6	529	2080	448.0	37.0
900	16.8	581	2295	588.0	45.0
1000	18.0	632	2500	773.0	55.0
1100	19.2	683	2290	952.0	57.0
1200	20.4	735	2500	1213.0	68.0
1400	22.8	835	3320	1635.0	153.0
1600	25.2	940	3745	2325.0	197.0

## DOUBLE-FLANGED 11 1/4 BENDS, CLASS K12



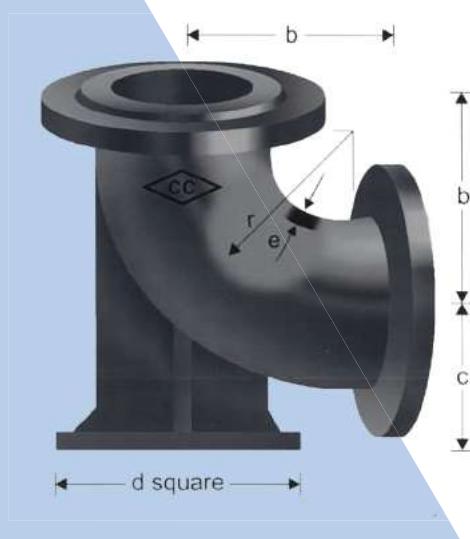
Nominal size DN	e	L	r approx.	Mass PN 16 flanges	Extra mass for cement mortar lining
mm	mm	mm	mm	kg	kg
80	7.0	130	800	9.2	0.4
100	7.2	140	830	11.5	0.6
150	7.8	160	975	18.6	1.1
200	8.4	180	1115	27.5	1.6
250	9.0	350	2770	55.0	3.9
300	9.6	400	3220	78.0	5.0
350	10.2	298	2120	83.5	8.0
400	10.8	324	2315	108.0	10.0
450	11.4	349	2505	135.0	12.0
500	12.0	375	2710	177.0	14.0
600	13.2	426	3095	268.0	19.0
700	14.4	478	3685	343.0	29.0
800	15.6	529	4200	451.0	37.0
900	16.8	581	4625	592.0	46.0
1000	18.0	632	5045	778.0	55.0
1100	19.2	683	5460	957.0	66.0
1200	20.4	735	5890	1220.0	77.0
1400	22.8	835	6700	1643.0	154.0
1600	25.2	940	7565	2338.0	198.0

## ALL FLANGED TEES, CLASS K-14



Nominal size		e	e1	L	H	Mass PN 16 flange	Extra mass for cement mortar lining
Body DN	Branch dn						
mm	mm	mm	mm	mm	mm	kg	kg
80	50	8.1	7.7	330	160	13.6	0.8
80	80		8.1	330	165	15.6	0.8
100	50		8.1	360	170	17.6	1.0
100	80	8.4	8.1	360	175	18.4	1.0
100	100		8.4	360	180	19.3	1.0
150	80		8.1	440	205	28.5	1.6
150	100	9.1	8.4	440	210	29.5	1.7
150	150		9.1	440	220	32.5	1.8
200	80		8.1	520	235	41.5	2.5
200	100	9.8	8.4	520	240	42.5	2.6
200	150		9.1	520	250	45.5	2.7
200	200		9.8	520	260	49.0	2.9
250	80		8.1	700	265	65	4.1
250	100		8.4	700	275	67	4.2
250	150	10.5	9.1	700	300	70	4.4
250	200		9.8	700	325	75	4.7
250	250		10.5	700	350	81	5.0
300	80		8.1	800	290	91	6.0
300	100		8.4	800	300	93	6.0
300	150	11.2	9.1	800	325	95.5	6.0
300	200		9.8	800	350	101	6.0
300	250		10.5	800	375	106	6.0
300	300		11.2	800	400	115	7.0
350	150	11.9	9.1	850	325	123	11.0
350	350		11.9	850	425	150	14.0
400	150		9.1	900	350	155	14.0
400	300	12.6	11.2	900	450	173	14.0
400	400		12.6	900	450	190	16.0
450	150		9.1	950	375	190	16.0
450	300	13.3	11.2	950	475	213	17.0
450	450		13.3	950	475	237	19.0
500	150		9.1	1000	400	241	18.0
500	300	14.0	11.2	1000	500	258	19.0
500	500		14.0	1000	500	304	21.0
600	150		9.1	1100	450	352	25.0
600	300	15.4	11.2	1100	550	369	25.0
600	450		13.3	1100	550	404	27.0
600	600		15.4	1100	550	447	28.0
700	400	16.8	12.6	879	555	379	28.0
700	700		16.8	1200	600	548	41.0
800	400		12.6	910	615	478	34.0
800	600	18.2	15.4	1350	645	699	50.0
800	800		18.2	1350	675	741	53.0
900	400		12.6	950	675	615	39.0
900	600	21.0	15.4	1500	705	965	62.0
900	900		21.0	1500	750	1046	66.0
1000	400		12.6	900	735	779	45.0
1000	600	22.5	15.4	1650	765	1155	75.0
1000	1000		22.5	1650	825	1392	81.0
1100	600	25.6	15.4	1250	800	1138	63.0
1100	1100		25.6	1780	890	1789	95.0
1200	600	27.2	15.4	1250	885	1367	69.0
1200	1200		27.2	1950	975	2321	114.0

## DOUBLE FLANGED 90° DUCKFOOT BENDS



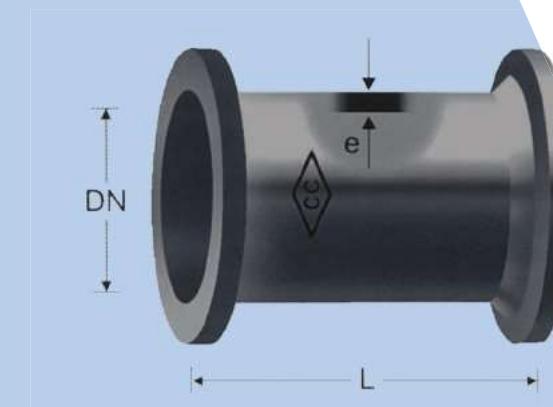
Nominal size DN	e	b	r	c	d	Mass PN 16 flange	Extra mass for cement mortar lining
mm	mm	mm	mm	mm	mm	kg	kg
80	7.0	165	115	110	180	14.0	0.5
100	7.2	180	120	125	200	17.7	0.7
150	7.8	220	155	160	250	30.5	1.2
200	8.4	260	190	190	300	47.0	2.0
250	9.0	350	275	225	350	76.0	3.3
300	9.6	400	315	255	400	108.0	4.4
350	10.2	450	360	290	450	147.0	10.0
400	10.8	500	405	320	500	196.0	12.0
450	11.4	550	450	355	550	246.0	15.0
500	12.0	600	490	385	600	322.0	18.0
600	13.2	700	580	450	700	493.0	26.0
700	14.4	800	685	515	800	586.0	40.0
800	15.6	900	785	580	900	798.0	52.0
900	16.8	1000	875	645	1000	1050.0	64.0
1000	18.0	1100	965	710	1100	1380.0	79.0

## TYTON COLLAR, T-TYPE

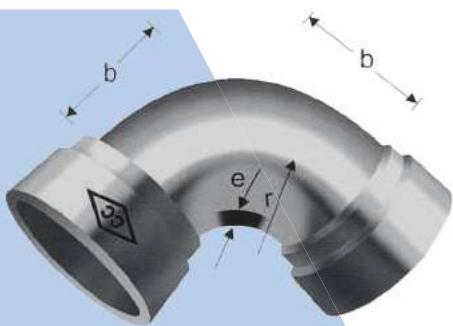


Nominal size DN	e	L	Mass
mm	mm	mm	kg
80	7.0	325	12.2
100	7.2	325	12.9
150	7.8	330	19.7
200	8.4	340	27.5
250	9.0	355	36.0
300	9.6	360	48.0
350	10.2	380	62.0
400	10.8	400	76.5
450	11.4	410	91.0
500	12.0	425	96.0
600	13.2	450	130.0

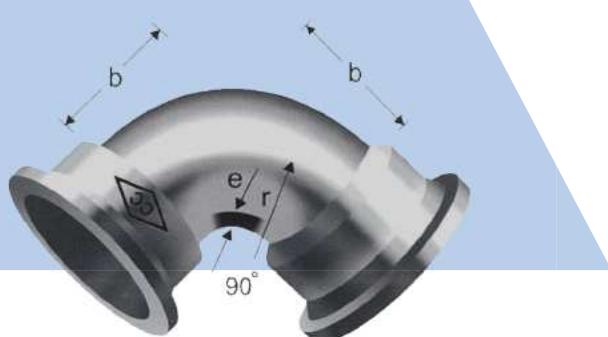
## COLLARS K-12, K-TYPE



## DOUBLE SOCKET 90° TYTON BEND K-12

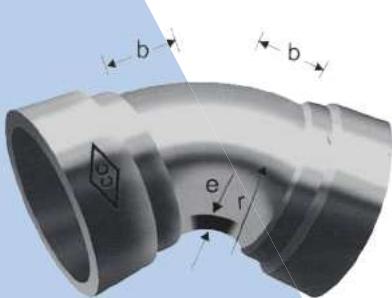


## MECHANICAL 90° BEND K-TYPE

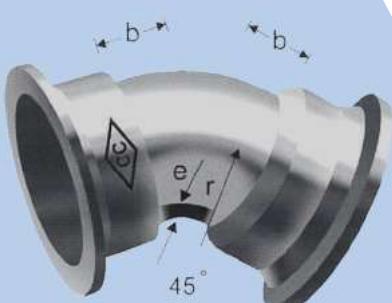


Nominal size DN	e	b	r	T-Type		K-Type	
				Mass kg	Extra mass for cement mortar lining kg	Mass kg	Extra mass for cement mortar lining kg
mm	mm	mm	mm	kg	kg	kg	kg
80	7.0	100	80	7.1	0.3	11.1	0.2
100	7.2	120	95	9.2	0.4	14.3	0.3
150	7.8	170	145	16.8	0.9	24.0	0.5
200	8.4	220	195	28.0	1.6	34.0	0.7
250	9.0	270	245	42.5	2.5	45.5	1.1
300	9.6	320	290	63.5	3.4	66.0	1.7
350	10.2	370	340	83.0	8.0	83.5	4.3
400	10.8	420	390	113.0	10.0	104.0	6.0
450	11.4	470	435	143.0	12.0	127.0	7.0
500	12.0	520	485	183.0	15.0	150.0	8.0
600	13.2	620	580	273.0	22.0	209.0	12.0

## DOUBLE SOCKET 45° TYTON BEND K-12

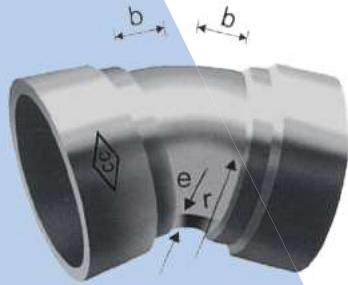


## MECHANICAL 45° BEND K-TYPE



Nominal size DN	e	b	r	T-Type		K-Type	
				Mass kg	Extra mass for cement mortar lining kg	Mass kg	Extra mass for cement mortar lining kg
mm	mm	mm	mm	kg	kg	kg	kg
80	7.0	55	80	6.3	0.2	12.0	0.3
100	7.2	65	95	7.9	0.3	15.6	0.4
150	7.8	85	145	13.5	0.5	27.5	0.9
200	8.4	110	200	22.0	0.7	40.0	1.6
250	9.0	130	245	32.5	1.1	55.5	2.5
300	9.6	155	305	49.0	1.7	81.5	3.4
350	10.2	175	350	61.0	4.3	105.5	8.0
400	10.8	200	405	82.5	6.0	134.0	10.0
450	11.4	220	450	103.0	7.0	166.0	12.0
500	12.0	240	495	130.0	8.0	202.0	15.0
600	13.2	285	595	191.0	12.0	290.0	22.0

## DOUBLE SOCKET 22 1/2 TYTON BEND K-12

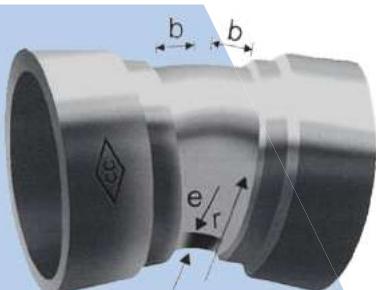


## MECHANICAL 22 1/2 BEND K-TYPE

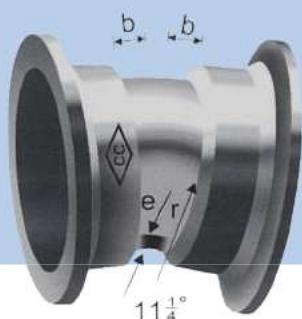


Nominal size DN	e	b	r	T-Type		K-Type	
				Mass	Extra mass for cement mortar lining	Mass	Extra mass for cement mortar lining
					kg		kg
80	7.0	40	90	5.9	0.1	10.7	0.1
100	7.2	45	110	7.3	0.2	13.5	0.2
150	7.8	55	155	12.0	0.4	22.5	0.4
200	8.4	65	195	18.8	0.6	30.5	0.6
250	9.0	75	240	27.0	0.8	40.5	0.8
300	9.6	90	305	41.0	1.2	58.0	1.2
350	10.2	100	350	50.0	2.6	71.0	2.6
400	10.8	110	390	66.0	3.2	88.0	3.2
450	11.4	120	435	81.5	4.0	105.0	4.0
500	12.0	135	505	103.0	4.9	123.0	4.9
600	13.2	155	590	147.0	7.0	164.0	7.0

## DOUBLE SOCKET 11 1/4TYTON BEND K-12



## MECHANICAL 11 1/4 BEND K-TYPE



Nominal size DN	e	b	r	T-Type		K-Type	
				Mass	Extra mass for cement mortar lining	Mass	Extra mass for cement mortar lining
					kg		kg
80	7.0	30	75	5.6	0.1	10.5	0.1
100	7.2	35	120	6.9	0.2	13.1	0.2
150	7.8	40	155	11.2	0.3	21.5	0.3
200	8.4	45	195	17.2	0.4	29.0	0.4
250	9.0	50	230	24.5	0.6	37.5	0.6
300	9.6	60	315	37.0	0.8	54.0	0.8
350	10.2	65	350	44.0	1.7	65.5	1.7
400	10.8	70	385	58.0	2.1	79.0	2.1
450	11.4	75	420	71.5	2.5	93.5	2.5
500	12.0	85	510	90.0	3.1	1080.0	3.1
600	13.2	95	580	126.0	4.2	141.0	4.2

## TYTON TEES

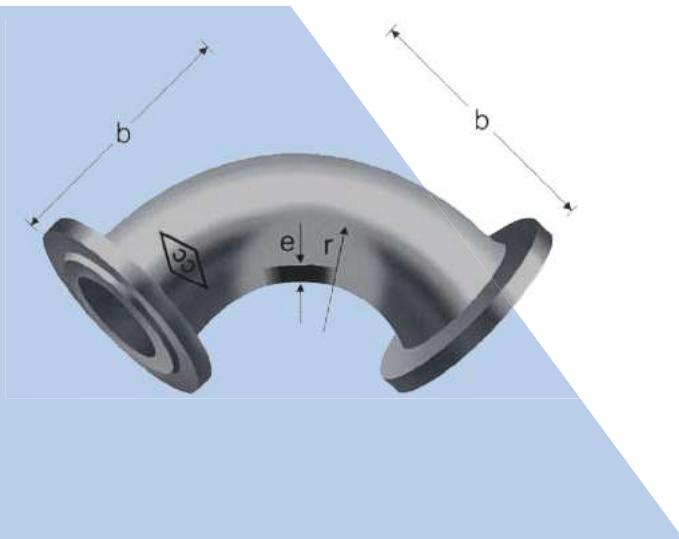


## FLANGE ON TYTON TEES



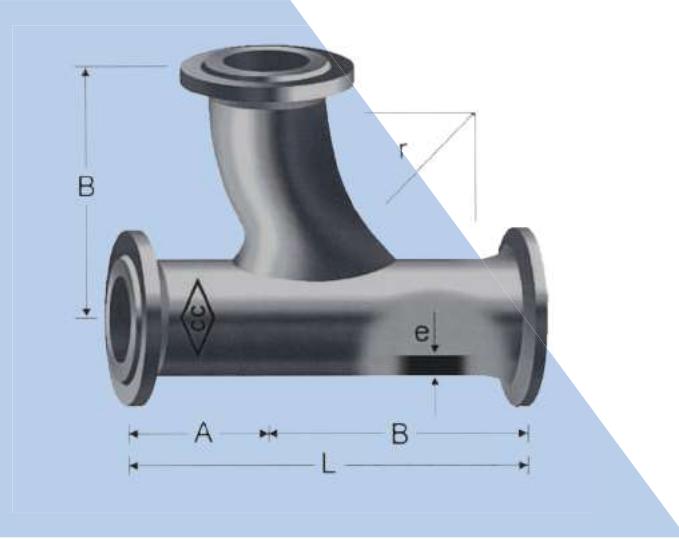
Nominal size					H		Mass		Extra mass for cement mortar lining	
Body DN	Branch dn	e	e1	L	Tyton tee	Flange on Tyton tee	Tyton tee	Flange on Tyton tee PN16 flange	Tyton tee	Flange on Tyton tee
mm	mm	mm	mm	mm	mm	mm	kg	kg	kg	kg
80	80	8.1	8.1	185	110	185	10.9	12.6	0.4	0.5
100	80	8.4	8.1	185	125	195	12.6	14.3	0.5	0.6
100	100	8.4	8.4	210	125	200	13.8	15.9	0.6	0.8
150	80	9.1	8.1	190	150	220	18.1	19.7	0.7	0.8
150	100	9.1	8.4	210	150	230	19.5	21.5	0.8	1.0
150	150	9.1	9.1	270	150	245	23.0	26.5	1.1	1.4
200	80	9.8	8.1	190	180	250	25.5	27.0	0.9	1.1
200	100	9.8	8.4	215	180	255	27.0	29.0	1.1	1.3
200	150	9.8	9.1	270	180	270	31.5	35.0	1.4	1.7
200	200	9.8	9.8	330	180	275	37.5	41.5	1.7	2.1
250	80	10.5	8.1	220	205	275	35.5	37.0	1.3	1.5
250	100	10.5	8.4	220	205	285	36.0	38.0	1.4	1.5
250	150	10.5	9.1	335	210	300	45.0	48.5	2.0	2.3
250	200	10.5	9.8	335	210	305	48.0	52.0	2.1	2.5
250	250	10.5	10.5	390	210	320	55.0	61.0	2.4	3.1
300	80	11.2	8.1	220	235	305	48.0	49.5	1.6	1.7
300	100	11.2	8.4	220	235	310	49.0	51.0	1.6	1.8
300	150	11.2	9.1	335	235	325	60.0	63.0	2.4	2.7
300	200	11.2	9.8	335	235	330	62.0	66.5	2.4	2.9
300	300	11.2	11.2	450	240	360	81.0	89.5	3.3	4.1
350	80	11.9	8.1	225	260	330	57.0	58.5	3.0	3.1
350	100	11.9	8.4	225	260	340	57.0	59.5	3.0	3.2
350	150	11.9	9.1	340	265	355	70.5	74.0	4.5	4.8
350	200	11.9	9.8	340	265	360	73.5	77.5	4.5	4.9
350	300	11.9	11.2	515	270	390	101.0	108.0	7.0	8.0
350	350	11.9	11.9	515	255	405	72.5	117.0	7.0	9.0
400	80	12.6	8.1	225	290	360	73.0	74.0	3.4	3.5
400	100	12.6	8.4	225	290	365	88.5	75.0	3.4	3.6
400	150	12.6	9.1	340	290	380	91.0	91.5	5.0	5.0
400	200	12.6	9.8	340	290	385	130.0	95.5	5.0	6.0
400	300	12.6	11.2	575	295	415	137.0	138.0	9.0	9.0
400	400	12.6	12.6	575	285	445	87.5	156.0	9.0	11.0
450	100	13.3	8.4	230	315	395	105.0	89.0	3.9	4.1
450	150	13.3	9.1	345	320	410	108.0	108.0	6.0	6.0
450	200	13.3	9.8	345	320	415	159.0	112.0	6.0	6.0
450	300	13.3	11.2	635	325	445	169.0	167.0	11.0	11.0
450	400	13.3	12.6	635	315	475	171.0	186.0	11.0	13.0
450	450	13.3	13.3	635	320	490	106.0	192.0	11.0	14.0
500	100	14.0	8.4	230	345	420	127.0	108.0	4.3	4.5
500	150	14.0	9.1	350	345	435	129.0	130.0	7.0	7.0
500	200	14.0	9.8	350	345	440	171.0	133.0	7.0	8.0
500	300	14.0	11.2	580	350	470	106.8	182.0	11.0	11.0
500	400	14.0	12.6	580	340	500	127.0	207.0	11.0	13.0
500	500	14.0	14.0	695	350	530	106.0	252.0	13.0	16.0
600	100	15.4	8.4	355	400	475	127.0	169.0	8.0	8.0
600	150	15.4	9.1	355	400	490	129.0	172.0	8.0	8.0
600	200	15.4	9.8	355	400	495	171.0	175.0	8.0	8.0
600	300	15.4	11.2	585	405	525	224.0	235.0	13.0	14.0
600	400	15.4	12.6	585	395	555	247.0	265.0	13.0	16.0
600	600	15.4	15.4	820	410	615	322.0	378.0	19.0	23.0

## DOUBLE FLANGES 90 LONG RADIUS BENDS



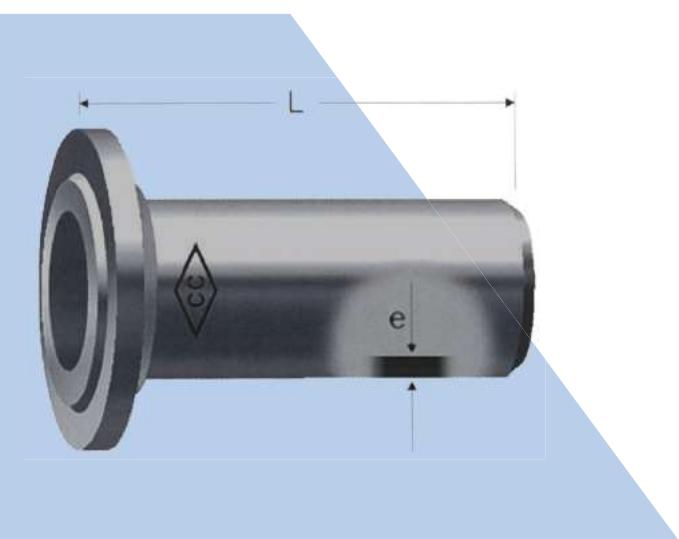
Nominal size DN	e	b	r	Mass PN 16 flanges	Extra mass for cement mortar lining
mm	mm	mm	mm	kg	kg
80	7.0	380	330	13.8	1.1
100	7.2	400	340	18.0	1.4
150	7.8	450	385	30.0	2.4
200	8.4	500	430	45.5	3.7
250	9.0	550	475	65.0	5.0
300	9.6	600	515	89.5	7.0
350	10.2	650	560	121.0	14.0
400	10.8	700	605	157.0	17.0
450	11.4	750	650	197.0	20.0
500	12.0	800	690	252.0	24.0
600	13.2	900	780	379.0	33.0

## ALL FLANGES RADIAL TEES



Nominal Size Body DN	Branch dn	e	L	A	B	r approx.	Mass PN 16 flanges	Extra mass for cement mortar lining
			mm	mm	mm	mm	kg	kg
80	80	8.1	545	165	380	330	23.0	1.7
100	100	8.4	580	180	400	340	29.5	2.4
150	150	9.1	670	220	450	385	48.5	3.9
200	200	9.8	760	260	500	430	72.5	6.0
250	250	10.5	900	350	550	475	106.0	8.0
300	300	11.2	1000	400	600	515	146.0	11.0
350	350	11.9	1100	450	650	560	204.0	22.0
400	400	12.6	1200	500	700	605	264.0	27.0
450	450	13.3	1300	550	750	650	332.0	33.0
500	500	14.0	1400	600	800	690	423.0	38.0
600	600	15.4	1600	700	900	780	633.0	52.0

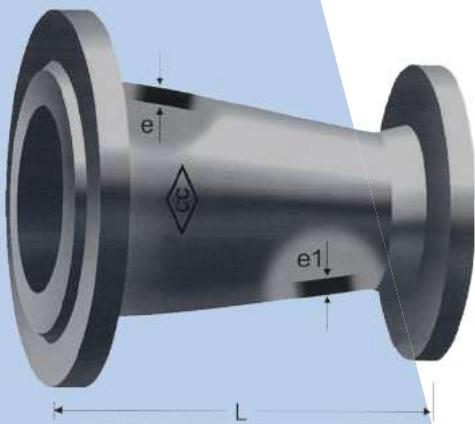
## FLANGE AND FLEXIBLE JOINT SPIGOT PIECES



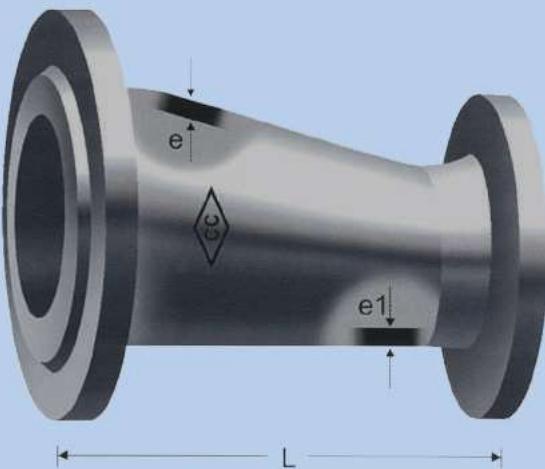
Nominal size DN	e	L	Mass PN 16 flanges	Extra mass for cement mortar lining
mm	mm	mm	kg	kg
80	7.0	350	7.9	0.6
100	7.2	360	9.7	0.8
150	7.8	380	15.6	1.3
200	8.4	400	22.5	1.8
250	9.0	420	31.5	2.4
300	9.6	440	42.0	3.0
350	10.2	460	55.5	6.0
400	10.8	480	70.0	7.0
450	11.4	500	86.0	8.0
500	12.0	520	109.0	9.0
600	13.2	560	159.0	12.0
700	14.4	600	206.0	18.0
800	15.6	600	254.0	21.0
900	16.8	600	320.0	24.0
1000	18.0	600	395.0	26.0
1100	19.2	600	473.0	29.0
1200	20.4	600	567.0	32.0

Nominal size	Large end DN	Small end dn	e	e1	L	Mass PN 16 flange	Extra mass for cement mortar lining
			mm	mm	mm	mm	kg
80	50	7.0	7.0	200	7.3	0.3	
100	50	7.2	7.0	300	9.4	0.5	
100	80	7.2	7.0	200	9.3	0.4	
150	80	7.8	7.0	400	16.1	1.0	
150	100	7.8	7.2	300	15.0	0.8	
200	100	8.4	7.2	600	27.0	2.0	
200	150	8.4	7.8	300	21.5	1.2	
250	150	9.0	7.8	600	38.0	2.7	
250	200	9.0	8.4	300	29.5	1.5	
300	150	9.6	7.8	600	46.0	3.0	
300	200	9.6	8.4	600	51.0	3.4	
300	250	9.6	9.0	300	39.5	1.9	
350	200	10.2	8.4	600	60.5	5.0	
350	250	10.2	9.0	600	67.0	6.0	
350	300	10.2	9.6	300	52.0	2.9	
400	200	10.8	8.4	600	71.0	6.0	
400	250	10.8	9.0	600	77.0	6.0	
400	300	10.8	9.6	600	84.0	6.0	
400	350	10.8	10.2	300	67.0	4.2	
450	250	11.4	9.0	600	87.5	7.0	
450	300	11.4	9.6	600	95.0	7.0	
450	350	11.4	10.2	600	104.0	9.0	
450	400	11.4	10.8	300	81.0	4.7	
500	250	12.0	9.0	700	114.0	8.0	
500	300	12.0	9.6	600	111.0	7.0	
500	350	12.0	10.2	600	121.0	9.0	
500	400	12.0	10.8	600	130.0	10.0	
500	450	12.0	11.4	300	102.0	5.0	
600	300	13.2	9.6	800	171.0	12.0	
600	350	13.2	10.2	700	167.0	12.0	
600	400	13.2	10.8	600	164.0	11.0	
600	450	13.2	11.4	600	175.0	12.0	
600	500	13.2	12.0	600	190.0	12.0	
700	450	14.4	11.4	700	213	17.0	
700	500	14.4	12.0	600	208	15.0	
700	600	14.4	13.2	600	243	16.0	
800	500	15.6	12.0	800	285	21.0	
800	600	15.6	13.2	600	275	17.0	
800	700	15.6	14.4	600	295	20.0	
900	450	16.8	11.4	1100	380	31.0	
900	500	16.8	12.0	1000	377	29.0	
900	600	16.8	13.2	800	366	25.0	
900	700	16.8	14.4	600	333	21.0	
900	800	16.8	15.6	600	364	22.0	
1000	500	18.0	12.0	1200	501	37.0	
1000	600	18.0	13.2	1000	487	33.0	
1000	700	18.0	14.4	800	452	30.0	
1000	800	18.0	15.6	600	418	24.0	
1000	900	18.0	16.8	600	454	25.0	
1100	700	19.2	14.4	1050	592	42.0	
1100	800	19.2	15.6	860	561	36.0	
1100	900	19.2	16.8	800	579	35.0	
1100	1000	19.2	18.0	600	550	28.0	
1200	700	20.4	14.4	1260	768	54.0	
1200	800	20.4	15.6	1070	765	53.0	
1200	900	20.4	16.8	880	708	47.0	
1200	1000	20.4	18.0	800	720	39.0	
1200	1100	20.4	19.2	600	666	30.0	

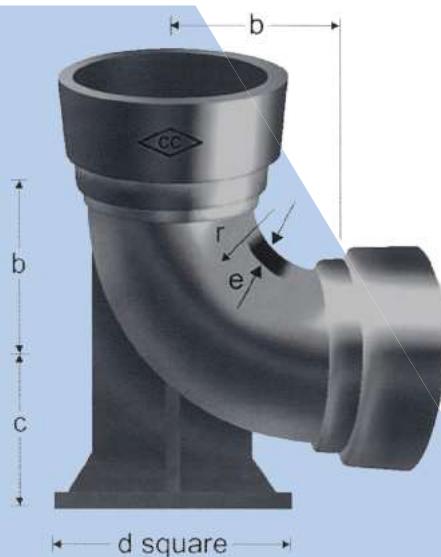
## DOUBLE-FLANGED CONCENTRIC TAPERS, CLASS K-12



## DOUBLE-FLANGED FLAT TAPERS, CLASS K-12

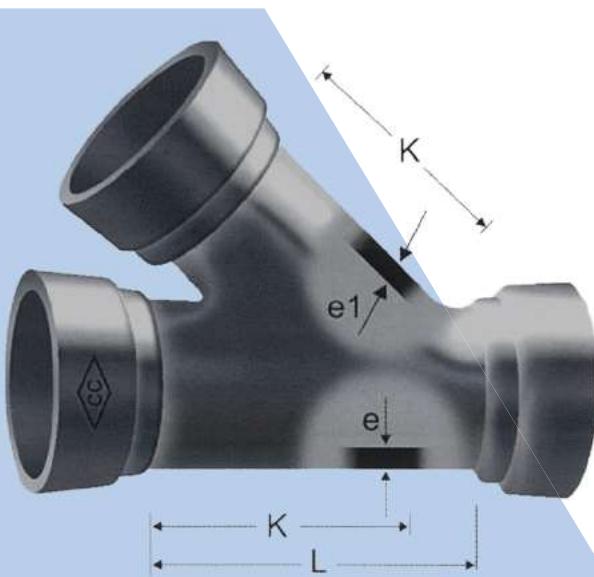


## TYTON 90 DUCKFOOT BENDS



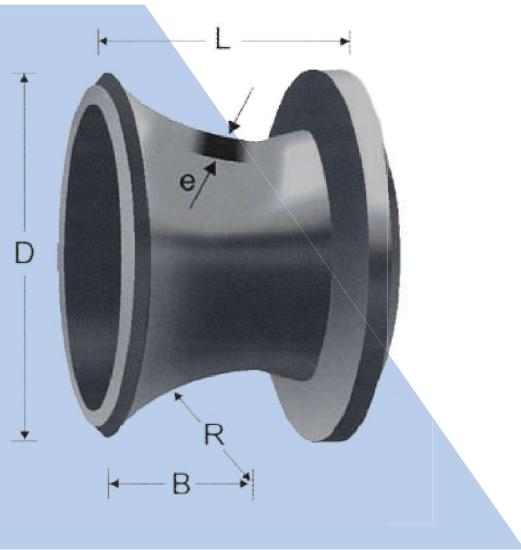
Nominal size DN	e	b	r approx.	c	d	Mass	Extra mass for cement mortar lining
mm	mm	mm	mm	mm	kg	kg	kg
80	7.0	100	80	110	180	11.3	0.3
100	7.2	120	95	125	200	14.8	0.4
150	7.8	170	145	160	250	28.5	0.9
200	8.4	220	195	190	300	44.5	1.1
250	9.0	270	245	225	350	68.5	2.5
300	9.6	320	290	255	400	100.0	3.4
350	10.2	370	340	290	450	133.0	8.0
400	10.8	420	390	320	500	180.0	10.0
450	11.4	470	435	355	550	230.0	12.0
500	12.0	520	485	385	600	294.0	15.0
600	13.2	620	580	450	700	442.0	22.0

## TYTON 45 ANGLE BRANCHES



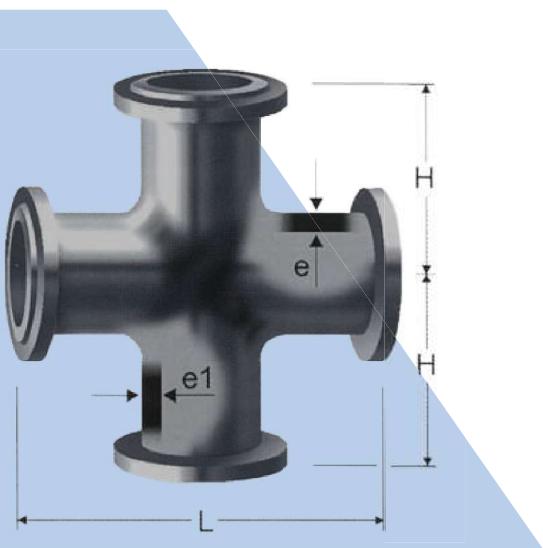
Nominal size Body DN	Branch dn	Type						Mass	Extra mass for cement mortar lining
		e	e1	L	K	kg	kg		
80	80	8.1	8.1	N	500	375	19.0	1.4	
100	100	8.4	8.4	N	540	405	25.5	1.9	
150	150	9.1	9.1	N	640	480	45.5	3.3	
200	200	9.8	9.8	N	735	560	71.5	5.0	
250	250	10.5	10.5	N	830	640	106.0	7.0	
300	300	11.2	11.2	N	930	715	151.0	9.0	

## FLANGED BELLMOUTHS



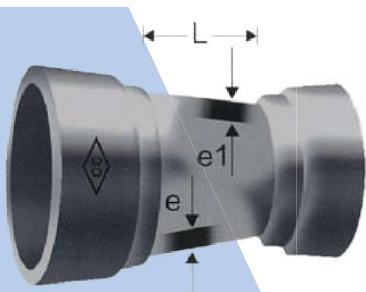
Nominal size DN	e	L	D	B	R	Mass PN 16 flanges	Extra mass for cement mortar lining
mm	mm	mm	mm	mm	mm	kg	kg
80	7.0	135	160	80	100	5.2	0.3
100	7.2	140	185	85	106	6.3	0.4
150	7.8	155	245	95	119	10.1	0.7
200	8.4	170	310	110	137	14.7	1.0
250	9.0	190	370	120	150	21.0	1.4
300	9.6	210	435	135	169	29.0	1.8
350	10.2	225	495	145	181	39.0	3.7
400	10.8	245	560	160	200	51.0	4.6
450	11.4	260	620	170	212	63.0	5.0
500	12.0	280	685	185	231	82.5	6.0
600	13.2	300	810	210	262	122.0	8.0
700	14.4	340	945	225	281	154.0	13.0
800	15.6	380	1055	240	300	203.0	10.0
900	16.8	420	1165	255	319	263.0	20.0
1000	18.0	440	1290	270	337	339.0	23.0
1100	19.2	465	1400	285	357	409.0	27.0
1200	20.4	490	1515	300	376	515.0	31.0

## ALL FLANGED CROSSES

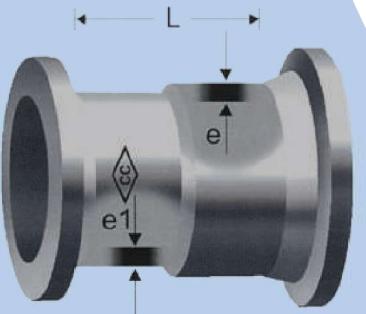


Nominal Size		e	e1	L	H	Mass PN 16 flanges	Extra mass for cement mortar lining
Body DN	Branch dn	mm	mm	mm	mm	kg	kg
80	80	8.1	8.1	330	165	20.5	1.0
100	100	8.4	8.4	360	180	24.5	1.3
150	150	9.1	9.1	440	220	41.0	2.3
200	200	9.8	9.8	520	260	60.5	3.5
250	250	10.5	10.5	700	350	99.5	6.0
300	300	11.2	11.2	800	400	143.0	8.0
350	350	11.9	11.9	850	425	189.0	16.0
400	400	12.6	12.6	900	450	236.0	19.0
450	450	13.3	13.3	950	475	286.0	22.0
500	500	14.0	14.0	1000	500	370.0	25.0
600	600	15.4	15.4	1100	550	542.0	32.0

## TYTON CONCENTRIC TAPERS K12

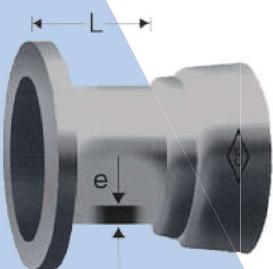


## MECHANICAL CONCENTRIC TAPERS K12



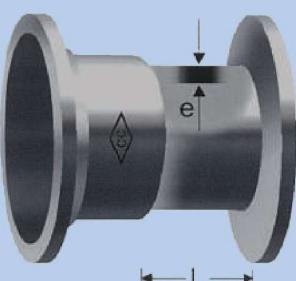
Nominal size					Type T		Type K	
Latge end DN	Small end dn	e	e1	L	Mass	Extra mass for cement mortar lining	Mass	Extra mass for cement mortar lining
mm	mm	mm	mm	mm	kg	kg	kg	kg
100	80	7.2	7.0	90	6.6	0.2	11.9	0.2
150	80	7.8	7.0	190	10.9	0.5	18.9	0.5
150	100	7.8	7.2	150	10.8	0.4	19.1	0.4
200	100	8.4	7.2	250	17.0	0.8	26.0	0.8
200	150	8.4	7.8	150	16.4	0.6	27.0	0.6
250	150	9.0	7.8	250	24.5	1.1	36.0	1.1
250	200	9.0	8.4	150	23.5	0.8	35.0	0.8
300	150	9.6	7.8	350	35.5	1.8	50.0	1.8
300	200	9.6	8.4	250	34.5	1.4	49.0	1.4
300	250	9.6	9.0	150	33.0	0.9	47.5	0.9
350	200	10.2	8.4	360	45.4	3.1	62.5	3.1
350	250	10.2	9.0	260	44.0	2.4	61.0	2.4
350	300	10.2	9.6	160	43.0	1.6	61.5	1.6
400	200	10.8	8.4	460	61.5	4.4	78.0	4.4
400	250	10.8	9.0	360	59.5	3.7	76.5	3.7
400	300	10.8	9.6	260	58.0	2.8	77.0	2.8
400	350	10.8	10.2	160	53.0	2.2	73.0	2.2
450	250	11.4	9.0	460	76.0	5.0	94.0	5.0
450	300	11.4	9.6	360	75.0	4.2	94.5	4.2
450	350	11.4	10.2	260	69.9	3.8	91.0	3.8
450	400	11.4	10.8	160	66.0	2.5	86.5	2.5
500	250	12.0	9.0	560	96.5	7.0	118.0	7.0
500	300	12.0	9.6	460	95.5	6.0	114.0	6.0
500	350	12.0	10.2	360	90.5	6.0	110.0	6.0
500	400	12.0	10.8	260	86.5	4.3	106.0	4.3
500	450	12.0	11.4	160	80.5	2.8	99.0	2.8
600	300	13.2	9.6	660	144.0	10.0	162.0	10.0
600	350	13.2	10.2	560	138.0	10.0	157.0	10.0
600	400	13.2	10.8	460	133.0	9.0	152.0	9.0
600	450	13.2	11.4	360	127.0	7.0	146.0	7.0
600	500	13.2	12.0	260	121.0	5.0	137.0	5.0

## FLANGE AND TYTON SOCKET PIECES K12

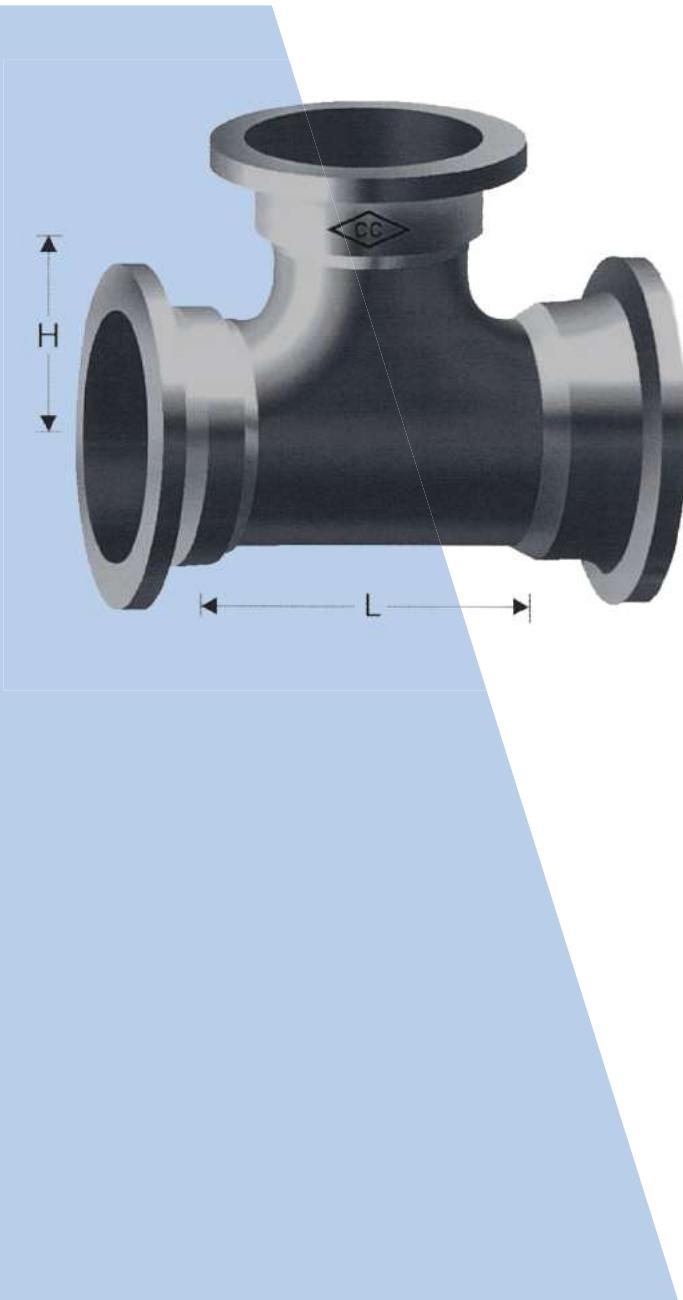


Nominal size DN	e	L	Type T		Type K	
			Mass	Extra mass for cement mortar lining	Mass	Extra mass for cement mortar lining
mm	mm	mm	kg	kg	kg	kg
80	8.1	130	7.3	0.2	9.3	0.2
100	8.4	130	8.7	0.3	11.3	0.3
150	9.1	135	13.6	0.5	18.0	0.5
200	9.8	140	19.7	0.6	24.0	0.6
250	10.5	145	27.5	0.8	32.0	0.8
300	11.2	150	38.0	1.0	44.0	1.0
350	11.9	155	48.5	2.0	55.5	2.0
400	12.6	160	62.5	2.4	68.0	2.4
450	13.3	165	75.5	2.7	82.0	2.7
500	14.0	170	97.0	3.1	100.0	3.1
600	15.4	180	140.0	4.0	138.0	4.0

## FLANGE AND MECHANICAL SOCKET PIECES K12

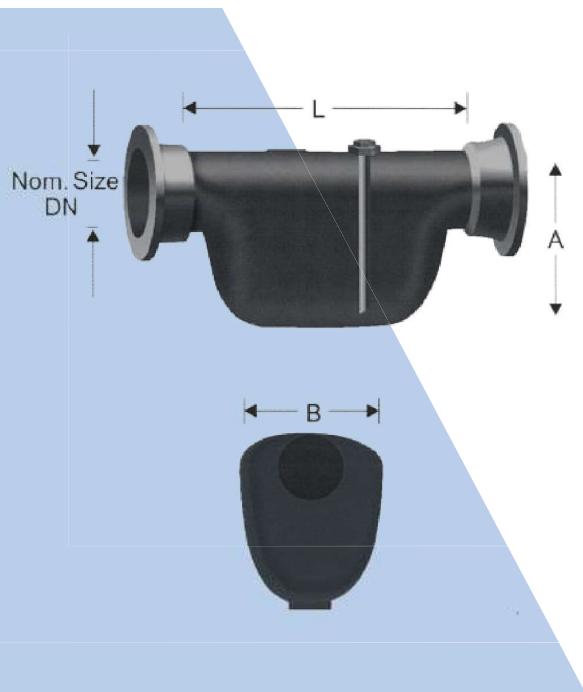


## MECHANICAL TEES



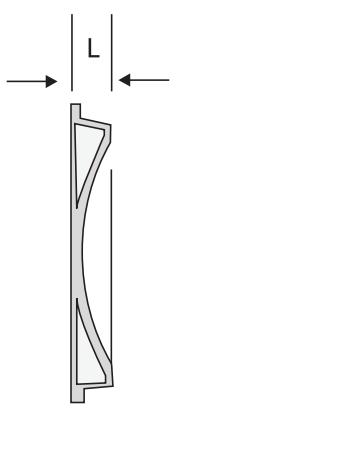
Nominal size		L	H	Mass	Extra mass for cement mortar lining
Body DN	Branch dn				
mm	mm	mm	mm	mm	kg
80	80	170	85	16.8	0.4
100	80	170	95	19.8	0.5
100	100	190	95	21.5	0.6
150	80	170	120	28.5	0.7
150	100	195	120	30.5	0.8
150	150	255	125	36.5	1.1
200	80	175	145	36.0	0.9
200	100	200	145	38.5	1.1
200	150	255	150	45.0	1.4
200	200	315	155	50.5	1.7
250	100	200	210	49.0	1.4
250	150	315	220	61.0	2.0
250	200	315	220	63.5	2.1
250	250	375	230	71.5	2.4
300	100	205	235	66.5	1.6
300	150	320	245	80.5	2.4
300	200	320	245	84.0	2.6
300	300	435	260	106.0	3.3
350	100	205	260	78.0	3.0
350	150	325	270	95.0	4.5
350	200	325	270	98.0	5.0
350	300	440	285	122.0	7.0
350	350	495	295	133.0	8.0
400	100	210	285	92.0	3.4
400	150	325	295	111.0	5.0
400	200	325	295	114.0	6.0
400	300	440	310	140.0	8.0
400	400	560	320	167.0	10.0
450	150	330	320	128.0	6.0
450	200	330	320	131.0	8.0
450	300	445	335	160.0	10.0
450	400	560	345	188.0	11.0
450	450	620	350	203.0	12.0
500	150	330	345	145.0	7.0
500	200	330	345	148.0	9.0
500	300	450	360	179.0	11.0
500	400	565	370	210.0	12.0
500	500	680	380	242.0	13.0
600	150	340	395	184.0	8.0
600	200	340	395	187.0	10.0
600	300	455	410	223.0	13.0
600	400	570	420	259.0	16.0
600	600	800	440	337.0	19.0

## CONDENSATE RECEIVERS

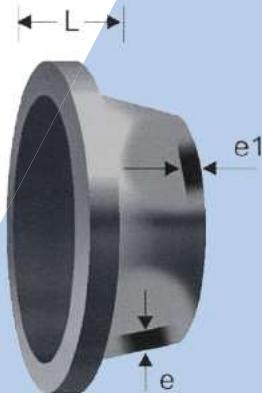


Nominal size DN	L	A	B	e	Capacity	Mass
mm	mm	mm	mm	mm	litres	kg
100	610	325	265	10.2	18	52
150	660	370	305	10.9	22	69
20	710	405	355	11.7	24	93
250	810	455	381	12.4	29.5	136
300	860	510	431.8	13.5	34.1	167

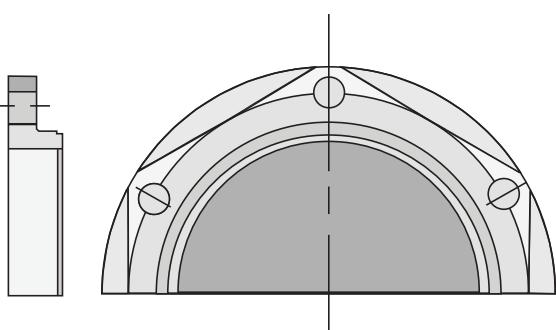
## BOLTED GLAND CAPS dk-12



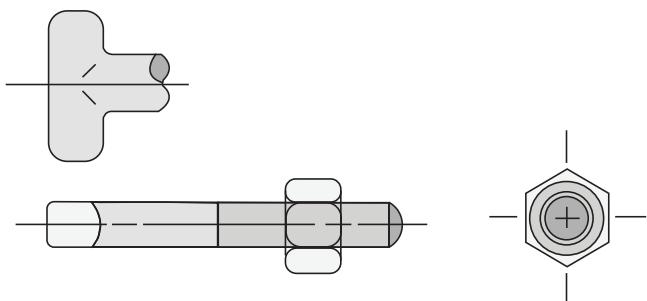
Nominal size DN	e	e1	L	Mass
mm	mm	mm	kg	kg
80	7.0	18.0	90	6.2
100	7.2	18.0	90	7.0
150	7.8	18.0	90	11.3
200	8.4	18.0	103	16.1
250	9.0	19.5	106	22.5
300	9.6	23.0	115	38.0
350	10.2	24.0	125	54.0
400	10.8	25.0	130	68.5
450	11.4	26.0	135	83.5
500	12.0	27.0	113	96.0
600	13.2	29.5	120	117.0



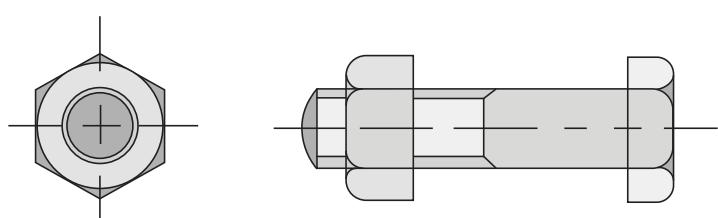
## DIMENSION OF BOLTED GLAND



Nominal size	PCD + 2MM	No. of Holes	Dia. of Holes
100mm	198mm	3	23mm
150mm	258mm	4	23mm
200mm	310mm	5	23mm
250mm	362mm	6	23mm
300mm	422mm	8	23mm
450mm	580mm	12	23mm
600mm	744mm	16	23mm
4"	200mm	3	23mm
6"	260mm	4	23mm
8"	314mm	5	23mm
10"	367mm	6	23mm
12"	422mm	8	23mm
18"	590mm	12	23mm
24"	755mm	16	23mm

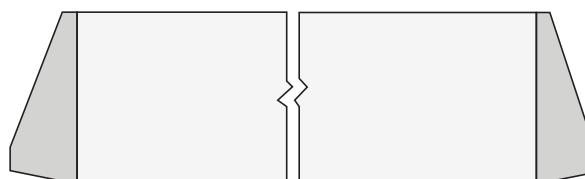
BOLTS AND NUTS FOR BOLTED GLAND JOINT FITTINGS  
(DUCTILE IRON BOLTS AND NUTS)

Nominal diameter DN	Size & Length	No.of Bolts
80	M20 x 80	3
100	M20 x 80	3
150	M20 x 90	4
200	M20 x 90	5
250	M20 x 100	6
300	M20 x 100	8
400	M20 x 115	12
450	M20 x 115	12
600	M20 x 115	16

BOLTS AND NUTS FOR BOLTED FLANGE JOINT FITTINGS  
(DUCTILE IRON BOLTS AND NUTS)

Nominal diameter DN	Size and Length	No. of Bolts	Size & Length	No. of Bolts	Size and Length	No. of Bolts
80	M16 X 65	8	M16 X 65	8	M16 X 65	8
100	M16 X 65	8	M16 X 65	8	M20 X 70	8
150	M20 X 70	8	M20 X 70	8	M24 X 80	8
200	M20 X 70	8	M20 X 70	8	M24 X 80	8
250	M20 X 80	12	M24 X 85	12	M27 X 90	12
300	M20 X 80	12	M24 X 85	12	M27 X 90	12
350	M20 X 80	16	M24 X 85	16	M30 X 110	16
400	M24 X 85	16	M27 X 100	16	M33 X 120	16
450	M24 X 85	20	M27 X 100	20	M33 X 120	20
500	M24 X 85	20	M30 X 110	20	M33 X 120	20
600	M27 X 100	20	M33 X 120	20	M36 X 140	20
700	M27 X 100	24	M33 X 120	24	M39 X 150	24
800	M30 X 110	24	M36 X 140	24	M45 X 160	24
900	M30 X 120	28	M36 X 140	28	M45 X 180	28
1000	M33 X 130	28	M39 X 160	28	M52 X 200	28
1100	M33 X 130	32	M39 X 160	32	M52 X 200	32
1200	M36 X 140	32	M45 X 180	32	M52 X 200	32
1400	M39 X 150	36	M45 X 180	36	M56 X 220	36
1600	M45 X 160	40	M52 X 200	40	M56 X 240	40

## BOLTED GLAND RUBBER GASKET



# CERTIFICATE OF CONFORMITY

## Declaration of Conformity

**Certificate Number : STL-COC-Z0015**

This Certificate is awarded to the following product(s) which has / have complied with the requirements of the listed standard(s).

**Applicant :** Chong Cheong Foundry Works Pte Ltd  
6 Sixth Lok Yang Road  
Singapore 628104

**Product :** Ductile Iron Pipes and Fittings –  
Cement - Mortar Lined - Ordinary  
Portland Cement (OPC)

**Brand / Model :** CC

**Detail :** Pipes (mm): Ø80 - Ø350  
Fittings (mm): Ø80 - Ø300

**Test Standard(s) :** BS EN 545: 2010  
BS EN 598: 2007+A1  
AS/NZS 4020: 2005  
SS 375: 2001  
SS 375: 2015  
SS 270: 2015

Product conformity Certificates are awarded on the basis of an assessment of the following type-test report(s):

Refer to Appendix

**Date of Original Issue :** 30-07-2020

**Date of Last Revision :** NA

**Date of Expiry :** 29-07-2022

  
Head, Certification  
Singapore Test Lab Pte Ltd

This Certificate is part of a full report and should be read in conjunction with it. This Certificate remains the property of Singapore Test Lab Pte Ltd and shall be returned upon request. The use of this Certificate is subjected to the Terms and Conditions of Singapore Test Lab Pte Ltd. The manufacturer is solely responsible for the compliance of any product that has the same designation as the product type-tested.



Singapore Test Lab Pte Ltd certifies according to ISO / IEC 17065

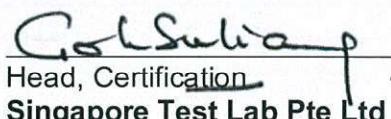
Singapore Test Lab Pte Ltd 10B Enterprise Road Singapore 629828 Tel: 6353 6393 Fax: 6353 6395



## Appendix

TO CERTIFICATE OF CONFORMITY : STL-COC-Z0015  
 Date of Issue : 30-07-2020  
 Test Report Reference(s) :  
 2020667-OYC  
 21702323/01-OYC  
 21702323/3A-OYC  
 21702323/3B-OYC  
 21702323/04-OYC  
 21702323/5B-CLC  
 21702323/06A-OYC  
 21702323/08-CLC  
 7191178213-MEC18/01-CYW  
 7191135067-MEC16-01-CYW  
 7191085840-MEC14-01-CYW  
 7191081972-MEC14-01-CYW  
 7191030115-MEC12-CYW

S/No	Test Report Reference	Test Description
1	2020667-OYC	Leaktightness and Mechanical Resistance of Flanged Joints
2	7191178213-MEC18/01-CYW 7191135067-MEC16-01-CYW 7191085840-MEC14-01-CYW 7191081972-MEC14-01-CYW 7191030115-MEC12-CYW	Dimensional Measurements Thickness Measurement of Cement Lining Hydrostatic Pressure Test
3	21702323/01-OYC	Dimensional Measurements Straightness of Pipes Tensile Test Brinell Hardness Test Zinc Mass Thickness Measurement of Cement Lining Compressive Strength of Cement Mortar Lining Works Leak Tightness for Pipes Leaktightness of Flexible Joints to Positive Internal Hydrostatic Pressure Leaktightness of Flexible Joints to Negative Internal Pressure Cyclic Internal Hydraulic Pressure Microstructure Examination Chemical Analysis of Ductile Iron
4	21702323/5B-CLC	Chemical Analysis of Cement
5	21702323/04-OYC	Rubber Materials
6	21702323/3A-OYC	Water Effect on Cement
7	21702323/3B-OYC	Water Effect on Moulded Rubber
8	21702323/06A-OYC	Diametral Stiffness of Pipes Abrasion Resistance
9	21702323/08-CLC	Extraction of Metals – Appendix H

  
 Head, Certification  
**Singapore Test Lab Pte Ltd**

Amendments or additions to this appendix other than those authorised by Singapore Test Lab Pte Ltd render the Appendix invalid.

Singapore Test Lab Pte Ltd · 10B Enterprise Road · Singapore 629828





Date: 27/10/2021

**M/s. SUNBEAM M&E PTE LTD**

Dear Sir / Madam,

Kindly be informed that we had supplied and are supplying our "CC" brand Ductile Iron Pipe Fittings to BSEN598 and BSEN545 to the following projects:-

**PROJECT REFERENCES**

S/No.	PROJECT	OWNER	MAIN CONTRACTOR	M & E CONSULTANT	YEAR of TOP
1	West Mall Shopping Centre		Kumagai Gumi Co Ltd		1998
2	Summerlea Garden at Kismis Avenue		Keong Hong Constrn		1998
3	Nanyang Polytechnic Phase 3 at Ang Mo Kio Avenue 5		JDC/ Kim Seng Heng JV		1998
4	Duchess Crest condominium at duchess Avenue		Kumagai Gumi Co Ltd		1998
5	Paya Lebar Methodist Church at Boundary Road		Hexacon Constrn P L		1998
6	Anderson Condominium at Walshe Road	Lumeric Pte Ltd	Kumagai Gumi Co Ltd		2000
7	Pantech Industrial Complex	City Developments Ltd	Mitsui Constrn Co Ltd		1995
8	Dover MRT @ Singapore Polytechnic	Land Transport Authority	Kumagai Gumi Co., Ltd		1998 - 2001
9	The Sterling condominium at Bukit Timah Road		Dragages Et Travaux Public P L		2000
10	6-Storey Food factor with 1 level basement at Kampong Ampat		Semtec Constr P L		1997
11	Equatorial Condominium at Stevens Road	City Developments Ltd	Dragages Et Travaux Public (S) Pte Ltd		2001
12	Central View at Hougang Street 11	Hougang View Pte Ltd	Hexacon Construction Pte Ltd		2002
13	12 Sty Residential Bldg at Holt Road	CPL Ventures Pte Ltd	Santarli Construction Pte Ltd		2001



S/No.	PROJECT	OWNER	MAIN CONTRACTOR	M & E CONSULTANT	YEAR of TOP
14	Starhub Centre (formerly Cuppage Centre)	Cuppage Centre P/L	Sato Kogyo Co Ltd		1999
15	Ardmore Park condominium	MP-Bilt Pte Ltd	Shimizu Corporation		2001
16	HDB Hub @ Toa Payoh	Housing and Development Board	Shimizu Corporation		2002
17	Freesia Woods	Keppel Land Ltd	Santarli Construction Pte Ltd		2003
18	Setia Mansion at No.11 Evelyn Road	Setia Pte Ltd	Penta-Ocean Construction Co Ltd		2005
19	East Meadows condominium	Tanamera Heights Pte Ltd	Poh Lian Construction Pte Ltd		2001
20	Hillview Regency Condo at Bukit Batok	Hillview Regency Pte Ltd	Poh Lian Construction Pte Ltd		2006
21	2RVG Condominium at River Valley Road	Affluence Properties Pte Ltd			2006
22	LDS Church at 253 Bukit Timah Road	The Church Jesus Christ Latter Day Saint	Wee Hur Construction Pte Ltd		2006
23	Lasalle SIA College	Takenaka Corporation	Lasalle Foundation Limited		2008
24	Singapore Flyer Project	Singapore Flyer Pte Ltd	Takenaka Corporation		2008
25	Marine Club House @ Sentosa Cove	Sutl Marina Development Pte Ltd	Kim Seng Heng Engineering Construction (Pte) Ltd		2007
26	Xilinx Project @ Changi Business Park Vista	Xilinx Asia Pacific Pte Ltd	Bovis Lend Lease Pte Ltd		2007
27	Tribeca Condominium	City Developments Ltd	Tiong Seng Contractors (Pte) Ltd		2010
28	Straits Trading Building	Straits Trading Pte Ltd	Obayashi Corporation		2010
29	Sky at Eleven Condominium at Thomson Road	Times Development Pte Ltd	Tiong Seng Contractors (Pte) Ltd		2011
30	City Square Mall @ Kitchener Road	City Developments Ltd	Kajima Overseas Asia Pte Ltd		2010
31	One North Residences	Vista Development Pte Ltd	Low Keng Huat (Singapore) Ltd		2012
32	Carlton Hotel	Carlton Properties (Spore) Pte Ltd	Shimizu Corporation		2011
33	Marina Bay Residence at Marina Boulevard Road	Marina Bay Residences Pte Ltd	Woh Hup (Pte) Ltd		2010



S/No.	PROJECT	OWNER	MAIN CONTRACTOR	M & E CONSULTANT	YEAR of TOP
34	The Metropolitan @ Alexandra Road	Tanglin Residential Pte Ltd	Nakano Singapore (Pte) Ltd		2009
35	Latitude Condominium at Jalan Mutiara	Phoenix Realty Pte Ltd	Nakano Singapore (Pte) Ltd		2011
36	Singapore Driving Test Centre at Woodlands	Chip Eng Seng Contractors (1988) Pte Ltd	Singapore Safety Driving Centre Ltd		2010
37	St Thomas Suites	FCL Tower Pte Ltd	Nakano Singapore (Pte) Ltd		2011
38	One Shenton Way Condominium	Cpl Land Pte Ltd	Hyundai Engineering & Construction Co Ltd		2011
39	Soleil @ Sinaran	Riverside Investments Pte Ltd	China Construction (South Pacific) Development Co Pte Ltd		2012
40	Viva Condominium @ Thomson	Thomson Pek Pte Ltd	Tiong Aik Construction Pte Ltd		2012
41	Livia Condominium @ Pasir Ris	Hong Realty (Pte) Ltd	Hyundai Engineering & Construction Co Ltd		2011
42	Ocean Tower	Ocean Properties Pte Ltd	Takenaka Corporation		1992
43	CCRC at Rochester Drive				
44	Asia Square Tower Office Block	Asia Square Tower 2 Pte Ltd	Hyundai Engineering & Construction Co Ltd		2014
45	Martin Place Residences	FCL Land Pte Ltd	Keong Hong Construction Pte Ltd		2012
46	The Sage @ Nassim Road	Hong Leong Holdings Ltd	Woh Hup Pte Ltd		2012
47	Campus for Research Excellence & Technological Enterprise (Create)	National Research Foundation			2012
48	NUS – UTD Graduate Resident Project	National University of Singapore	Shimizu Corporation		2012
49	d' Leedon @ Empress Road	Morganite Pte Ltd (CapitaLand)	Woh Hup (Pte) Ltd		2013 - 2015
50	Marina Bay Suites	Marina Bay Suites Pte Ltd	Woh Hup (Pte) Ltd		2013
51	NV Residences	Hong Realty (Pte) Ltd	Hyundai Engineering & Construction Co Ltd		2013



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52	Seven Palms Sentosa Cove	Trollius Pte. Ltd.			2010
53	The Laurels @ Cairnhill Road				2013
54	Centennia Suites @ Kim Seng Road	Lippo Real Estate Pte Limited			2012
55	Miltonia Residences @ Yishun Avenue	Hoi Hup Sunway Development Pte Ltd	Straits Construction Singapore Pte Ltd		2015
56	Boulevard Vue	High Oak Properties Pte Ltd	China Construction (South Pacific) Development Co Pte Ltd		2014
57	Carlton City Hotel Singapore @ Tanjong Pagar	Carlton Properties (Spore) Pte Ltd	Kajima Overseas Asia Pte Ltd		2013
58	BreadTalk IHQ @ Paya Lebar iPark	BreadTalk Group Limited			2011 - 2013
59	National Heart Centre	Ministry of Health	Shimizu Corporation		2014
60	Oue Twin Peaks	Cove Development Pte Ltd / Overseas Union Enterprises Ltd	Hyundai Engineering & Construction Co Ltd		2015
61	Atrium @ Orchard	CapitaMall Trust Management Ltd	Obayashi Corporation		2012
62	Singapore Sports Hub	Sportshub	Dragages Singapore Pte Ltd		2014
63	Leedon Residence	Guocoland (Singapore) Pte Ltd (Leedon Residence Development Pte Ltd)	Woh Hup Pte Ltd		2016
64	RV Residences	Asiawide Resources Pte Ltd	Lee Kim Tah - Woh Hup JV		2014
65	The Palette @ Pasir Ris Grove	City Developments Limited	Woh Hup (Private) Limited		2014 - 2016
66	Halliburton (phase 1 & 2)	Halliburton Far East Pte Ltd	Obayashi Corporation		2012 - 2014
67	The Seawind @ Telok Kurau	Bayshore Green Pte Ltd			2013 -2015
68	Bartley Residences @ Bartley Road	Bartley Development Pte Ltd	Woh Hup Pte Ltd		2013 - 2015
69	Microsoft SG2 Data Centre		Obayashi Corporation		2012 - 2014
70	Jurong West Gate	Jg Trustee Pte Ltd & Jg 2 Trustee Pte Ltd	Shimizu Corporation		2011- 2014



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71	Kingsford WaterBay @ 11 upper Serangoon View	Kingsford Development Pte Ltd	Kingsford Development Pte Ltd	United Projects Consultants Pte Ltd	2015 - 2018
72	Robin Residences @ Robin Drive	Sing Holdings Limited (Sing Holdings (Robin) Pte Ltd)	Daiya Engineering Construction Pte Ltd		2014 - 2016
73	Capitagreen @ 138 Market Street	Capitaland Ltd	Takenaka Corporation		2012-2015
74	Safra Punggol	SAFRA National Service Association	Hyttech Builders Pte Ltd		2014 - 2016
75	Shaw Centre Renovation				2015 - 2016
76	Waterway Point & Water Town @ Punggol	Far East Organization, Frasers Centrepoint, Sekisui House Ltd	Hyundai Engineering & Construction Co.Ltd		2013 - 2017
77	M2 Macpherson Mall	LVND Investments Pte Ltd		PCA Consulting Engineers	2016 - 2018
78	New Futura Condo @ Leonie Hill Road	City Development Ltd	Dragages Singapore		2015 - 2017
79	Cairnhill Nine (Mixed Development at Cairnhill)	Capitaland Singapore Limited (CH Residential Pte Ltd)	Woh Hup Pte Ltd		2014 - 2016
80	KAP @ King Albert Park Residence	Oxley Sanctuary Pte Ltd			2015 - 2017
81	Duo Residences – Mix Development @ Ophir Road	M+S Pte Ltd (Ophir-Rocher Residential Pte Ltd, Ophir-Rocher Commercial Pte Ltd, Ophir-Rocher Hotel Pte Ltd)	Obayashi Corporation	Beca Carter Hollings & Ferner (S.E.Asia) Pte Ltd	2013 - 2017
82	Oxley Tower @ 138 Robinson Road	Oxley Holding Limited	Lian Beng Construction (1988) Pte Ltd	Squire Mech Pte Ltd	2013 - 2016
83	The Maisons@ Braddell Road	Global Star Developement PTE LTD (Top Global Limited)	Penta-Ocean Construction Co Ltd		2015 - 2017
84	Goodwood Grand @ 16 Balmoral Road	Tong Eng Group (Feature (Balmoral) Pte Ltd)	Soil-Build (Pte) Ltd		2015 - 2018
85	Stratum @ Elias Road	Elitist Development Pte. Ltd			2014 - 2016
86	Mercure Hotel @ 122 Middle Road				2014 - 2017



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87	The Panorama @ Ang Mo Kio Avenue 2	Wheelock Properties (Singapore) Limited	Tiong Seng Contractors (Private) Limited	United Projects Consultants Pte Ltd	2014 - 2017
88	Bellewaters EC – Executive Condominium @ Anchorvale Crescent	QINGJIAN REALTY (South Pacific) Group Pte Ltd			2014 - 2017
89	Marina Square Renovation				2015 - 2016
90	JTC Space @ Tampines North	JTC Corporation	Sanchoon Builders Pte Ltd	Aecom Singapore Pte Ltd	2014 - 2016
91	Proxima @ Gambas Crescent		Chan Rong Fen Building Construction Pte Ltd	PDC Consulting Engineers	2015 - 2017
92	Workers Recreation Center @ Tuas	JTC Corporation	Hon Industries Pte Ltd		2014 - 2017
93	Workers Recreation Center @ Jalan Terusan	JTC Corporation	Hon Industries Pte Ltd		2014 - 2016
94	Micron @ North Coast Drive				2015 - 2017
95	Skyvue Condo @ Bishan Street 15	CapitaLand Residential Limited	Dragages Singapore Pte Ltd	Belmacs Pte Ltd	2013 - 2016
96	Amber Skye Condo @ 8 Amber Road	China Sonangol Land Pte Ltd (CS Amber Development Pte Ltd)	Kimly Construction Pte Ltd		2015 - 2017
97	Sengkang General and Community Hospital	Ministry of Health	Penta-Ocean Construction Company Limited	WSP Consultancy Pte Ltd	2014 - 2018
98	JTC Space @ Gul Circle	JTC Corporation	LBD Engineering Pte Ltd	Mott MacDonald Singapore Pte Ltd	2015 - 2017
99	JTC Chemical Hub @ Tuas South Ave 5	JTC Corporation	Tat Hin Builders Pte Ltd	Arup Singapore Pte Ltd	2014 - 2016
100	Yishun Community Hospital	Ministry of Health	Shimizu Corporation		2013 - 2016
101	SOL ACRES EC @ Choa Chu Kang Grove	MCL Land Limited	Tiong Seng Contractors (Private) Limited	Rankine and Hill (S) Pte Ltd	2015 - 2019
102	Newest @ West Coast	Oxley Viva Pte Ltd	Kim Seng Heng Engineering Construction (Pte) Ltd		2014 - 2016
103	Spottiswoode Suites @ 12 Spottiswoode Park Road	Lian Beng Group Ltd	Millennium International Builders	KTP Consultants Pte Ltd	2013 - 2016



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104	Land Preparation Works for Airport Development - Terminal 5	Ministry of Transport		Penta-Ocean Construction Co., Ltd.	2015 - 2020
105	Construction of Vehicular Underpass at Nicoll Highway / Guillemand Road Junction – ER403	Land Transport Authority	Sato Kogyo (S) Pte Ltd		
106	Global Indian International School @ Punggol Field Walk	Global Indian International School Pte Ltd	Hon Industries Pte Ltd	Mott MacDonald Singapore Pte Ltd	2016 - 2017
107	Changi General Hospital	Ministry of Health	Kimly-Shimizu Joint Venture	WSP Consultancy Pte Ltd	2014 - 2017
108	Gramercy Park @ 57 Grange Road	City Developments Limited (Aston Properties Pte Ltd)	Hyundai Engineering & Construction Co.Ltd		2013 - 2016
109	Laguna Hotel @ 11 Laguna Golf Green	Laguna National Golf & Country Club	WSP Ng Pte Ltd	Shanghai Chong Kee Furniture & Construction Pte Ltd	2014 - 2017
110	Whampoa Community Centre - Upgrade	Ministry of Social and Family Development (MSF)			2017 - 2018
111	NUH Centre for Oral Health	National University Hospital	Obayashi Corporation	Beca Carter Hollings & Ferner (S.E.Asia) Pte Ltd	2016 - 2018
112	Telin Singapore Data Centre and Telecommunication Hub @ Sunview Drive	Telin Singapore	Sato Kogyo (S) Pte Ltd	Meinhardt (Singapore) Pte Ltd	2015 - 2016
113	SingTel Data Center @ Yung Ho Road	Singtel Singapore Pte Ltd	Kienta Engineering Construction Pte Ltd	DSCO Group Pte Ltd	2015 - 2016
114	Kampung Admiralty @ Woodlands Drive 71	Housing and Development Board	Aecom Singapore Pte Ltd	Lum Chang Building Contractors Pte Ltd	2014 - 2017
115	Tanjong Pagar Centre @ Peck Seah Street	GUocoland (Singapore) Pte Ltd	Samsung C&T Corporation		2013 - 2017
116	Singapore Power East West Transmission Cable Tunnel Contract - EW1 @ North Buona Vista	SP Power Assets Ltd (SPPA)	Obayashi Corporation		2012 - 2016
117	Hawker Center @ Woodland Street 12	National Environment Agency	Conint Pte Ltd	J.M. Pang & Seah Pte Ltd	2016 - 2017



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118	Fajar Secondary School @ 31 Gangsa Road	Ministry of Education	Kwan Yong Construction Pte Ltd	CPG Consultants Pte Ltd	2016 - 2017
119	Ulu Pandan Bus Depot	Land Transport Authority	Tiong Seng Contractors (Private) Limited	Rankine and Hill (S) Pte Ltd	2016 - 2019
120	Sungei Seletar Bus Depot	Land Transport Authority	Tiong Seng Contractors (Private) Limited		2015 - 2017
121	ICPH @ Airport Road		Soil-Build (Pte) Ltd		2016 - 2018
122	Northpoint City & North Park Residences @ Yishun	Frasers Centrepoint Ltd	Lum Chang Building Contractors Pte Ltd	Aecom Singapore Pte Ltd	2015 - 2018
123	Kreta Ayer Community Club - Upgrade	People's Association	Fucom Construction Pte Ltd		2015 - 2016
124	Factory @ 21 Fan Yoong Road	Tiong Seng Contractors (Private) Limited	Tiong Seng Contractors (Private) Limited	Rankine and Hill (S) Pte Ltd	2016 - 2018
125	PTC @ 39 Tuas West Drive		Tiong Seng Contractors (Private) Limited		2016 - 2018
126	Jurong West Market & Hawker Centre @ Jurong West Street 61	National Environment Agency	LBD Engineering Pte Ltd	Bescon Consulting Engineers Pte	2015 - 2017
127	CITY GATE @ Beach Road	Fragrance Group Limited	Woh Hup (Private) Limited	William Ng Consultants Pte Ltd	2016 - 2019
128	LUXUS HILL – Phase 16	Bukit Sembawang Estates Ltd	Seah Construction Pte Ltd	Squire Mech Pte Ltd	2016 - 2018
129	TE15 – Great World MRT Station	Land Transport Authority	Tiong Seng Contractors (Private) Limited	Aecom Singapore Pte Ltd	2014 - 2020
130	Hawker Center @ Pasir Ris central	National Environment Agency	LBD Engineering Pte Ltd	CPG Consultants Pte Ltd	2015 - 2016
131	JTC @ Buroh Lane (POULTRY PROCESSING HUB)	JTC Corporation	HPC Builders Pte Ltd	Surbana Jurong Consultants Pte Ltd	2016 - 2018
132	The Clan Hotel @ 12 / 13 Amoy Street	Far East Organization	Hexacon Construction Pte Ltd	United Projects Consultants Pte Ltd	2016 - 2020
133	New State Courts Complex @ 1 Havelock Square	Judiciary - State Courts	Samsung C&T Corporation	CPG Consultants Pte Ltd	2016 - 2019
134	Changi Naval Base				2016 - 2017
135	Francois (Stena Marine) @ 30 Pandan Road				2016 - 2017



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136	T202 – Woodlands North Station	Land Transport Authority	Penta-Ocean Construction Company Limited		2014 - 2019
137	Outram Community Hospital	Ministry of Health	Penta-Ocean Construction Company Limited	Surbana Jurong Consultants Pte Ltd	2016 - 2019
138	Hougang Community Club	People's Association	Union Contractors (S) Pte Ltd	HY M&E Consultancy Services Pte Ltd	2016 - 2018
139	EVONIK ME6 PROJECT @ 101 Banyang Avenue	Evonik Methionine SEA Pte Ltd	JDC Corporation	Kurihara Kogyo Co. Ltd	2016 - 2018
140	WATERHUB @ 80/82 Toh Guan Road East	Public Utilities Board (PUB)	Wee Hur Construction Pte Ltd	Beca Carter Hollings & Ferner (S.E.Asia) Pte Ltd	2017 - 2018
141	DJITSUN MALL @ Bedok North street 1	Overseas Movie (Pte) Ltd	Chong Tong Construction Pte Ltd	Icon Engineers LLP	2017 - 2018
142	Taman Jurong nursing home @ Yuan Ching Road	Ministry of Health	Chiu Teng Construction	CPG Consultants Pte Ltd	2017 - 2018
143	Funan Digital Mall	CapitaMall Trust Management Ltd	Woh Hup (Private) Limited	Alpha Consulting Engineers Pte Ltd	2017 - 2020
144	Warehouse @ 90 Second Lokyang Road	COSMOSTEEL HOLDINGS LIMITED			2017 - 2019
145	New National Cancer Centre Singapore	Ministry of Health	Shimizu Corporation	Aecom Singapore Pte Ltd	2017 - 2022
146	SCDF HQ @ 91 Ubi Ave 4	Ministry of Home Affairs	ADES Engineering Pte Ltd		2017
147	Factory @ 41 Benoi Road	Makino Asia Pte Ltd	Erecon Construction Co Pte Ltd	Leong CW & Associates	2016 - 2017
148	Warehouse @ Tampines Industrial Drive - Plot 2	Hock Lian Seng Infrastructure (Pte) Ltd	Hock Lian Seng Infrastructure (Pte) Ltd	PDC Consulting Engineers	2017 - 2019
149	Stabling Yard at Gali Batu Depot (Contract 9061)	Land Transport Authority	Hock Lian Seng Infrastructure (Pte) Ltd		2015 - 2019
150	Kranji Secondary School @ Choa Chu Kang Street 51 - Upgrade	Ministry of Education	Chiu Teng Construction Co Pte Ltd	Meinhardt (Singapore) Pte Ltd	2017 -2019
151	T222 – Outram Park Station	Land Transport Authority	Daelim Industrial Co. Ltd		2014 - 2021



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152	Data Centre @ Sunview Drive	Mapletree Industrial Trust Management Ltd	Shimizu Corporation		2017 - 2018
153	Paya Lebar Quarter (Plot A)	Lend Lease Singapore Pte Ltd	Lend Lease Singapore Pte Ltd	Meinhardt (Singapore) Pte Ltd	2017 - 2020
154	Warehouse @ Tuas South Ave 14	Yang Kee Logistics Pte Ltd	HPC Builders Pte Ltd	Aurecon Singapore Pte Ltd	2017 - 2020
155	DODID Data Centre @ 71 Tagore Lan	Magnificent Seven Corporation Pte Ltd	Magnificent Seven Corporation Pte Ltd		2015 - 2017
156	Solaris @ Kallang 164 - 2 Blocks of 9-Storey Multiple-User General Industrial Factory Development @ 164 Kallang Way	Soilbuild Group Holdings Pte Ltd	Soilbuild Group Holdings Pte Ltd	Bescon Consulting Engineers Pte	2017 - 2019
157	Nexus International School - Aljunied Campus @ Aljunied Road	Nexus International School (Singapore)		Aecom Singapore Pte Ltd	2017 - 2019
158	FACTORY - 8 storey @ 39 Senoko Road	Kim Seng Heng Engineering Construction (Pte) Ltd	Kim Seng Heng Engineering Construction (Pte) Ltd	BTC Consultants	2017 - 2018
159	Nursing Home @ Compassvale Bow		Pal-Link Construction Pte Ltd		2017 - 2018
160	Warehouse - 6 Storey (Tuas South Link 1 - Plot 1)	Yang Kee Logistics Pte Ltd	HPC Builders Pte Ltd	Aurecon Singapore Pte Ltd	2017 - 2018
161	Singapore Chinese Girls' School - Upgrade - 4 levels   INDOOR SPORTS HALL @ Dunearn Road	Ministry of Education	Kwan Yong Construction Pte Ltd	United Projects Consultants Pte Ltd	2018 - 2019
162	DATA CENTRE - 6 storey @ Sunview Drive	Mapletree Industrial Trust Management Ltd.	Shimizu Corporation	Wah Loon Engineering Pte Ltd	2017 - 2018
163	Centrium Square @ 320 Serangoon Road	Tong Eng Brothers Pte Ltd	Kimly Construction Private Limited	DP Engineers Pte Ltd	2017 - 2020
164	Runway - Singapore Changi Airport (Package 2) @ Changi East	Changi Airport Group (Singapore) Pte Ltd	Hock Lian Seng Infrastructure (Pte) Ltd		2016 - 2020
165	ARTRA @ Alexandra View	Tang Group of Companies	Tiong Seng Contractors (Private) Limited	J Roger Preston (S) Pte Ltd	2017 - 2019



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166	Kallang Fire Station - Home Team Joint Facility	Ministry of Home Affairs	Sanchoon Builders Pte Ltd	CPG Consultants Pte Ltd	2017 - 2018
167	Bird Park @ Mandai Road	Temasek Holdings (Private) Limited	Obayashi Corporation (aka Obayashi Singapore Private Limited)		2017 - 2020
168	Office - Upgrade (Former Db2land Building) @ 139 Cecil Street	Ececil Pte Ltd	Lim Wen Heng Construction Pte Ltd	Elead Associates Pte. Ltd	2017 - 2018
169	Workshops   Warehouse - 10 Buildings - New - 2 Storey (New Shipyard (Phase 3a)) @ Tuas South Boulevard	Sembcorp Marine Ltd	HPC Builders Pte Ltd	Surbana Jurong Consultants Pte Ltd	2018
170	Masjid Angullia @ 265 Serangoon Road	Masjid Angullia	Hong Shin Builders Pte Ltd	Conteem Engineers Pte Ltd	2018 - 2020
171	Replacement of Water Pipes to 42 Blocks 442 to 465 Choa Chu Kang Avenue 4, Blocks 469 to 474 Choa Chu Kang Avenue 3 & Block 483,484,484A-D,485,485A-D & 486 Choa Chu Kang Avenue 5	Chua Chu Kang Town Council	Deluge Fire Protection (S.E.A) Pte Ltd		2018
172	Hampton Court @Draycott Park	Celestial Fortune Pte Ltd	Unison Construction Pte Ltd	Squire Mech Pte Ltd	2017 - 2019
173	ANG MO KIO NURSING HOME @ Ang Mo Kio Avenue 3 / Ang Mo Kio Street 23	Ministry of Health	Vigcon Construction Pte Ltd (aka VC Hue Pte Ltd)	Meinhardt (Singapore) Pte Ltd	2018 - 2020
174	Google Data Centre @ Lok Yang Way	Google Asia Pacific Pte Ltd	Sato Kogyo (S) Pte Ltd		2018 - 2020
175	Whistler Grand @ West Coast Vale	City Developments Limited	Woh Hup (Private) Limited	United Projects Consultants Pte Ltd	2019 - 2021



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176	Clementi Neighbourhood 4 Contract 12 @ Clementi Avenue 1 / Clementi Avenue 2 / Commonwealth Avenue West	Housing and Development Board	Welltech Construction Pte Ltd		2017 - 2021
177	Bedok Green Secondary School   Red Swastika School @ 360 Bedok North Avenue 3 / 350 Bedok North Avenue 3	Ministry of Education	Kwan Yong Construction Pte Ltd	WSP Consultancy Pte Ltd (formerly Parsons Brinckerhoff Pte Ltd)	2018 - 2019
178	Food Factory @ 218 Pandan Loop	X Properties Inc Pte Ltd		PDC Consulting Engineers	2018 - 2019
179	7 storey @Tuas Bay Close	Soilbuild Group Holdings Ltd & SB (Northview) Investment Pte Ltd (A subsidiary of Soilbuild Group Holdings Ltd)	SoilBuild (Pte.) Ltd	Tritont Consulting Llp	2018 - 2020
180	8 storey (SIXTEEN 35 RESIDENCES) @ 16 Lorong 35 Geylang	Oxley Holding Limited	CKR Contract Services Pte Ltd	Elead Associates Pte. Ltd	2018 - 2020
181	Bukit Batok Neighbourhood 4 Contracts 18 - 21 @ Bukit Batok	Housing and Development Board	Qingjian International (South Pacific) Group Development Co. Pte. Ltd	Surbana Jurong Consultants Pte Ltd	2016 - 2020
182	Bukit Panjang Neighbourhood 6 Contrat 13&14 I Senja Valley @ Senja Road	Housing and Development Board	Sim Lian Construction Co Pte Ltd	United Projects Consultants Pte Ltd	2017 - 2021
183	Dawson Contract 4 @ Margaret Drive	Housing and Development Board	Master Contract Services Pte Ltd	Surbana Jurong Consultants Pte Ltd	2015 - 2020
184	Former Harrep Kitchen	Nanshan Group Singapore Co. Pte. Ltd		Rankine and Hill (S) Pte Ltd - Mechanical and Electrical Department	2017 - 2019



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185	Tampines Neighbourhood 8 Contract 32A & Contract 32B   Tampines Greenbloom & Tampines Greenflora @ Tampines Street 85 / Tampines Street 86 / Tampines Avenue 8	Housing and Development Board	Sim Lian Construction Co Pte Ltd	United Projects Consultants Pte Ltd	2017 - 2020
186	Hougang Rivercourt Neighbourhood Centre   Hougang Neighbourhood 3 Contract 13	Housing and Development Board	CKR Contract Services Pte Ltd	United Projects Consultants Pte Ltd	2016 - 2020
187	Cleantech Two : Extension	JTC Corporation	BHCC Construction Pte Ltd	Aecom Singapore Pte Ltd	2019 - 2022
188	Kallang Polyclinic @ Balestier / Serangoon Road	Ministry of Health - Headquarter	Tiong Seng Contractors (Private) Limited (aka Tiong Seng Holdings Limited)	WSP Consultancy Pte Ltd (formerly Parsons Brinckerhoff Pte Ltd)	2018 - 2020
189	Timmac @ Kranji Loop	JTC Corporation	SH Design & Build Pte Ltd	Mott MacDonald Singapore Pte Ltd	2018 - 2020
190	North London Collegiate School @1148 Depot Road	NLCS Depot Road Pte Ltd	HPC Builders Pte Ltd		2018 - 2020
191	NTUC Fresh Food Distribution Centre @ Sunview Road	NTUC Fairprice Co-Operative Ltd	United Tec Construction Pte Ltd	Surbana Jurong Consultants Pte Ltd	2019 - 2021
192	Yusof Ishak Secondary School @ Punggol Central	Ministry of Education	Kwan Yong Construction Pte Ltd	Rankine and Hill (S) Pte Ltd - Mechanical and Electrical Department	2019 - 2020
193	Digital Loyang 2 (Sin12) - Digital Realty Trust @ Loyang Drive	Digital Singapore 2 Pte. Ltd.	Straits Construction Singapore Private Limited	Arup Singapore Pte Ltd	2019 - 2021
194	Thomson-East Coast Line   Contract T313   Xilin Station	Land Transport Authority	Samsung C&T Corporation		2016 - 2024



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195	Sembawang Neighbourhood 1 Contract 6 & 12   Eastlink I @ Canberra   Eastlink II @ Canberra	Housing and Development Board	Nanjing Dadi Construction (Group) Co Ltd Singapore Branch	Bescon Consulting Engineers Pte	2016 - 2019
196	SENGKANG NEIGHBOURHOOD 3 CONTRACT 28A & COMMON GREEN   ANCHORVALE PLAINS	Housing and Development Board	LC&T Builder (1971) Pte. Ltd	United Projects Consultants Pte Ltd	2016 - 2020
197	Tampines Neighbourhood 6 Contrat 20   Tampines Greenfoliage @ Tampines North Drive 2	Housing and Development Board	Ho Lee Construction Pte Ltd	Rankine & Hill (S) Pte Ltd	2018 - 2021
198	The Woodleigh Residences @ 33 Bidadari Park Drive	Singapore Press Holdings & Kajima Overseas Asia Pte Ltd	Kajima Overseas Asia Pte Ltd	Beca Carter Hollings & Ferner (S.E.Asia) Pte Ltd	2018 - 2021
199	Treasure At Tampines	Sim Lian Group Limited	Sim Lian Construction Co Pte Ltd	Kunda Consulting Engineers	2019 - 2023

Thank you,  
Yours faithfully

Eugene Chua  
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