

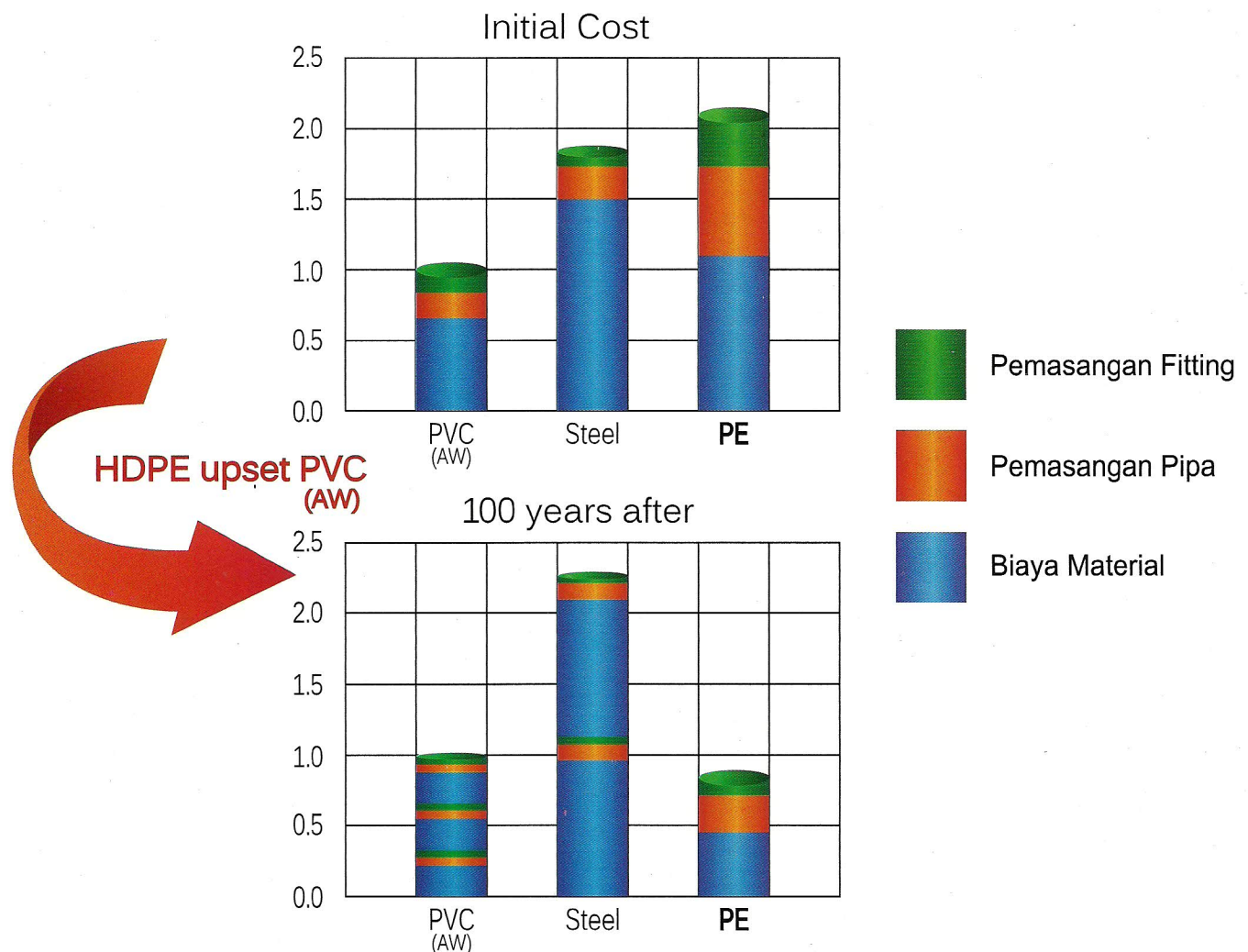
Kenapa harus pipa PE100?

Aipoly Broadpipe menggunakan bahan High Density Polyethelene **bersertifikasi ISO 9080**. Material ini memiliki kekuatan tekanan hydrostatic jangka panjang dengan level paling tinggi di dunia. PE100 adalah bahan Polyethelene yang tahan akan tekanan 10MPa atau bahkan lebih selama periode lebih dari 50 tahun dalam suhu 20c tanpa membuat pipa pecah dibuktikan dengan melalui Tekanan hydrostatic dalam periode waktu yang lama.

Subject	HDPE	PVC (AW)	Pipa Besi	Akibat
Flexibility	✓	X	X	Perubahan bentuk
	Lentur	Kaku	Sangat Keras	
Durability	✓	X	△	Mengurangi life cycle cost
	Tidak ada Noda	Retak	Karat	
Wokability	✓	✓	X	Menghemat waktu konstruksi
	Ringan	Ringan	Berat	
Weatherability	✓	X	△	Menghemat biaya konstruksi
	Tidak ada Masalah	Membusuk	Karat	
Joint method	✓	X	△	Andalan untuk kebocoran
	Fusion	Lem	Welding atau Drat	

◆ Product Life time

Pipa	HDPE	PVC(AW)	Besi
Life time	100 tahun	30 tahun	40 tahun



Single-layered Pipe with Blue stripe

Syarat penggunaan

Tekanan maksimum yang diperbolehkan

(dalam temperature 20c) :

SDR 11, 1.6 MPa

Jarak temperature 0-50c

SDR 13.6, 1.25 MPa

SDR 17, 1.0 MPa

PE100											
Outer diameter	SDR11			SDR13.6			SDR17			Length (m)	
	Product number	Thickness (mm) Overall thickness	Reference weight (kg/m)	Product number	Thickness (mm) Overall thickness	Reference weight (kg/m)	Product number	Thickness (mm) Overall thickness	Reference weight (kg/m)	Straight pipe	Coil
D20	BLK20-●	2.0	0.12	BLKB20-●	1.5	0.09	BLKC20-●	1.2	0.08	6	100
D25	BLK25-●	2.3	0.17	BLKB25-●	2.0	0.15	BLKC25-●	1.5	0.12		
D32	BLK32-●	3.0	0.28	BLKB32-●	2.4	0.23	BLKC32-●	2.0	0.19		
D40	BLK40-●	3.7	0.43	BLKB40-●	3.0	0.36	BLKC40-●	2.4	0.29		
D50	BLK50-●	4.6	0.67	BLKB50-●	3.7	0.55	BLKC50-●	3.0	0.46		
D63	BLK63-●	5.8	1.06	BLKB63-●	4.7	0.88	BLKC63-●	3.8	0.72		
D75	BLK75-●	6.8	1.48	BLKB75-●	5.6	1.24	BLKC75-●	4.5	1.02		
D90	BLK90-●	8.2	2.14	BLKB90-●	6.7	1.78	BLKC90-●	5.4	1.47		
D110	BLK110-●	10.0	3.17	BLKB110-●	8.1	2.62	BLKC110-●	6.6	2.18		50
D125	BLK125-●	11.4	4.12	BLKB125-●	9.2	3.40	BLKC125-●	7.4	2.78		
D140	BLK140-●	12.7	5.30	BLKB140-●	10.3	4.26	BLKC140-●	8.3	3.49		
D160	BLK160-●	14.6	6.76	BLKB160-●	11.8	5.57	BLKC160-●	9.5	4.57		
D180	BLK180-●	16.4	8.51	BLKB180-●	13.3	7.05	BLKC180-●	10.7	5.77		
D200	BLK200-●	18.2	10.50	BLKB200-●	14.7	8.65	BLKC200-●	11.9	6.85		
D225	BLK225-●	20.5	13.29	BLKB225-●	16.6	10.98	BLKC225-●	13.4	9.02		
D250	BLK250-●	22.7	16.34	BLKB250-●	18.4	13.53	BLKC250-●	14.8	11.06		
D280	BLK280-●	25.4	20.49	BLKB280-●	20.6	16.95	BLKC280-●	16.6	13.89		
D315	BLK315-●	28.6	25.94	BLKB315-●	23.2	20.57	BLKC315-●	18.7	17.59		
D355	BLK355-●	32.2	32.93	BLKB355-●	26.1	27.70	BLKC355-●	21.1	22.39		
D400	BLK400-●	36.3	41.80	BLKB400-●	29.4	34.54	BLKC400-●	23.7	28.30		

Fitur

Tahan Gempa Bumi	Pipa ini mempunyai kelenturan yang sangat baik dan dapat lentur seiring dengan pergerakan tanah dan gempa bumi.
Mudah dalam pengerjaan	Polyethylene memiliki beban berat yang ringan dan sangat lentur, mudah untuk dibengkokkan tanpa peralatan khusus
Tahan Lama	Ketahanan jangka panjang dalam penggunaan dari Polyethylene (PE100)
Tahan terhadap tekanan	Sistem penyambungan EF dan Butt welding memastikan penyambungan yang sangat merekat yang baik untuk menahan air dan udara
Tahan Karat	Bahan Polyethylene sangat stabil bahkan terhadap zat kimia dan tidak ada resiko karat yang disebabkan oleh tanah
Keamanan	Plastik Polyethylene terbuat dari Carbon dan Hydrogen, maka Polyethylene tidak akan memproduksi gas beracun seperti Dioxin ketika dibakar. dan juga Polyethylene dapat didaur ulang
Tahan terhadap Cuaca	Polyethylene mempunyai ketahanan terhadap cuaca yang sangat baik yang dapat digunakan sebagai pipa luar ruangan yang terbuka

☞ Solvent penetrating prevention pipe



- Melindungi air dalam pipa dari zat pelarut yang tidak dikenal. limbah pabrik, limbah stasiun bahan bakar, limbah ilegal dan lainnya demi mendapatkan air yang bersih atau menghindarkan air dari bau yang tidak sedap

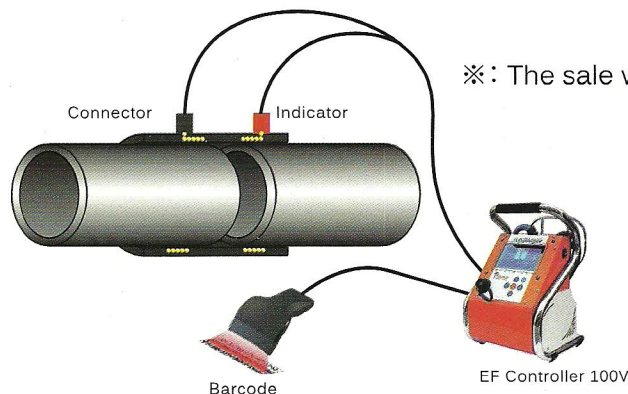
☞ Scratch-proof pipe



- Sangat cocok untuk metode pipe jacking (Thrusting).
- Sangat aman untuk pipa yang dirobek oleh kecelakaan yang tidak diduga. lapisan pembungkus akan melindungi pipa itu sendiri.

☞ EF Fittings

- Spesifikasi produk bisa berubah tanpa ada pemberitahuan terlebih dahulu
- Nomor produksi berbeda seiring dengan produk itu sendiri



※: The sale will end when all the stock has been sold.

EF Sockets



■ SDR11

Product number	OD
BES-025	D25
BES-032	D32
BES-040	D40
BES-050	D50
BES-063	D63
BES-075	D75
BES-090	D90
BES-110	D110
BES-160	D160

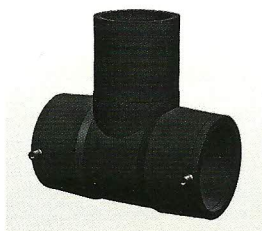
EF Elbows 45°



■ SDR11

Product number	OD
BEE45-032	D32
BEE45-040	D40
BEE45-050	D50
BEE45-063	D63
BEE45-075	D75
BEE45-090	D90
BEE45-110	D110
BEE45-160	D160

EF Tees



■ SDR11 (Equal diameter)

Product number	OD
BET-025	D25×D25
BET-032	D32×D32
BET-040	D40×D40
BET-050	D50×D50
BET-063	D63×D63
BET-075	D75×D75
BET-090	D90×D90
BET-110	D110×D110
BET-160	D160×D160

EF Elbows 90°



■ SDR11

Product number	OD
BEE90-025	D25
BEE90-032	D32
BEE90-040	D40
BEE90-050	D50
BEE90-063	D63
BEE90-075	D75
BEE90-090	D90
BEE90-110	D110
BEE90-160	D160

EF Reducers



■ SDR11

Product number	
BER-032025	D32×D25
BER-040032	D40×D32
BER-050032	D50×D32
BER-050040	D50×D40
BER-063032	D63×D32
BER-063040	D63×D40
BER-063050	D63×D50
BER-075063	D75×D63
BER-090063	D90×D63
BER-110063	D110×D63
BER-110090	D110×D90
BER-160090	D160×D90

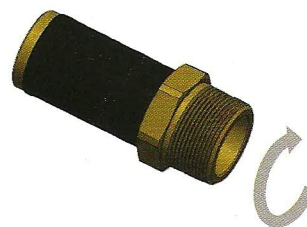
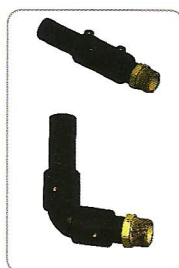
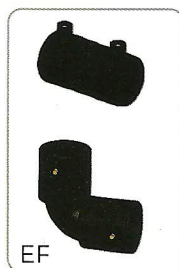
EF Reducer Tees



■ SDR11

Product number	OD
BET-050040	50 50 ± 50
BET-063040	63 63 ± 63
BET-063050	63 63 ± 63
BET-090063	90 90 ± 90
BET-110063	110 110 ± 110
BET-110090	110 110 ± 110
BET-160063	160 160 ± 160
BET-160090	160 160 ± 160
BET-160110	110 160 ± 160

Semua tipe EF fitting bisa dikonversikan dengan mechanical thread dengan adapter ini
Male thread adapter ini bisa diputar setelah proses pengelasan dengan sistem EF.



Easy maintenance after EF treatment due to its rotating mechanism.

Male Thread Adapters



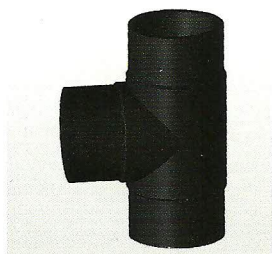
■ SDR11

Product number	OD	Screw size
BSMA-025-C	D25	R 3/4
BSMA-032-C	D32	R1
BSMA-040-C	D40	R1 1/4
BSMA-050-C	D50	R1 1/2

Butt Fusion Fittings (Molded)

► Product specifications are subject to change without notice

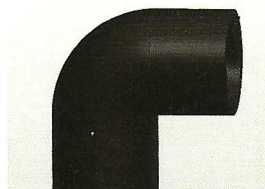
Molded Tees



■ SDR17 (Equal diameter)

Product number	OD
BET-063-17	D63×D63
BET-075-17	D75×D75
BET-090-17	D90×D90
BET-110-17	D110×D110
BET-160-17	D160×D160
BET-200-17	D200×D200
BET-250-17	D250×D250
BET-315-17	D315×D315
BET-355-17	D355×D355
BET-400-17	D400×D400

Molded Elbows 90°



■ SDR17

Product number	OD
BSE90-063-17	D63
BSE90-075-17	D75
BSE90-090-17	D90
BSE90-110-17	D110
BSE90-160-17	D160
BSE90-200-17	D200
BSE90-250-17	D250
BSE90-315-17	D315
BSE90-355-17	D355
BSE90-400-17	D400

Molded Reducers



■ SDR17

Product number	OD
BSR-090063-17	D90×D63
BSR-090075-17	D90×D75
BSR-110063-17	D110×D63
BSR-110090-17	D110×D90
BSR-160090-17	D160×D90
BSR-160110-17	D160×D110
BSR-200100-17	D200×D100
BSR-200160-17	D200×D160
BSR-250160-17	D250×D160
BSR-250200-17	D250×D200
BSR-315250-17	D315×D250

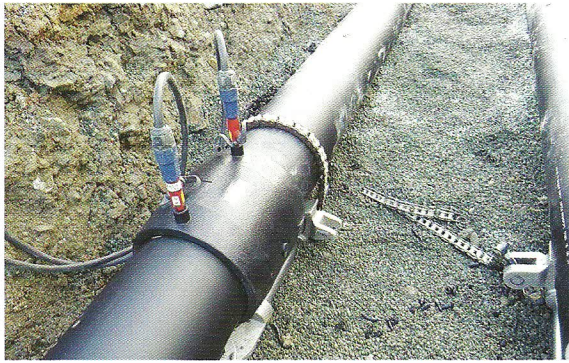
Flange Adapters



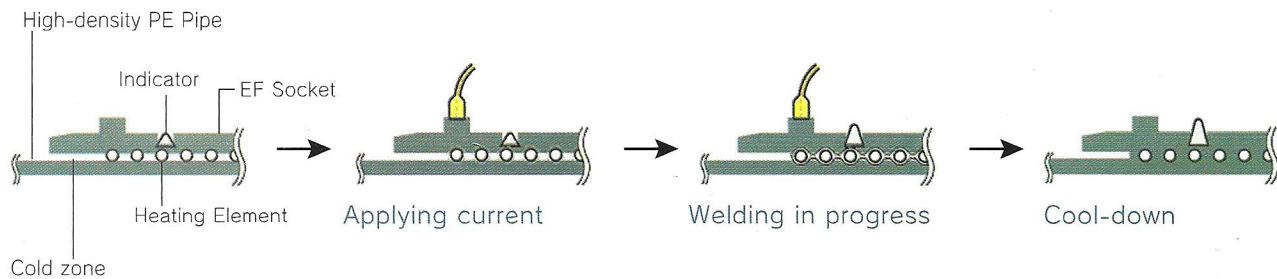
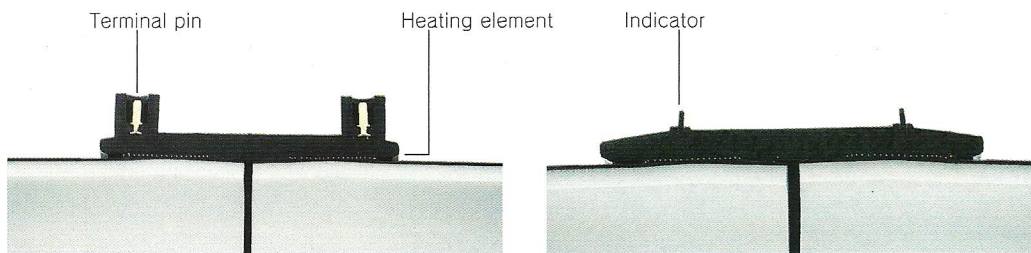
■ SDR17

Product number	OD
BSFA-063-17	D63
BSFA-075-17	D75
BSFA-090-17	D90
BSFA-110-17	D110
BSFA-160-17	D160
BSFA-200-17	D200
BSFA-250-17	D250
BSFA-315-17	D315
BSFA-355-17	D355
BSFA-400-17	D400

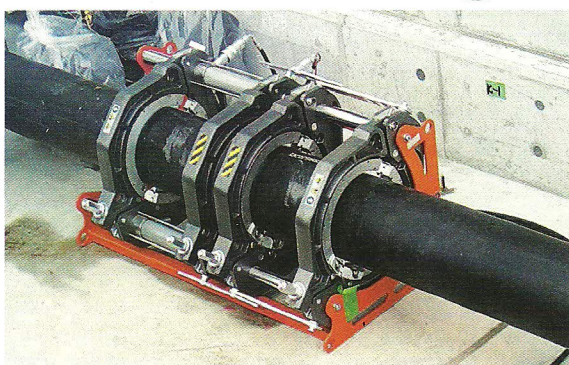
EF Welding (Electro-fusion Welding)



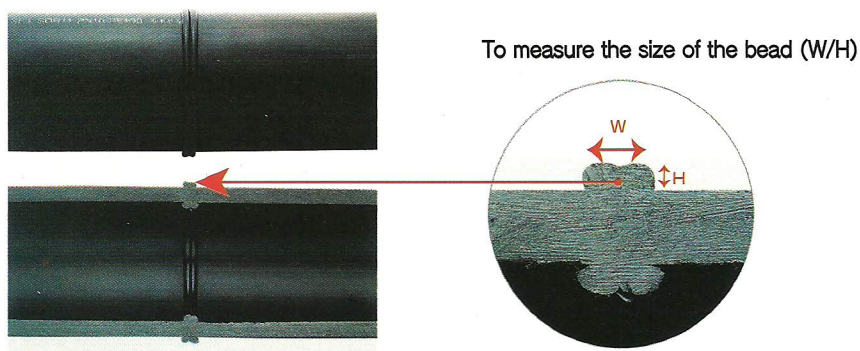
EF welding is a method of connecting pipes and fittings by melting the plastic with electricity, which provides a stable connection with excellent sealability.



Butt Welding



Butt welding is a method of connecting pipes by heating up the two ends of PE pipes then joining them under a specific pressure.



Aipoly Broadpipe Technical Data

Physical properties of PE 100

Tests Item		Test Method	Unit	Standard value	Tests Item		Unit	Standard value
Physical properties	Density	ISO 1183	kg/m ³	942~953	Thermal and electrical properties	Linear expansion coefficient ※2	10 ⁻⁵ /°C	11~13
	Water absorption	ISO 62	%	≤0.03		Specific heat capacity	kJ/kg · K	1.9~2.3
Mechanical properties	Tensile strength at yield	ISO 527-1	MPa	≥20		Heat conductivity	W/m · k	0.46~0.50
	Elongation at break		%	≥350		Melting point	°C	128~132
	Modulus of elongation		MPa	900~1100		Softening temperature (Vicat)	°C	125~127
	Poisson's ratio		-	0.46		Brittleness temperature	°C	≥-70
	Bending strength	ISO 178	MPa	24~25		Flammability	-	No performance
	Flexural modulus		MPa	1000~1200		Volume resistivity	MΩ · cm	≥10 ⁹
	Hardness (Durometer)	ISO 868	HDD	67~68		Dielectric breakdown strength	MV/m	17.3~23.6
	Impact strength (Charpy)	ISO 179	kJ/m ²	16~18		Permittivity	-	2.30~2.35

※1 : Above are all representative values, not guaranteed values.

※2 : ASTM D696

Performance Standards for High-density Polyethylene Pipes and Joints

Tests Item		Standard value	Test Method
Tensile strength at yield		≥20.0MPa	25mm/min
Elongation at break		≥350%	
Resistance to pressure		Leak, transformation, breakage, is not permitted	2.5MPa × 2min
Destructive water pressure strength		≥4.0MPa	
Thermal stability		OIT ≥ 20min	200°C, Oxygen
Heat elasticity		± 3%	110°C, ethylene glycol × 30min
Hydrostatic Strength		Cracks are not permitted	20°C ; 2.48MPa × 100hrs 80°C ; 1.10MPa × 165hrs 80°C ; 1.00MPa × 1000hrs
Resistance to Chlorine in water		There must be no foam generation	60°C, chloride concentration 2000ppm × 168hrs
Environmental Stress Cracking resistance		Cracks are not permitted	ISO4427
Weathering test	Appearance	Cracks are not permitted	≥3.5GJ/m ²
	Elongation at break	≥350%	
	Thermal stability	≥10min	
Low-speed crack progress		Cracks are not permitted	80°C, 0.92MPa × 165hrs
Fusion miscibility		Cracks are not permitted	80°C, 1.10MPa × 165hrs

Pressure and Temperature Limits

Equation for calculating pressure and temperature limits

$$P = \frac{2 \sigma t}{D - t} \quad (\text{Naday's equation})$$

P : Pressure, MPa

t : Pipe thickness, cm

σ : Tensile circumferential stress, MPa

D : Outer pipe diameter, cm

Unit: MPa							
SDR	20°C	25°C	30°C	35°C	40°C	45°C	50°C
11	1.60	1.49	1.39	1.28	1.18	1.07	0.97
13.6	1.25	1.16	1.09	1.00	0.93	0.83	0.76
17	1.00	0.93	0.87	0.80	0.74	0.67	0.61
21	0.80	0.74	0.70	0.64	0.59	0.53	0.48
Pressure reduction coefficient	1.00	0.93	0.87	0.80	0.74	0.67	0.61

※Safety factor=1.25