PE Advantage

English Version

tyco / Flow Control / Eurapipe

TYCO INTERNATIONAL LIMITED

Tyco International Limited is the world leader in each of its' four major business segments, namely

Flow Control Products
Healthcare and Disposable Products
Fire and Security Services
Electronic and Electronic Components

The company whose shares have traded on the New York Stock Exchange for over 20 years has a market capitalization of over US$70 billion and as a result is recognized in terms of size as being one of the world's 'Global 100' companies.

Tyco International operates in more than 80 countries around the world and has over 276,000 employees.

Tyco Flow Control services the worldwide water, industrial process and infrastructure markets with the most comprehensive range of proprietary flow control products and services available from a single source.

We are committed to provide a level of service acknowledged as the best of any industry. With strategically located facilities and local knowledge, Tyco has the resources and expertise to meet the flow control requirements of a wide range of industries, including: mining and minerals processing, power, oil and gas, water distribution, food and beverage and process industries.

TYCO EURAPIPE INDONESIA

Tyco Eurapipe Indonesia is the leading PE (Polyethylene) and ABS (Acrylonitrile, Butadiene, Styrene) thermoplastic manufacturer in Indonesia, providing complete piping system from 15mm to 1000mm. In the near future, the extrusion plant will be upgraded to manufacture thermoplastic piping systems upto 1200mm.

Tyco Eurapipe Indonesia manufacturing is supported from overseas thermoplastic manufacturing plants in the following locations;

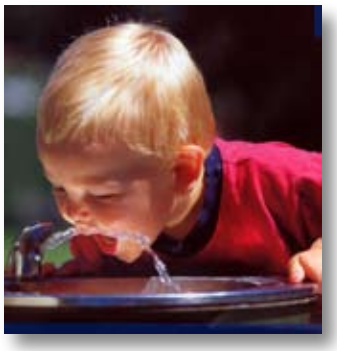
Malaysia
Australia
New Zealand

Tyco Eurapipe aims to be a customer preferred supplier of thermoplastic piping systems, always providing quality products and excellent technical services support.

PIPING SOLUTIONS FOR THE NEXT GENERATIONS

We believe water is one of most precious resources and deserves our full commitment to protect it. By ensuring long term quality supply systems will not only save water now, it will protect the future generations in the cost they will have to pay for water.

By choosing the right water transmission and distribution piping system, water can be protected from high loss therefore reducing future maintenance cost which ultimately lead to lower water prices. Tyco Eurapipe Indonesia is here to help the water industry in selecting the right system and provide technical advice on pipeline design.



Our engineers are continuing research and development on larger diameter pipes, as the need for higher volumes of water increases throughout most regions and industries. Tyco Eurapipe is devoted to developing its technology further and now has a number of new products that will soon become common place in the market.

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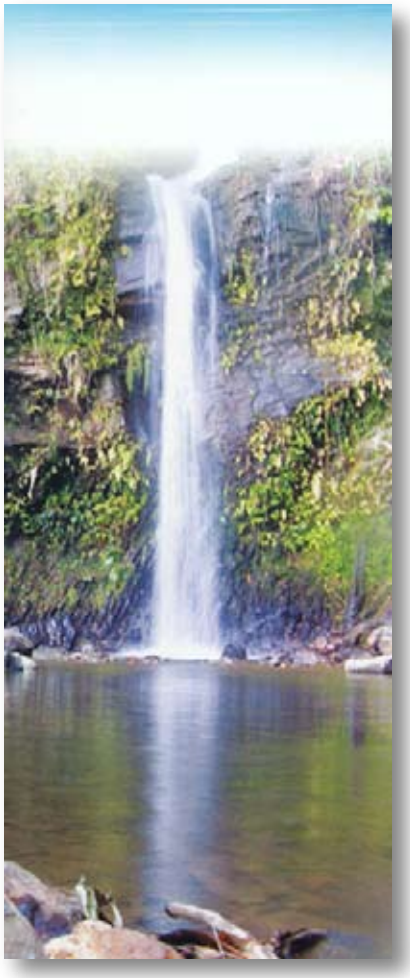


ENVIRONMENTAL CONCERNS AND FUTURE CONSIDERATIONS

Tyco Eurapipe PE100 formulation contains no harmful heavy metals such as cadmium and lead stabilizers making it the GREEN choice for the installation of potable water, effluent, mechanical and general service applications. In fact, it has been widely used for many years to convey high purity water, medical preparations, food products and soft drinks. Today's engineers are aware of the concerns of the community in respect of the environment.

Two vital issues being considered at this time relate to the production of green house gasses in power/heat generation and the release of gases that affect the ozone layer. Metal products invariably use more energy in the manufacture, particularly when cement lined and externally coated, than thermoplastic pipe materials, and life is often limited by corrosion. Asbestos cement has been criticized because of the harmful; effects on workers in the mining and manufacturing process. It is no longer manufactured or used in 'health conscious countries'.

This leaves PE100 as one of the acceptable materials regarding the effect on the environment.

POLYETHYLENE MATERIAL

Polyethylene (PE) is one of the best known volume plastic and is found in everyday applications such as plastic bottles and plastic bags.

PE is a thermoplastic, meaning it can be moulded during the molten phase of the resin and can therefore can be extruded or moulded into a variety of shapes.

Piping systems manufactured from this PE display outstanding properties which make PE the first choice for many of the most demanding piping applications.

With the advent of PE100 resins, large diameter PE pipes have now become accepted an preferred solutions in many of these applications where the unique properties of PE provide a more cost effective system.

PE pipe systems provide a long term secure pipe system unmatched by most other plastic and/or metallic pipe systems and can be engineered for a 100 year design life.

APPLICATIONS

Tyco Eurapipe Group of companies supply pipes, fittings and complete fluid engineering systems to the following markets.

- Mechanical services
- Mining and Mineral Processing
- Industrial and Power Generation
- Water and Wastewater Infrastructure
- Industrial Plumbing

Our extensive experience in the design and application of PE100 piping system in industry is one of the main reasons why we are leaders in our filed.

Our design engineers are experts in turning your requirements into detailed specifications, drawings and tailoring products to your specific needs. Tyco Eurapipe has extensive expertise in fabrication of parts and assemblies to exacting customer requirements and the entire design, fabrication and inspection process is carried out according to our quality procedures. This means that you can have the confidence that the product we supply will meet your specifications.

THE PE100++ ADVANTAGE

Toxicity
- Approved for use in potable water systems
- Approved for use in pure water systems

Corrosion Proof
- Excellent wear properties for a wide range of slurries
- Outlast traditional materials
- Many years of proven performance in slurry applications

Flexibility
- Less fittings bends and offsets
- Ground movement resistance
- Proven performance during earthquakes

Tough
- Ductile material
- Excellent fatigue resistance
- Resistance to vibration pump loads and water hammer
- Resistance to crack growth
- Resistance to notching effects

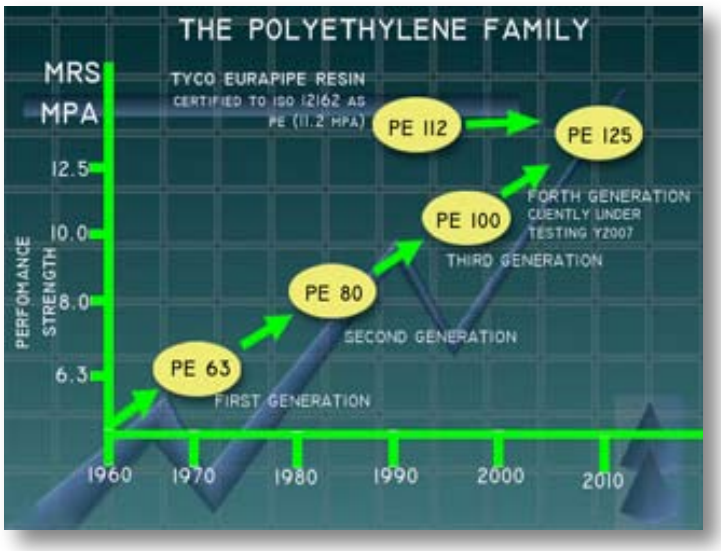
Weather Resistant
- Resistant to sunlight
- Does not corrode in weather
- Does not require painting or wrapping
- Able to withstand extreme hot and cold weather

Secure Jointing
- Butt fusion and electrofusion
- Can be cut and joined to suit site conditions
- Simple and reliable joining process, joint stronger than pipe

Exceptionally Smooth Bore
- Low liquid friction allows higher flow velocities than metal pipe and it is often possible to use one size smaller PE100 pipe for a given flow rate
- The smooth bore also inhibits the formation scale

Lightweight
- Approximately 1/6th the weight of equivalent steel pipe
- Lightweight support systems
- Less fittings equipment required
- Fewer personnel
- Safer to install

Impact Resistant
- Maintains excellent impact resistance down to -40^{o} C
- Resistance to damage in transport and storage



A COMPLETE SYSTEM

Pipes from 15mm to 1000mm

Operating pressures upto 2400 kPa

Complete range of fittings

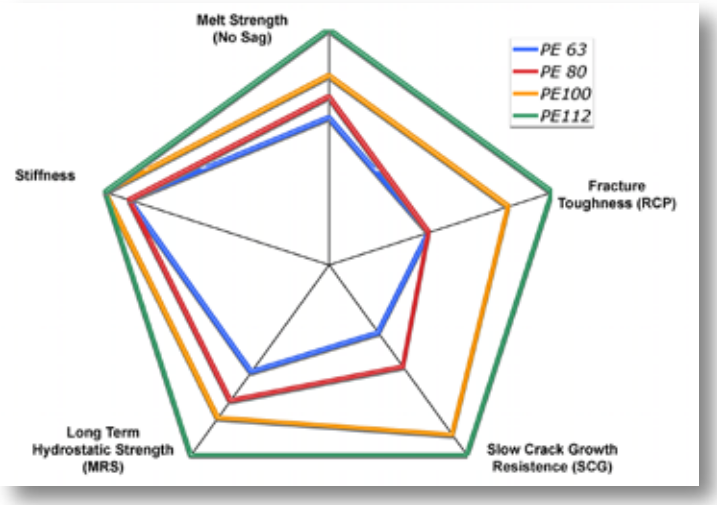
Custom fabrication service

Valves and accessories

Full technical services

Design Audits on proposed system designs

Relative performance comparison
Pipe Resin



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WATER AND WASTEWATER INFRASTRUCTURE

PE100^{++} pressure piping systems have a proven performance in Water and Wastewater Infrastructure application like:

⊙ Water and Wastewater Treatment
⊙ Dosing Lines
⊙ Grit Lines
⊙ Process Lines
⊙ Aeration Tanks
⊙ Borefields
⊙ Irrigation Schemes
⊙ Trunk Mains
⊙ Distribution
⊙ Treated Effluent Re-use
⊙ Potable Water Distribution
⊙ Rising Mains
⊙ Sewerage Treatment
⊙ Mains Re-lining

The following design problems can be overcome by using an engineered PE100^{++} thermoplastic systems

⊙ Toxicity
⊙ Corrosion
⊙ Abrasive Wear
⊙ Heavy Products
⊙ Fatigue and Brittle Failure
⊙ Flexible Piping
⊙ Ground Movement Resistance
⊙ Damage
⊙ Weathering
⊙ Secure Jointing

PE100^{++} Customers:

⊙ PAM Lyonnaise Jaya (PALYJA)
⊙ THAMES PAM Jaya (TPJ)
⊙ Adhya Tirta Batam (ATB)
⊙ PDAM Bandarmasih
⊙ PDAM Lampung
⊙ PDAM Tirtanadi, Medan
⊙ PDAM Bengkalis, Riau
⊙ PDAM Berau
⊙ PDAM Way Rilau
⊙ PDAM Boyolali
⊙ PDAM Bontang
⊙ PDAM Jambi
⊙ PDAM Sidoorjo
⊙ PDAM Tenggarong
⊙ PDAM Tanah Bumbu
⊙ Bukit Sentul
⊙ Delta Mas Cikarang
⊙ Lippo Cikarang
⊙ Lippo Karawaci

MINING AND MINERAL PROCESSING

PE100++ pressure piping systems have a proven performance in Mining and Mineral processing applications like:

- Slurry Lines
- Borefields
- Electrolyte
- Process Water
- Chemical Handling

The following design problems can overcome by using an engineered PE100++ thermoplastic system.

- Corrosion
- Abrasive wear
- Heavy Products
- Fatigue and Brittle failure
- Flexible Piping
- Damage
- Weathering
- Secure Jointing

PE100++ Customers:

- Newmont Nusa Tenggara
- Newmont Minahasa Raya
- Freeport Indonesia
- Kaltim Prima Coal (KPC)
- Antam Pongkor
- Kobatin
- Kideco Mining
- Kelian Equator Mining
- Arutmin
- PT Timah
- PT Bukit Asam
- Nusa Halmahera Minerals
- Adaro Mining
- Ratatotok Mining
- Muara Teweh Mining
- Indominco Mining
- Kitadin Mining
- Jotong Baru
- KTH Mining
- Avocet Mining
- Sebuku Mining
- MHU Mining
- Gunung Bayan Mining

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INDUSTRIAL AND MECHANICAL SYSTEMS

PE100++ pressure piping systems have a proven performance in industrial and mechanical services application like:

- Condenser Water Lines
- Chilled Water Lines
- Cooling Tower Pipework
- Process Water
- Ultra Pure/Demineralized water
- Chemical Process
- Potable Water
- Sewer Vent and Waste
- Swimming Pools
- Water Features
- Buried Fire Mains

The following design problems can be overcome by using an engineered thermoplastic.

- Corrosion
- Toxicity
- Heavy Products
- Fatigue and Brittle Failure
- Flexibility Piping
- Weathering
- Secure Jointing
- Confined Plant Rooms

CUSTOMERS

Power Stations
- Cikarang Listrindo

Industrial
- Astra Agro Group
- Medco Agro Industry
- SMART Group
- Salim Group
- KPN Group
- Musi Pulp Mill
- APAC Industrial Estate
- Surabaya International Airport
- Gresik Fertilizer Factory
- Lampung Industrial Estate
- Pupuk Kaltim
- Indo Cement Factory

Oil & Gas
- VICO
- CALTEX
- KUFPEC
- LNG Tangguh
- Suban Phase 2
- LNG Badak

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SCHEDULE OF PE PIPES ISO 4427 & AS/NZS 4130

SDR	26		21		17		13.6		11		9		7.4	
PN PE100	6.3 Bar		8 Bar		10 Bar		12.5 Bar		16 Bar		20 Bar		24 Bar	
Nominal OD	Mean ID	Ave. Mass	Mean ID	Ave. Mass	Mean ID	Ave. Mass	Mean ID	Ave. Mass	Mean ID	Ave. Mass	Mean ID	Ave. Mass	Mean ID	Ave. Mass
DN	mm	Kg/m	Min.	Kg/m	Min.	Kg/m	Min.	Kg/m	Min.	Kg/m	Min.	Kg/m	Min.	Kg/m
20							16.7	0.1	16.1	0.1	15.2	0.1	13.6	0.2
25					21.1	0.1	21.1	0.1	20.2	0.2	19.2	0.2	17.0	0.2
32			28.7	0.2	28.1	0.2	27.0	0.2	26.0	0.3	24.5	0.3	22.0	0.4
40	36.7	0.2	36.1	0.2	35.0	0.3	33.8	0.4	32.3	0.4	30.6	0.5	27.6	0.6
50	45.9	0.3	45.0	0.4	43.8	0.4	42.3	0.5	40.4	0.7	38.3	0.8	34.6	0.9
63	58.0	0.5	56.8	0.6	55.1	0.7	53.2	0.9	50.9	1.0	48.1	1.2	43.8	1.5
75	69.1	0.7	67.6	0.8	65.7	1.0	63.6	1.2	60.9	1.5	57.5	1.8	52.0	2.1
90	82.8	1.0	81.1	1.2	78.8	1.4	76.3	1.7	72.9	2.1	68.6	2.6	62.6	3.0
110	101.2	1.5	99.1	1.8	96.4	2.1	93.2	2.6	89.3	3.1	84.4	3.8	76.4	4.5
125	115.3	1.8	112.8	2.2	109.8	2.7	106.0	3.3	101.4	4.1	96.0	4.8	87.0	5.7
160	147.5	3.1	144.4	3.7	140.6	4.5	135.8	5.5	129.9	6.6	123.0	7.9	111.6	9.4
180	166.2	3.8	162.6	4.6	158.2	5.7	152.7	6.9	146.2	8.4	138.4	10.0	125.6	11.9
200	184.5	4.7	180.5	5.7	175.7	7.0	169.8	8.5	162.4	10.3	153.6	12.4	139.6	14.7
225	207.7	5.9	203.1	7.2	197.6	8.9	190.9	10.8	182.7	13.1	173.0	15.6	157.0	18.6
250	230.7	7.3	225.9	8.9	219.8	10.9	212.2	13.3	203.2	16.1	192.3	19.3	174.4	22.9
280	258.6	9.2	252.9	11.2	246.2	13.7	237.8	16.7	227.7	20.2	215.3	24.2	195.4	28.8
315	290.7	11.7	284.7	14.1	276.9	17.3	267.4	21.1	256.1	25.5	242.2	30.7	220.2	36.3
355	327.8	14.7	320.9	17.9	312.0	22.0	301.5	26.8	288.7	32.4	273.2	38.8	248.0	46.2
400	369.3	18.7	361.3	22.8	351.7	27.8	339.7	34.0	325.2	41.1	307.6	49.4	279.6	58.5
450	415.5	23.6	406.5	28.8	395.6	35.3	382.1	43.1	365.8	52.1	346.0	62.5	314.4	74.2
500	461.7	29.1	451.7	35.5	439.7	43.5	424.6	53.1	406.5	64.3	384.7	77.0	-	-
560	517.2	36.5	506.1	44.5	492.4	54.6	475.6	66.6	455.5	80.5	-	-	-	-
630	581.8	46.3	569.5	56.2	554.1	69.0	535.2	84.2	512.3	102.0	-	-	-	-
710	655.6	58.8	641.6	71.5	624.3	87.7	603.1	107.0	-	-	-	-	-	-
800	738.8	74.5	723.0	90.7	703.2	111.6			-	-	-	-	-	-
900	831.7	94.4	813.9	115.4	791.7	142.1	-	-	-	-	-	-	-	-
1000	924.1	116.5	904.2	142.4	879.8	175.5	-	-	-	-	-	-	-	-

PE FITTING OPTIONS

BENDS
22° 45° 60° 90°

Segmented

Sweep

Moulded

TEES

Segmented

Reducing

Moulded

JOINERS & ACCESSORIES

Stub Flange

Reducer

Shoulder End

Compression

Electrofusion

Cap

tyco Flow Control Eurapipe

tyco Leading Brand Names

Valves, Controls and Process Measurement

Anderson Greenwood Crosby
Biffi
Clarkson
Combined Instruments
Descote
Dewrance
Fasini
Hindle
Hovap
Keystone
Klein
Neotechna
Promet
Raimondi
Richards
Sapag
Sempell
Smith
Technaflow
Triangle
Valvtec
Valvtron
Vanessa
Winn
Yarway

Pipeline Equipment

Goliath
Keystone
Raychem

Cable and Pipe Support Systems

Australian Cable Supports (ACS)
Powerstrut
Unistrut

Water Treatment, Control Distribution and Irrigation

Bayard
Belgicast
Combines Instruments
Elliots Irrigation
Encon Tanks
Keystone
Martin Irrigation
Promet
Tyco Water
Talbot
Tyton
Eurapipe
Southern Cross Pumps
Everflow Pumps
Watergear
Valvtec
Wang Couplings

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HOW WE LIMIT YOUR RISK

Tyco Eurapipe Indonesia operates to a Quality Endorsed Company standard and is accredited under the ISO 9001:2000 programme. This International standard for Quality Assurance Systems is required to cover our global activities in meeting the needs of our customers. Our Quality System covers all functions from sales and marketing through manufacturing and distribution.

This means that from the time you place your initial sales inquiry through to delivery, your order will be processed, manufactured and supplied in a professional and quality conscious manner.

JKT 0500283

Tyco Eurapipe Polyethylene pressure pipe is manufactured to the strictest quality standards and is manufactured to AS/NZS4130 and AS/NZS4131, which is written specifically for pressure applications and can met other standards depended on client preferences.

Tyco Eurapipe's ABS pressure pipe is manufactured to the strictest quality standards and is certified to AS3518.1 which is written specifically for potable water piping.

Tyco Eurapipe's ABS pipe and fittings have been successfully tested to AS 4020 (int) 1992 Product for use in contact with water intended for human consumption with regard to their effect on water by the Australian Water Quality Centre in South Australia.

ABS has approval to International Standards for domestic water supplied (BS6920) and other necessary international qualifications.

Product Properties that provide solutions to Design Problem.

Our Technical Department has extensive experience in the properties of our products and their applications in demanding situations. Tyco Eurapipe's research and development programs ensure that our products are constantly improving. In addition you will receive the benefits of our experience gained in the export markets over 30 years, as well as the considerable corporate strength of the Tyco Flow Control Group.

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