

Innovative Cable Management Systems



Top 100 Global 2021

Drawing on more than a century of



The world's most versatile cable trough system. Available in 6 sizes.





FURUKAWA ELECTRIC

For details on installation methods and handling of various parts, please refer to the installation instructions for each product.



Green Trough

ADVANTAGES OF GREEN TROUGH

Secure Lid

A variety of lid fixings are available to suit security and access requirements.

Versatile

Straights, bends, gradients and t-junctions all available in an extensive range of sizes, together with accessories and an elevated system.

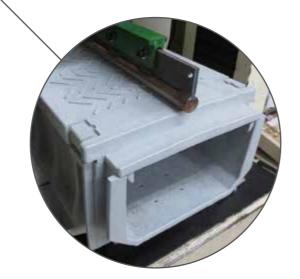
Intuitive Joint

Joint system allows for obstacles to be avoided without the need for additional accessories.
Units can deviate up to 5 degrees vertically and horizontally.



Load Bearing

Green Trough can withstand a vertical load of 10kN/m and is safe to walk on.

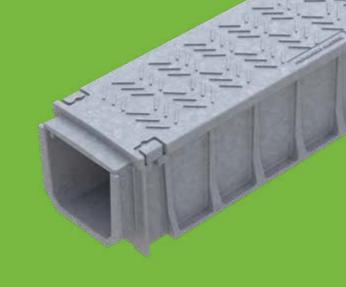


Flame Resistant

Halogen free and complies with IEC 61084-1 'Non-flame propagating' standard. K1 according to DIN 53438.

Adjustable

Most Green Trough units can be manually shortened whilst still retaining an interlocking connection. Units can be processed on site using basic hand tools, with no dust.



Impact Resistant

Green Trough sustains only superficial damage when dropped from a height of 0.7m. It can still be used even if dropped during installation as it will not crumble like concrete alternatives.

Lightweight

Approximately 70% lighter on average than conventional concrete alternatives. All Green Trough units are a 'one-man lift' for fast and safe installation.





Extremely Durable

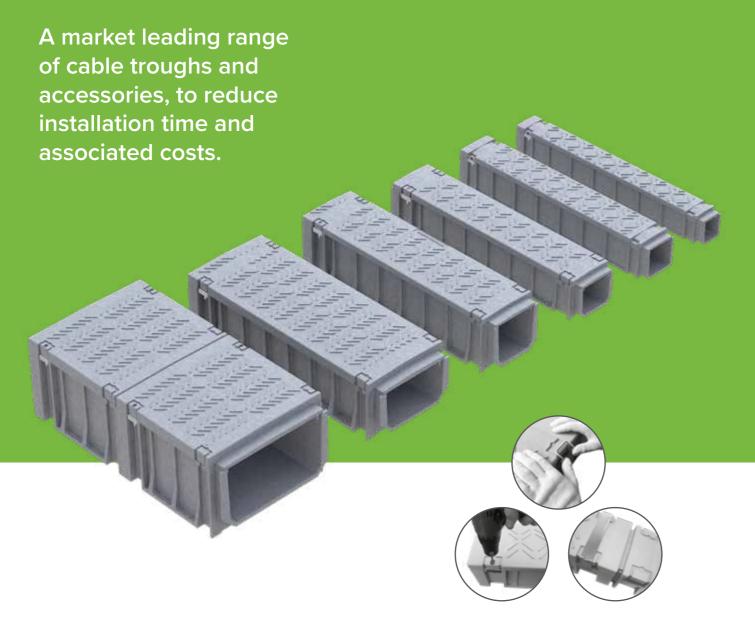
50+ year resistance to UV according to Furukawa's accelerated UV exposure test.

Safe installation temperature range -40°C to 80°C. Green



5

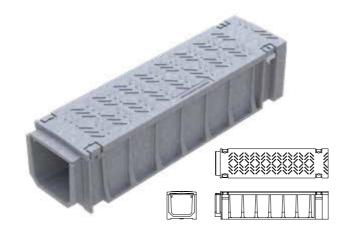
GREEN TROUGH PRODUCTS

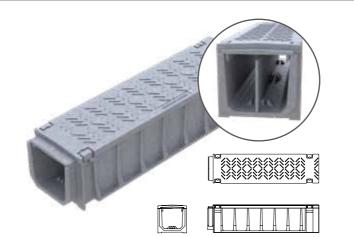


Each Green Trough series is available with a clasp, screw or band type lid fixing, to suit a variety of installations.

STRAIGHT (Standard)

	-		mm			kg
Series	Width (Internal)	Width (External)	Height (Internal)	Height (External)	Length	Total Weight
G90	90	120	100	136	1000	7
G135	135	170	125	170	1000	10
150B	160	210	135	190	1000	13
200B	200	270	185	255	1000	21
300B	300	390	175	265	1000	29
430C	450	540	255	360	500	24





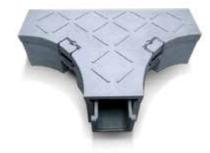
(With Divider Holders)

			mm			kg
Series	Width (Internal)	Width (External)	Height (Internal)	Height (External)	Length	Total Weight
G135	135	170	125	170	1000	10
150B	160	210	135	190	1000	13
200B	200	270	185	255	1000	21
300B	300	390	175	265	1000	29
430C	450	540	255	360	500	24

45 DEGREE BEND UNITS

	mm	degrees	mm	kg
Series	А	α	R	Weight
G90	120	45	350	2
G135	170	45	350	4
150B	210	45	350	5
200B	270	45	350	8
300B	390	45	350	13
430C	540	45	350	19







T-JUNCTION UNITS

	-	111111		- Ky
Series	А	В	R	Weight
G90	360	600	190	6
G135	385	600	165	8
150B	355	500	145	9
200B	385	500	115	13
300B	495	600	105	21
430C	635	730	80	32

GRADIENT UNITS (Up or Down)

	n	nm	kg	n	nm	kg
Series	A (Up)	B (Up)	Weight (Up)	C (Down)	D (Down)	Weight (Down)
G90	300	350	4	250	300	4
G135	300	350	7	250	300	7
150B	300	350	8	250	300	8
200B	200	250	10	150	200	11
300B	200	250	13	150	200	14
430C	200	250	17	100	150	18







FURUKAWA ELECTRIC Green Trough

SECTORS

Green Trough is approved for numerous applications worldwide

Green Trough's extensive product range together with its excellent mechanical properties make it ideal for a wide range of installations and cable types.







INDUSTRIAL

RAIL/LIGHT RAIL

RENEWABLE ENERGY







POWER UTILITY

TRANSPORTATION

+ MORE









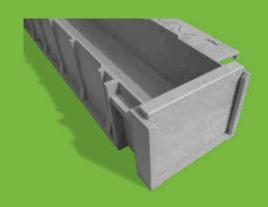




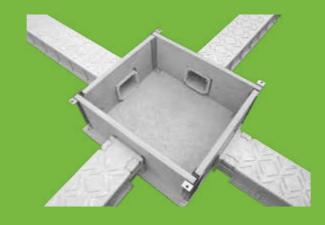
An extensive range of products and solutions for various types of construction sites and applications.

OTHER ACCESSORIES

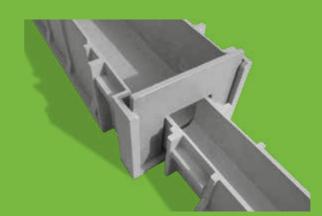
END PLATE



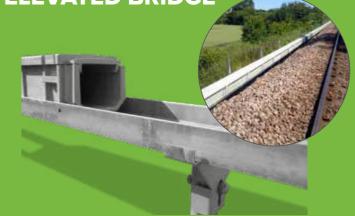
JUNCTION BOX



JOINT PLATE/REDUCER



ELEVATED BRIDGE



GREEN TROUGH VEHICLE RATED

Green Trough Vehicle Rated combines our trusted Green Trough product with a high strength lid capable of carrying the weight of large vehicles. Designed and tested to exceed industry standards, with an unmatched strength to weight ratio. Green Trough Vehicle Rated reduces installation cost and is the safer cable trench choice.

Green Trough Vehicle Rated is manufactured using a galvanized zig zag grating process that combines recycled polymer with an advanced reinforcement, creating a strong, lightweight cover that is durable under demanding loads and can be removed without heavy lifting equipment.









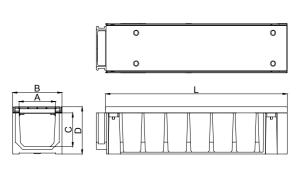
ADVANTAGES

- Strong (H20, HS20)
- Connects to standard Green Trough
- Interlocking lids

- 2-4 Degrees of Flexibility
- Flame Resistant
- Simple installation and access

SPECIFICATIONS





	-		Dimension (mm)			-	Weight (kg)		
Series	А	В	С	D	L	Base	Lid	Total	
200B	200	270	185	259	1000	20	17	37	
300B	300	390	175	267	1000	26	30	56	
430C	450	540	255	363	500	20	23	43	

HOW TO USE



Install the trough body so that the top surface is level with the ground.

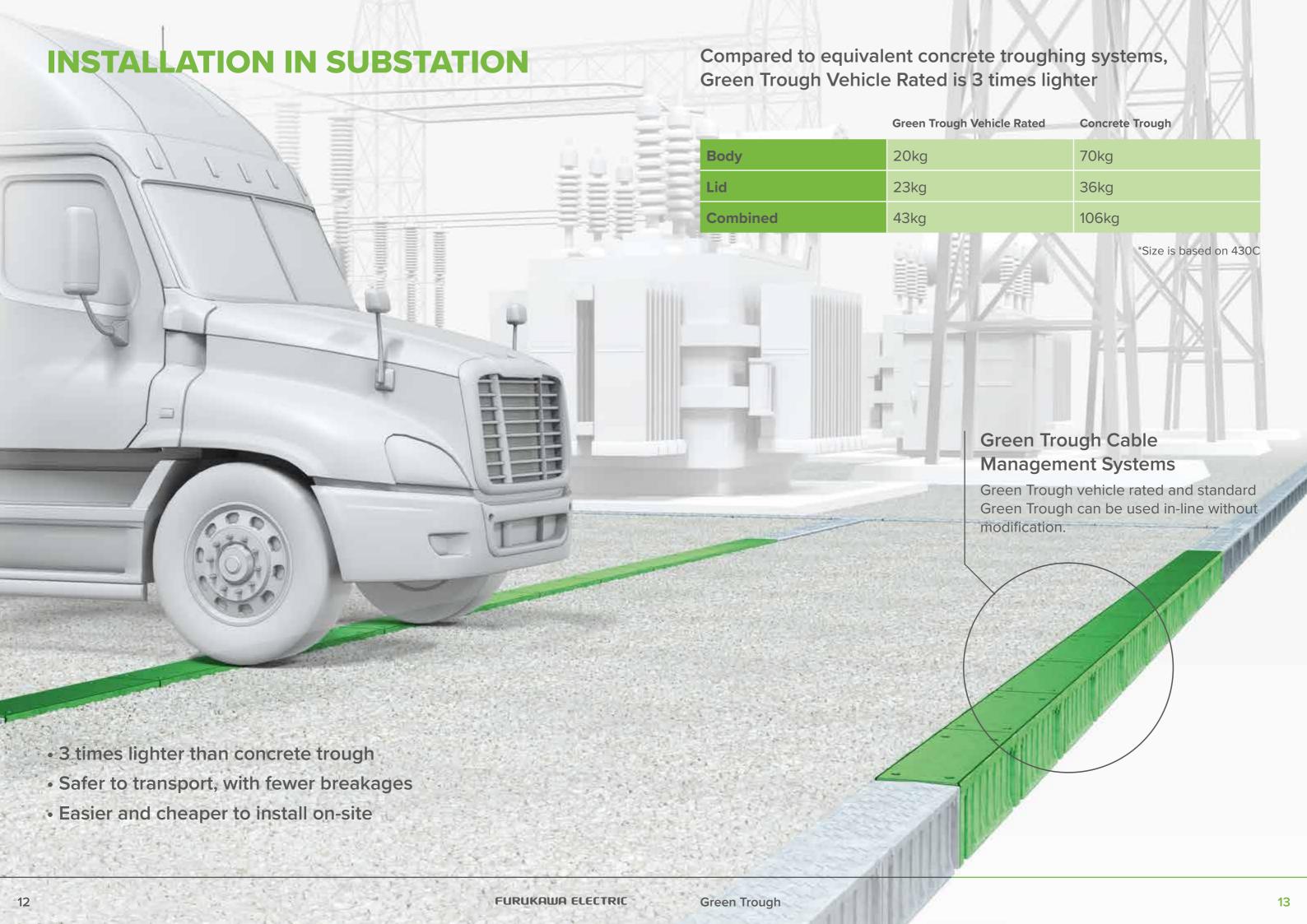


The lid can be installed by 2 people. Use a manhole lifter to position the lid in the trough body.



Secure in place with included bolts.

10 FURUKAWA ELECTRIC Green Trough



EFLEX SQUARE A FURUKAWA ELECTRIC PRODUCT

Available in 5 sizes, with a range of innovative accessories, EFLEX Square is an incredibly versatile system which enables simple and fast installation of buried cable routes.

EFLEX Square is flexible and stackable, removing the need for costly and cumbersome bend pieces. The user is free to configure the cable duct stack to suit the project's specific requirements, rather than being limited to a preconfigured layout.



For details on installation methods and handling of various parts, please refer to the installation instructions for each product.

SECTORS

EFLEX Square's versatility and innovative range of accessories make it a great choice for any infrastructure project. Requiring shallower burial depths, EFLEX Square can save significant labour time and costs, and it's square shape allows more cables to be installed in limited spaces.







INDUSTRIAL

RAIL/LIGHT RAIL

RENEWABLE ENERGY







POWER UTILITY

TRANSPORTATION

+ MORE



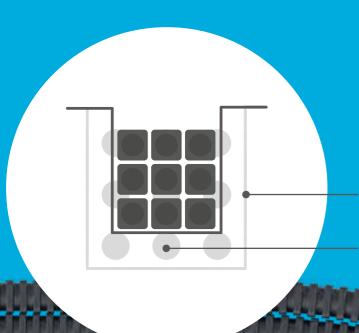






15

ADVANTAGES OF EFLEX SQUARE



Space Saving

EFLEX Square units are stackable, resulting in fast and simple installation, even in areas with limited space

deal for areas with limited space

Requires smaller trench & no duct spacers

Versatile

The stack configuration is determined by the user. Available in 5 sizes with built-in watertight push fit connectors. An extensive range of intuitive accessories are also available.





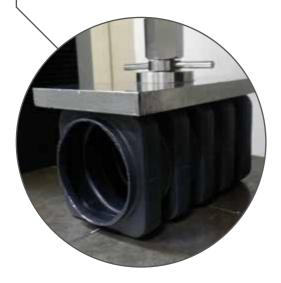
EFLEX Square seamlessly integrates with Green Trough to provide the ultimate cable management pairing

Lightweight

A 5.3m 100 series unit weighs only 6.4kg

Strong

Buried at 300mm, EFLEX Square can handle loads equivalent to that of a 25 tonne truck. The shallower burial depth means a smaller trench is required, further reducing installation time and cost.



Flexible

Every EFLEX Square unit has a minimum bend radius up to 10 x its inner diameter. No separate bend pieces are required. Bend pieces are usually expensive and only add time and cost to the installation.

Durable

Resistant to chemicals including distilled water, sodium chloride solution, Sulfuric acid, Nitrate and sodium hydroxide solution.



Flame Resistant

Self extinguishes in under 30 seconds according to JIS C3653.



Easy to modify with basic hand tools

EFLEX SQUARE PRODUCTS

The stackable units are supplied in 5.3m lengths with built-in male and female push-fit watertight connectors.

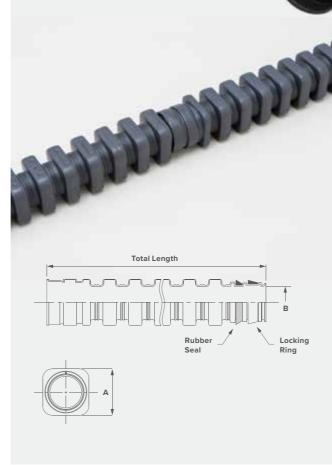
STANDARD UNIT

	-		mm		kg
Series	A: Outer Diameter	B: Inner Diameter	Total Length	Effective Length	Total Weight
50	73	50			2.6
75	100	75			4.5
100	125	100	5,300	5,250	6.4
130	162	130			11.5
150	184	150	-		14.6

EFLEX Square units feature built-in cutting guides to allow simple length adjustment. Our range of adapters can be used to secure cut pieces of EFLEX Square.



Guides allow for easy cutting



AQUA SQUARE

Used to connect cut ends of EFLEX Square, when adjusting length.

- Non-woven expanding material for a moistureactivated watertight seal
- Single action locking clips for a quick and secure connection
- No tools required



AQUA SQUARE MALE ADAPTOR

To connect a cut end of EFLEX Square to a female connector

- Non-woven expanding material for a moistureactivated watertight seal
- Single action locking clips for a quick and secure connection
- No tools required



MALE TO MALE ADAPTOR

Used to connect two EFLEX Square female connectors.

• Built-in watertight push-fit connectors



LONG BELL MOUTH

For connecting to chambers.

Available in 3 lengths.

Built-in female

connectors.

BELL BLOCK

For connecting to chambers. Available in 1, 2, 3, 4, 5, 6 and 9-way profiles. Built-in female connectors



AQUA CONNECTOR

- 1-minute install
- Non-woven expanding material for moisture activated watertight seal
- No tools required
- Fits any wall thickness



BELL MOUTH

Can be used to connect EFLEX to Green Trough



CONVERTER TO EFLEX ROUND

Required for the AQUA Connector, Bell Mouth and our adaptors for other types of duct (steel, PVC etc.)



18 FURUKAWA ELECTRIC EFLEX Square 19



Corrugated hard polyethylene pipe for underground cable installation. Available in 9 sizes with a wide variety of accessories.

EFLEX is a corrugated rigid polyethylene pipe (FEP) used as a protective pipe for burying cables underground. Long and easy-to-bend, EFLEX can reduce labour time and associated costs, shortening the construction period.



For details on installation methods and handling of various parts, please refer to the installation instructions for each product.

SECTORS

EFLEX has been highly evaluated for its ease of construction and broad product lineup tailored to the construction environment, and has been used in the railway and renewable energy markets as well as many other markets domestically and overseas over a 50-year history.







ROAD

RAIL/LIGHT RAIL

RENEWABLE ENERG







INDUSTRIAL

TRANSPORTATION

+ MORE











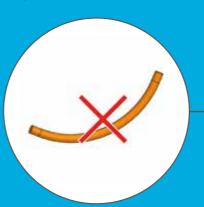
Versatile

An extensive range of intuitive accessories are also available.

For more information, please check the pages 30 31 of this catalog.

Flexible

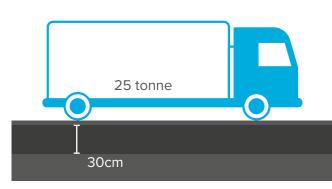
FLEX has a minimum bend radius up to 5 x its outer diameter. No separate bend pieces are equired. Bend pieces are usually expensive and only add time and cost to the installation.



Pilot wire included for cable pulling. A pilot wire has an allowable tensile strength of 490N(50kgf).

Strong

Buried at 300mm, EFLEX can handle loads equivalent to that of a 25 tons truck. The shallower burial depth means a smaller trench is required, further reducing installation time and cost.



Flame Resistant (NFP)

Flame resistant type is also available(NFP). Self extinguishes in under 30 seconds according to JIS C 3653.



Durable

Resistant to chemicals including distilled water, sodium chloride solution, Sulfuric acid, Nitrate and sodium hydroxide solution.

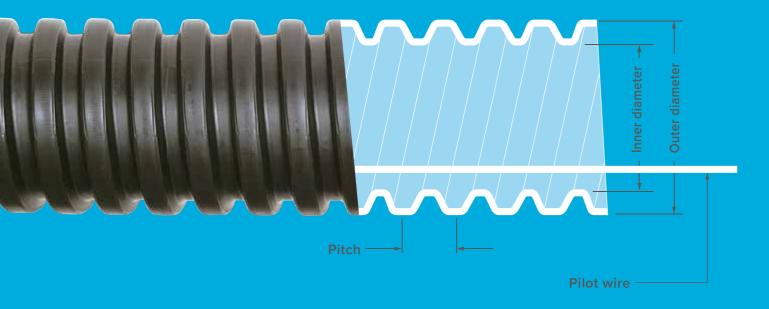
Easy to modify with basic hand tools



22 FURUKAWA ELECTRIC EFLEX 23

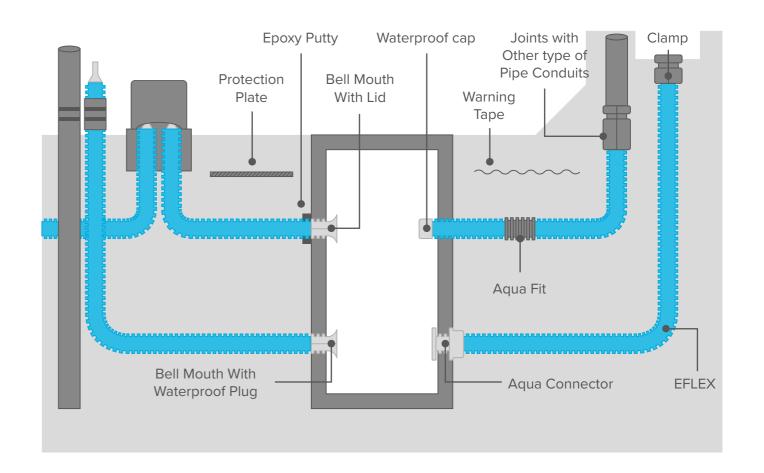
EFLEX PRODUCTS

EFLEX provides simple installation thanks to its low weight and versatile accessories.

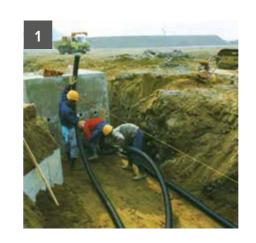


PRODUCT NO	OUTER DIAMETER (MM)	INNER DIAMETER (MM)	PITCH (MM)	REFERENCE WEIGHT (KG/M)	STANDARD LENGTH (M/COIL)	COIL SIZE O.D x W (m)
(N) FP-30	40	30	10	0.2	300	1.2 x 0.5
(N) FP-40	54	42	13	0.3	200	1.5 x 0.65
(N) FP-50	65	50	17	0.4	200	1.6 x 0.7
(N) FP-65	85	66	21	0.6	100	1.6 x 0.65
(N) FP-80	102	80	25	0.7	100	1.7 x 0.7
(N) FP-100	130	100	32	1.0	100	2.0 x 0.8
(N) FP-125	160	125	39	1.5	50	1.6 x 1.2
(N) FP-150	189	150	47	2.0	50	1.8 x 1.3
(N) FP-200	253	200	55	3.5	40	2.25 x 1.1

FP is non-flame-resistant, and NFP is flame-resistant



HOW TO USE













AQUA CONNECTOR

How to use Aqua Connector





- 1-minute instal
- Non-woven expanding material for moisture activated watertight seal
- No tools required
- Fits any wall thickness
- Flame resistance
- Degree of protection(IP67)
- Can be connected to EFLEX Square



Excellent waterproofing property of non-woven waterexpansion material

When the non-woven expanding material comes into contact with water, it expands immediately and stops water ingress.



AQUA FIT

Aqua Fit can be used to connect two pieces of EFLEX. This accessory simply screws onto EFLEX to complete the installation.

- No need for tape winding
- Excellent water retaining property due to water expandable nonwoven fabric
- It can also be used for flame resistance EFLEX
- Small and compact size
- Degree of protection (IP67)

How to use Aqua Fit





Cross section before water absorption



Cross section after water absorption



BELLMOUTH

- Secures EFLEX to the chamber wall, allowing for safe pulling and positioning of ducts.
- Non-watertight. Please use epoxy putty for water tightness.



JOINTS WITH OTHER TYPES OF PIPE CONDUITS (AQ-TYPE)

- For connecting EFLEX to other types of pipe conduit.
- Watertight connection with Non-woven expanding material for moisture activated watertight seal



WATERPROOF CAP

• Creates a watertight seal at the duct opening.



WATERPROOF PLUG

Prevent water from entering the duct by inserting into the Bellmouth.



26 FURUKAWA ELECTRIC EFLEX 27





How to use **EFLEX Straight:**







PRODUCTS	NOMINAL DIAMETER (MM)	OUTER DIAMETER (MM)	INNER DIAMETER (MM)	OVERALL LENGTH (MM)	EFFECTIVE LENGTH (MM)	REFERENCE WEIGHT (KG/PCS)
EFLEX Straight FP-150S Flame Resistant Type EFLEX Straight (N)FP-150S	150	189	150		5000	12
EFLEX Straight FP-200S Flame Resistant Type EFLEX Straight (N)FP-200S	200	253	200	- 5250	5000	19



For details on installation methods and handling of various parts, please refer to the installation instructions for each product.

ADVANTAGES OF EFLEX STRAIGHT

No need for dedicated bend pieces

Easy connection thanks to the built-in connectors

Built-in male and female connectors allow for fast installation without the need for additional components.



FURUKAWA ELECTRIC 28 29

HOW TO USE

1

Apply lubricant to the rubber seal of the male side.





Apply lubricant to the inner connecting surface of the female side.



Insert the male side into the female side.



OTHER ACCESSORIES

New lineup of two components in addition to the conventional EFLEX system

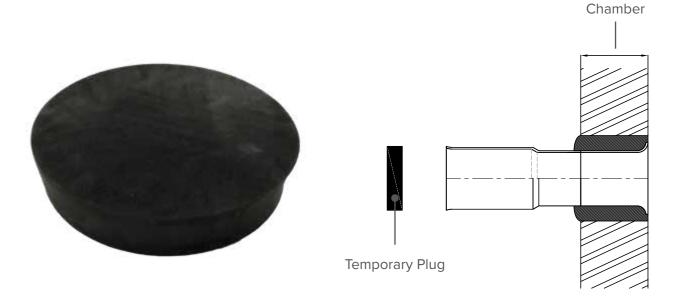
LONG BELL MOUTH

When connected to a chamber, EFLEX Straight (male side) and chamber do not require EPOXY putty.



TEMPORARY PLUG

Used to prevent sand and other material from getting into the female side of EFLEX Straight and the female side of the Long Bell Mouth.



GREEN TROUGH

STRAIGHT (Standard)

	mm	mm	mm	mm	mm	kg
	(inch)	(inch)	(inch)	(inch)	(inch)	(lbs)
Size	Width (Internal)	Width (External)	Height (Internal)	Height (External)	Length	Total Weight
G90	90	120	100	136	1000	7
	(3.5)	(4.7)	(3.9)	(5.4)	(39.4)	(15.4)
G135	135	170	125	170	1000	10
	(5.3)	(6.7)	(4.9)	(6.7)	(39.4)	(22.0)
150B	160	210	135	190	1000	13
	(6.3)	(8.3)	(5.3)	(7.5)	(39.4)	(28.7)
200B	200	270	185	255	1000	21
	(7.9)	(10.6)	(7.3)	(10.0)	(39.4)	(46.3)
300B	300	390	175	265	1000	29
	(11.8)	(15.4)	(6.9)	(10.4)	(39.4)	(63.9)
430C	450	540	255	360	500	24
	(17.7)	(21.3)	(10.0)	(14.2)	(19.7)	(52.9)

STRAIGHT (With Divider Holders)

	mm	mm	mm	mm	mm	kg
	(inch)	(inch)	(inch)	(inch)	(inch)	(lbs)
Size	Width (Internal)	Width (External)	Height (Internal)	Height (External)	Length	Total Weight
G135	135	170	125	170	1000	10
	(5.3)	(6.7)	(4.9)	(6.7)	(39.4)	(22)
150B	160	210	135	190	1000	13
	(6.3)	(8.3)	(5.3)	(7.5)	(39.4)	(28.7)
200B	200	270	185	255	1000	21
	(7.9)	(10.6)	(7.3)	(10.0)	(39.4)	(46.3)
300B	300	390	175	265	1000	29
	(11.8)	(15.4)	(6.9)	(10.4)	(39.4)	(63.9)
430C	450	540	255	360	500	24
	(17.7)	(21.3)	(10.0)	(14.2)	(19.7)	(52.9)

45 DEGREE BEND UNITS

	mm (inch)	degrees	mm (inch)	kg (lbs)
Size	А	a	R	Weight
G90	120 (4.7)	45	350 (13.8)	2 (4.4)
G135	170 (6.7)	45	350 (13.8)	4 (8.8)
150B	210 (8.3)	45	350 (13.8)	5 (11.0)
200B	270 (10.6)	45	350 (13.8)	8 (17.6)
300B	390 (15.4)	45	350 (13.8)	13 (28.7)
430C	540 (21.3)	45	350 (13.8)	19 (41.9)

T-JUNCTION UNITS

	mm	mm	mm	kg
	(inch)	(inch)	(inch)	(lbs)
Size	А	В	R	Weight
G90	360	600	190	6
	(14.2)	(23.6)	(7.5)	(13.2)
G135	385	600	165	8
	(15.2)	(23.6)	(6.5)	(17.6)
150B	355	500	145	9
	(14.0)	(19.7)	(5.7)	(19.8)
200B	385	500	115	13
	(15.2)	(19.7)	(4.5)	(28.7)
300B	495	600	105	21
	(19.5)	(23.6)	(4.1)	(46.3)
430C	635	730	80	32
	(25.0)	(28.7)	(3.1)	(70.5)

GRADIENT UNITS (up or down)

	mm	mm	kg	mm	mm	kg
	(inch)	(inch)	(lbs)	(inch)	(inch)	(lbs)
Size	A (Up)	B (Up)	Weight (Up)	C (Down)	D (Down)	Weight (Down)
G90	300	350	4	250	300	4
	(11.8)	(13.8)	(8.8)	(9.8)	(11.8)	(8.8)
G135	300	350	7	250	300	7
	(11.8)	(13.8)	(15.4)	(9.8)	(11.8)	(15.4)
150B	300	350	8	250	300	8
	(11.8)	(13.8)	(17.6)	(9.8)	(11.8)	(17.6)
200B	200	250	10	150	200	11
	(7.9)	(9.8)	(22.0)	(5.9)	(7.9)	(24.3)
300B	200	250	13	150	200	14
	(7.9)	(9.8)	(28.7)	(5.9)	(7.9)	(30.9)
430C	200	250	17	100	150	18
	(7.9)	(9.8)	(37.5)	(3.9)	(5.9)	(39.7)

GREEN TROUGH VEHICLE RATED

	mm	mm	mm	mm	mm	kg	kg	kg
	(inch)	(inch)	(inch)	(inch)	(inch)	(Ibs)	(Ibs)	(lbs)
	А	В	С	D	L	Base	Lid	Total
200B	200	270	185	259	1000	20	17	37
	(7.9)	(10.6)	(7.3)	(10.2)	(39.4)	(44.1)	(37.5)	(81.6)
300B	300	390	175	267	1000	26	30	56
	(11.8)	(15.4)	(6.9)	(10.5)	(39.4)	(57.3)	(66.1)	(123.5)
430C	450	540	255	363	500	20	23	43
	(17.7)	(21.3)	(10.0)	(14.3)	(19.7)	(44.1)	(50.7)	(94.8)

	(lbs)	(lbs)
	Green Trough Vehicle Rated	Concrete Trough
Body	20 (44.1)	70 (154.3)
Lid	23 (50.7)	36 (79.4)
Combined	43 (94.8)	106 (233.7)

FURUKAWA ELECTRIC FURUKAWA ELECTRIC 33

EFLEX SQUARE

	mm (inch)	mm (inch)	mm (inch)	mm (inch)	kg (lbs)
Size	A (Outer Diameter)	B (Inner Diameter)	Total Length	Effective Length	Weight
50	73 (2.9)	50 (2.0)			2.6 (5.7)
75	100 (3.9)	75 (3.0)	_	_	4.5 (9.9)
100	125 (4.9)	100 (3.9)	5300 (208.7)	5250 (206.7)	6.4 (14.1)
130	162 (6.4)	130 (5.1)	_	_	11.5 (25.4)
150	184 (7.2)	150 (5.9)	-	-	14.6 (32.2)

EFLEX

	mm	mm	mm	kg	mm	m	m
	(inch)	(inch)	(inch)	(lbs)	(inch)	(feet)	(feet)
Size	Outer Diameter	Inner Diameter	Pitch	Reference Weight	Standard Length (per coil)	Coil Size O.D	Coil size W
(N)FP-30	40	30	10	0.2	300	1.2	0.5
	(1.6)	(1.2)	(0.4)	(0.4)	(11.8)	(3.9)	(1.6)
(N)FP-40	54	42	13	0.3	200	1.5	0.65
	(2.1)	(1.7)	(0.5)	(0.7)	(7.9)	(4.9)	(2.1)
N)FP-50	65	50	17	0.4	200	1.6	0.7
	(2.6)	(2.0)	(0.7)	(0.9)	(7.9)	(5.2)	(2.3)
N)FP-65	85	66	21	0.6	100	1.6	0.65
	(3.3)	(2.6)	(0.8)	(1.3)	(3.9)	(5.2)	(2.1)
N)FP-80	102	80	25	0.7	100	1.7	0.7
	(4.0)	(3.1)	(1.0)	(1.5)	(3.9)	(5.6)	(2.3)
N)FP-100	130	100	32	1	100	2	0.8
	(5.1)	(3.9)	(1.3)	(2.2)	(3.9)	(6.6)	(2.6)
N)FP-125	160	125	39	1.5	50	1.6	1.2
	(6.3)	(4.9)	(1.5)	(3.3)	(2.0)	(5.2)	(3.9)
N)FP-150	189	150	47	2	50	1.8	1.3
	(7.4)	(5.9)	(1.9)	(4.4)	(2.0)	(5.9)	(4.3)
N)FP-200	253	200	55	3.5	40	2.25	1.1
	(10.0)	(7.9)	(2.2)	(7.7)	(1.6)	(7.4)	(3.6)

EFLEX STRAIGHT

	(inch)	(inch)	(inch)	(Inch)	(inch)	(IDS)
Size	Nominal Diameter	Outer Diameter	Inner Diameter	Overall Length	Effective Length	Reference Weight (per pcs)
(N)FP-150S	150 (5.9)	189 (7.4)	150 (5.9)	5250	5000	12 (26.5)
(N)FP-200S	200 (7.9)	253 (10.0)	200 (7.9)	(206.7)	(196.9)	19 (41.9)

MEMO

Export Control Regulations

The products and/or technical information presented in this publication may be subject to the application of the Foreign Exchange and Foreign Trade Act and other related laws and regulations in Japan. In addition, the Export Administration Regulations (EAR) of the United States may be applicable. In cases where exporting or reexporting the products and/or technical information presented in this publication, customers are requested to follow the necessary procedures at their own responsibility and cost. Please contact the Ministry of Economy, Trade and Industry of Japan or the Department of Commerce of the United States for details about procedures.

FURUKAWA ELECTRIC CO., LTD.

Global Business Department AT & Functional Plastics Div.

Head Office

Tokiwabashi Tower, 2-6-4, Otemachi, Chiyodaku, Tokyo 100-8322, Japan T +81-3-6281-8500 F +81-3-6281-8636 E fec.kanro-global@furukawaelectric.com furukawa.co.jp/eflex/en/

Overseas Affiliates / Offices

www.furukawaelectric.com/fes/

Furukawa Electric Europe Ltd.

Furukawa House, 2 Farriers Yard, London W6 8AH, United Kingdom

T +44-20-7313-5300 F +44-20-7313-5310

www.furukawa.co.uk/

American Furukawa Inc.
47677 Galleon Drive Plymouth, MI 48170 USA
T +1-734-446-2201 F +1-734-446-2260
americanfurukawa.com/

Furukawa Electric Singapore PTE Ltd.

2 International Business Park, #11-07/08 The Strategy, 609930 Singapore
T +65-6224-4686 F +65-6336-2635

P.T. Furukawa Electric Indonesia
Sucaco Building, 6th Floor Jl. Kebon Sirih No.71, Jakarta 10340 Indonesia
T +62-21-3190-6212 F +62-21-3190-6407
www.furukawaelectric.com/fei/