

HYBRID FIX

HYBRID VRF WATER PIPING
CONNECTIONS & ACCESSORIES



 **KE KELIT®**
NEW ZEALAND

Introduction

Introducing the Hybrid VRF Best Practice for water piping installations developed by KE KELIT New Zealand in partnership with Black Diamond Technologies.

Our comprehensive catalogue includes solutions for both KELOX Multilayer and COPPERFIX Press systems, providing piping and connections for Hybrid Branch Controller(s) and Fan Coil Units. Additionally, we offer insulation and tools, making the installation process smoother and more efficient than ever before.

Whether you're looking for pricing information or have questions about our products, don't hesitate to contact us at hvrf@kekelit.co.nz.

Simplify your installation process and get everything you need from one trusted supplier.

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What is the Hybrid VRF System?

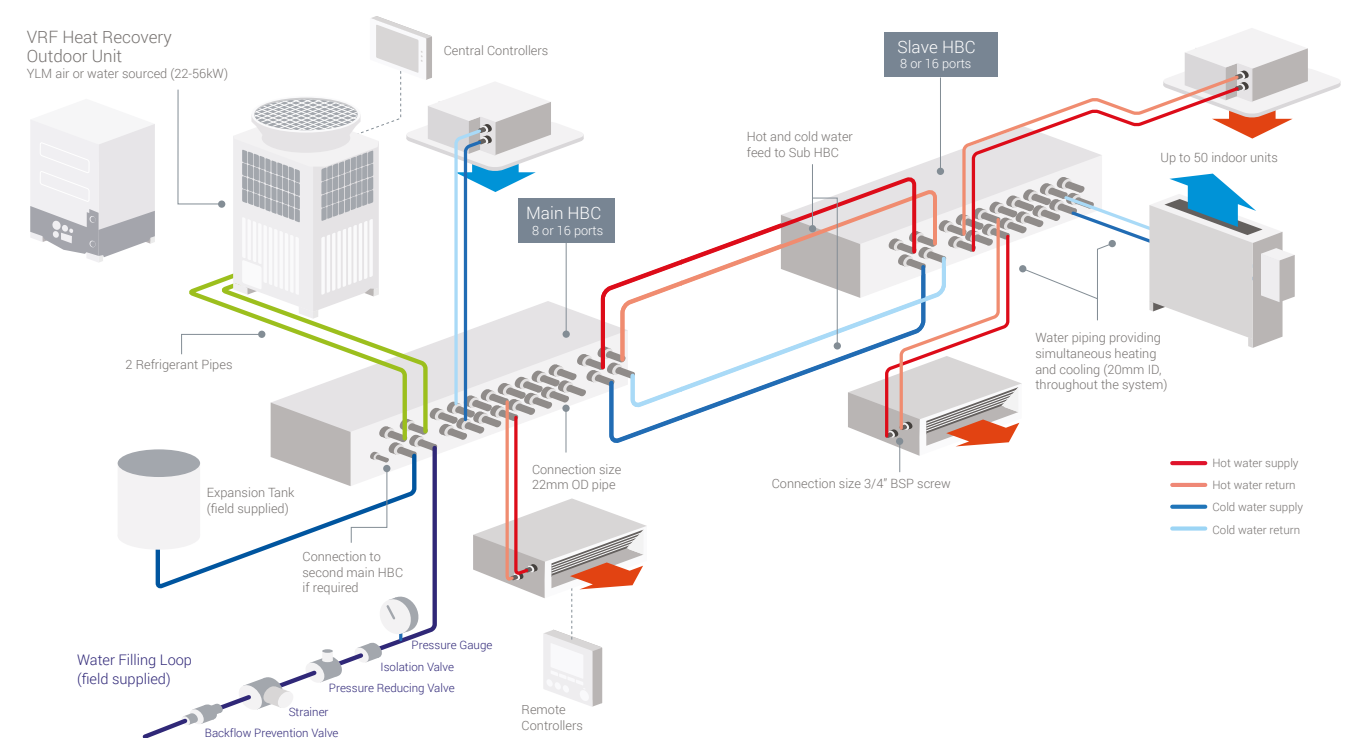
Hybrid VRF represents the next generation of technology from **Mitsubishi Electric**, the global leader in VRF solutions. This innovative system combines the efficiency of a 2-Pipe Heat Recovery VRF with the reliability of water circulation between the Hybrid Branch Circuit Controller (HBC) and indoor fan coil units (FCU).

By eliminating the need for refrigerant between these components, Hybrid VRF not only simplifies installation but also reduces the need for costly and ongoing leak detection servicing.

Designed specifically for occupied spaces, it provides quiet, energy-efficient heating and cooling simultaneously, enhancing occupant comfort in environments such as office buildings, hotels, medical centres, schools, high-rise buildings, and shopping centres.

Our connection kits, detailed in this catalogue, ensure that setting up the Hybrid VRF System is straightforward and hassle-free.

Typical Hybrid VRF System



Two Pipe Systems, One Solution.

KE KELIT provides a unique advantage by offering two distinct piping systems for HVRF connections: KELOX Multilayer and Copperfix. Each system possesses its own strengths, particularly in the context of HVRF system installation. For piping up to 20mm ID, we recommend KELOX Multilayer while for 32mm ID and above, COPPERFIX is the preferred choice. This tailored approach ensures optimal performance and efficiency for your HVRF system installation.

Benefits of using KELOX Multilayer

- KELOX Multilayer 25mm OD/20mm ID suitable for pipes marked W20 on the Mitsubishi Schematics that represents a 20mm ID pipe.
- KELOX Multilayer is flexible and easily installable with KELOX PROTEC Push fittings.
- Internal bending springs allow for a 75mm bend radius, reducing the need for additional fittings and facilitates insulation wrapping without mitring bends for elbows.
- The slim design of KELOX PROTEC Push fittings enables easy installation of insulation over them.
- H1 Energy Efficiency requirements necessitate increased insulation thickness, rendering pre-insulated pipes obsolete.

Benefits of using Copperfix

- 35mm COPPERFIX (OD) aligns with Mitsubishi's schematic requirements W32 representing 32mm ID.
- The advantage of using COPPERFIX over KELOX Multilayer that have reduced space requirements and easier installation on the required 32mm ID pipe.
- 35mm COPPERFIX (32mm ID) with H1 compliant insulation has a total OD of 99mm, compared to 40mm KELOX Multilayer (32mm ID) which has a total OD of 120mm.
- Installing insulation around COPPERFIX bends and elbows simplifies requirements. Multilayer elbows and bends necessitate mitred and glued insulation joints due to the KELOX WINDOX fittings larger size, increasing complexity to the installation.



What makes KELOX-PROTEC Push Fittings so good?

Easy

No complex costly assembly tools are required; we offer a homogeneous fitting concept for sizes d16–32mm

Safe

A non-detachable connection with sealing function taking priority. The pipe and fitting are fastened on the inside of the pipe with a grab ring. Inserting non-calibrated pipes is effectively prevented by the protector ring, which protects the O-rings from damage. Correctly processed fittings create a pull-out resistant, permanently leakproof connection.

Easy to handle

Optimised body size makes flush-mounted installation easy; the slim design allows for subsequent insulation.

Robust

The material selection is in line with state-of-the-art technology: Non-porous metallised brass or PPSU, polyamide, PA-GF, EPDM nano-coated.

Suitable for construction site conditions

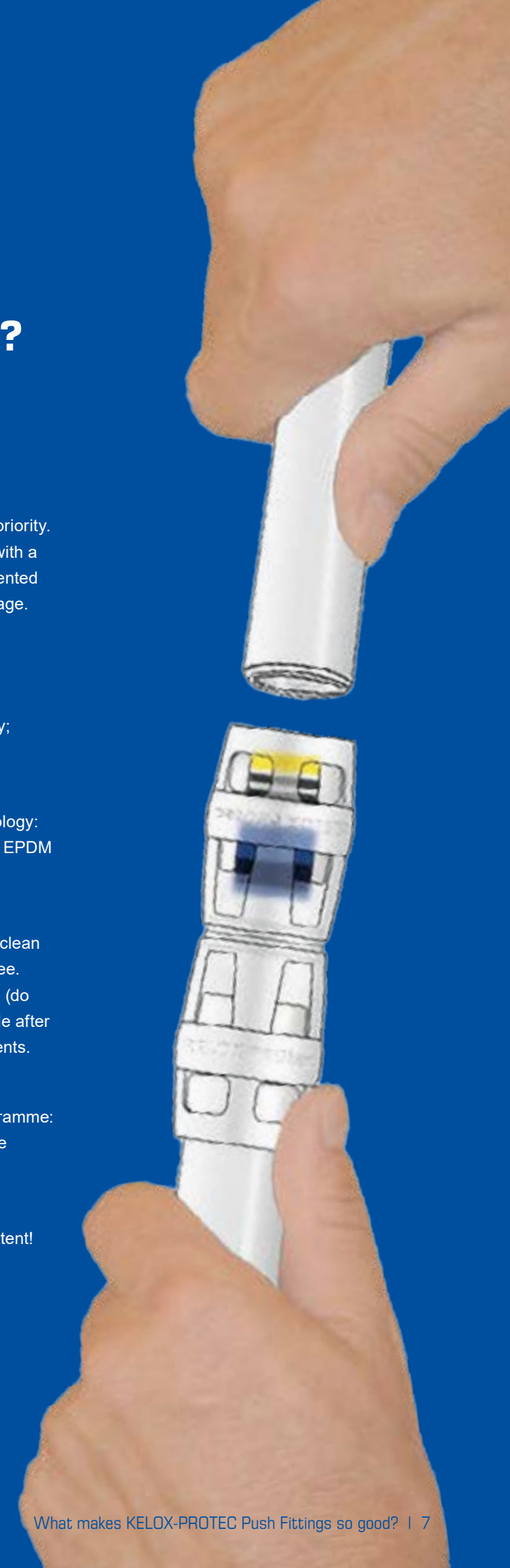
The sealing function is linked to a calibrated, checked and clean KELOX internal pipe surface. EPDM O-rings are grease-free. There is no contamination and only a little force is required (do not apply extra grease!) Rotation and adjustment is possible after assembly. A cap protects the holding and sealing components.

Tested

The fittings are subjected to a comprehensive testing programme: Pressure surge, temperature change, high pressure, tensile strength and are DVGW- and ÖVGW-certified.

KE KELIT patent

All product-relevant fitting components are protected by patent!



H1/ VM3 Minimum Insulation R-Value & Pipe Sizing Guide

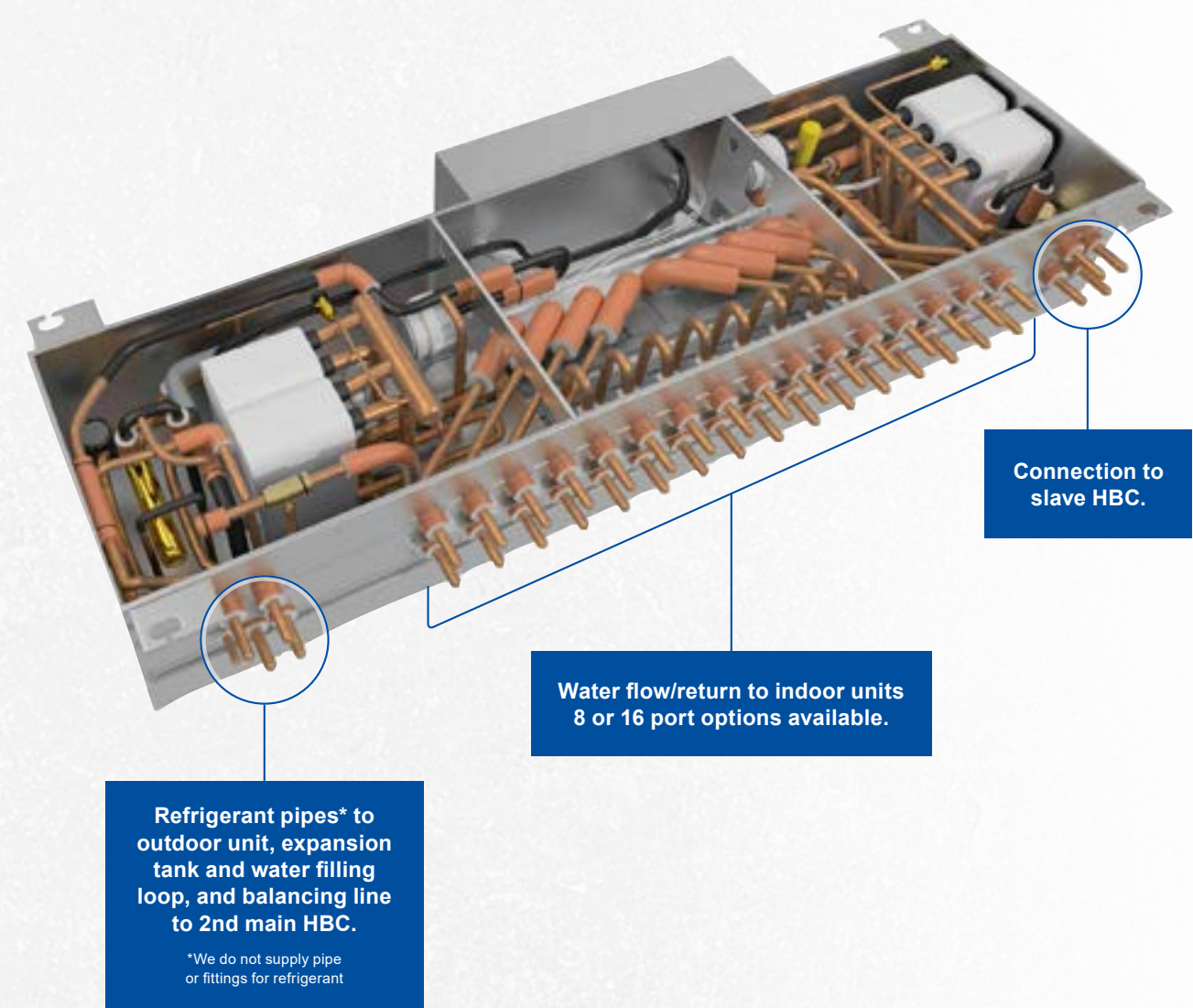
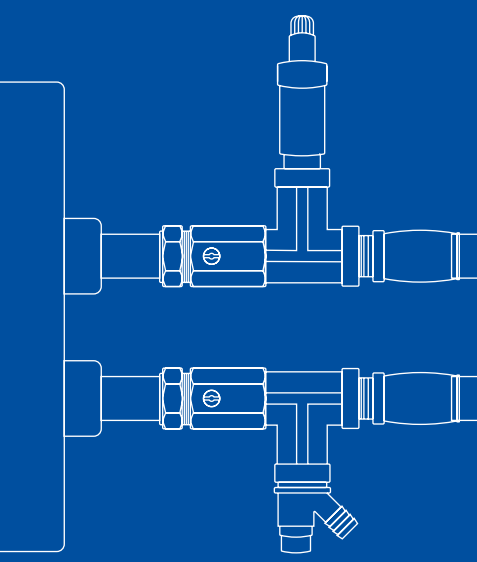
Min Insulation (mm) KE KELIT FLEXICELL NBR & XLPE Compliant with H1/VM3 Table 7.2.1.2A: Internal Carrier Pipes Outside Diameter (OD) Internal Carrier Pipes Inside Diameter (ID) Total Carrier Pipe Including Insulation Outside Diameter (OD)											
Unit Size	KE KELIT KELOX Multilayer			KE KELIT COPPERFIX			Max Equivalent Pipe Length (m)	R-Value	Insulation Thickness KELOX Multilayer	Insulation Thickness COPPERFIX	H1/VM3 Table 7.2.1.2A: Compliant
	Listed Outside Diameter (OD)	Inside Diameter (ID)	Total Outside Diameter Including Insulation (MM)	Listed Outside Diameter (OD)	Inside Diameter (ID)	Total Outside Diameter Including Insulation (MM)					
10	25	20	89	DN22	20.2	86	60	1.7	32 mm (NBR)	32 mm (NBR)	Yes
15	25	20	89	DN22	20.2	86	60	1.7	32 mm (NBR)	32 mm (NBR)	Yes
20	25	20	89	DN22	20.2	86	60	1.7	32 mm (NBR)	32 mm (NBR)	Yes
25	25	20	89	DN22	20.2	86	60	1.7	32 mm (NBR)	32 mm (NBR)	Yes
25	25	20	89	DN22	20.2	86	60	1.7	32 mm (NBR)	32 mm (NBR)	Yes
32	25	20	89	DN22	20.2	86	60	1.7	32 mm (NBR)	32 mm (NBR)	Yes
32	25	20	89	DN22	20.2	86	60	1.7	32 mm (NBR)	32 mm (NBR)	Yes
40	25	20	89	DN22	20.2	86	60	1.7	32 mm (NBR)	32 mm (NBR)	Yes
50	25	20	89	DN22	20.2	86	60	1.7	32 mm (NBR)	32 mm (NBR)	Yes
63	40	32.6	120	DN35	32.6	103	60	1.7	40 mm (XLPE)	34 mm (NBR)	Yes
63	40	32.6	120	DN35	32.6	103	60	1.7	40 mm (XLPE)	34 mm (NBR)	Yes
80	40	32.6	120	DN35	32.6	103	60	1.7	40 mm (XLPE)	34 mm (NBR)	Yes
80	40	32.6	120	DN35	32.6	103	30	1.7	40 mm (XLPE)	34 mm (NBR)	Yes
100	40 Twin	32.6	120	DN35 Twin	32.6	103	60	1.7	40 mm (XLPE)	34 mm (NBR)	Yes
120	40 Twin	32.6	120	DN35 Twin	32.6	103	60	1.7	40 mm (XLPE)	34 mm (NBR)	Yes
NOTE: The minimum required R-Value can be halved for piping penetrating a structural member.											

Min Insulation (mm) KE KELIT FLEXICELL NBR & XLPE Compliant with H1/VM3 Table 7.2.1.2A: When Penetrating a Structural Member											
Internal Carrier Pipes Outside Diameter (OD)											
Internal Carrier Pipes Inside Diameter (ID)											
Total Carrier Pipe Including Insulation Outside Diameter (OD)											
Unit Size	KE KELIT KELOX Multilayer			KE KELIT COPPERFIX			Max Equivalent Pipe Length (m)	R-Value	Insulation Thickness KELOX Multilayer	Insulation Thickness COPPERFIX	H1/VM3 Table 7.2.1.2A: Compliant
	Outside Diameter (OD)	Inside Diameter (ID)	Total Outside Diameter Including Insulation (MM)	Outside Diameter (OD)	Inside Diameter (ID)	Total Outside Diameter Including Insulation (MM)					
10	25	20	63	DN22	20.2	60	60	0.85	19 mm (NBR)	19 mm (NBR)	Yes
15	25	20	63	DN22	20.2	60	60	0.85	19 mm (NBR)	19 mm (NBR)	Yes
20	25	20	63	DN22	20.2	60	60	0.85	19 mm (NBR)	19 mm (NBR)	Yes
25	25	20	63	DN22	20.2	60	60	0.85	19 mm (NBR)	19 mm (NBR)	Yes
25	25	20	63	DN22	20.2	60	60	0.85	19 mm (NBR)	19 mm (NBR)	Yes
32	25	20	63	DN22	20.2	60	60	0.85	19 mm (NBR)	19 mm (NBR)	Yes
32	25	20	63	DN22	20.2	60	60	0.85	19 mm (NBR)	19 mm (NBR)	Yes
40	25	20	63	DN22	20.2	60	60	0.85	19 mm (NBR)	19 mm (NBR)	Yes
50	25	20	63	DN22	20.2	60	60	0.85	19 mm (NBR)	19 mm (NBR)	Yes
63	40	32.6	90	DN35	32.6	85	60	0.85	25 mm (XLPE)	25 mm (NBR)	Yes
63	40	32.6	90	DN35	32.6	85	60	0.85	25 mm (XLPE)	25 mm (NBR)	Yes
80	40	32.6	90	DN35	32.6	85	60	0.85	25 mm (XLPE)	25 mm (NBR)	Yes
80	40	32.6	90	DN35	32.6	85	60	0.85	25 mm (XLPE)	25 mm (NBR)	Yes
100	40 Twin	32.6	90	DN35 Twin	32.6	85	60	0.85	25 mm (XLPE)	25 mm (NBR)	Yes
120	40 Twin	32.6	90	DN35 Twin	32.6	85	60	0.85	25 mm (XLPE)	25 mm (NBR)	Yes

Water Connections at Hybrid Branch Controller (HBC)

Hybrid Branch Controllers utilise the European Copper Standard EN1057 with 22mm OD copper connections. KE KELIT New Zealand supply exclusively European dimensional standard piping systems, making us the perfect choice for HVRF installations.

We are always looking to provide innovative solutions and have developed **pre-assembled kits** for connecting to Hybrid Branch Controllers, these kits take advantage of KE KELIT KELOX Multilayer and COPPERFIX Press piping systems providing flexible installation choices for installers.



Mitsubishi Pipe Legend

PIPING LIST			
SYMBOL	BRANCH	PIPE	MODEL
J1 Field supply (Refrigerant joint)			
SYMBOL	LIQUID PIPE/GAS PIPE	SIZE	
P1	19.05	28.58	
P2	15.88	22.2	
P3	15.88		
SYMBOL	WATER PIPE	IN/OUT	SIZE
W1	32A	32A	
W2	20A	20A	

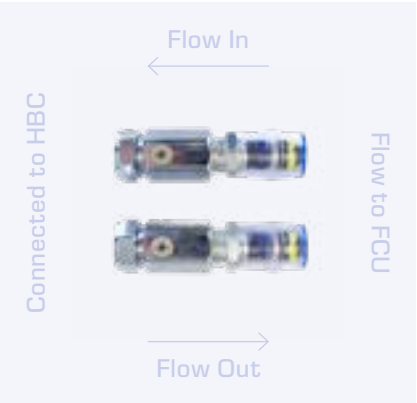
PIPING LIST			
SYMBOL	LIQUID PIPE/GAS PIPE	SIZE	
P1	5/8	7/8	
P2	1/4	1/2	
SYMBOL	WATER PIPE	IN/OUT	SIZE
W1	20A	20A	
W2	32A	32A	

Individual Mitsubishi Schematics that are project specific detail the pipe sizes in the Piping Legend.

KELOX Multilayer HBC Connection Kits

Image Key:
Left hand side:
Valve connected to HBC
Right hand side: KELOX Protec
or KELOX Windox connection

KELOX Multilayer HBC Isolation Valve Kit (No Air Vent or Drain)



25MM

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: HBCI25MM

40MM

FCU Unit Sizes	Max Pipe Run
63 - 80	60m

Code: HBCI40MM

40MM Twin Port*

FCU Unit Sizes	Max Pipe Run
100 - 120	60m

Code: HBCI40MM-T

KELOX Multilayer HBC Isolation Valve Kit with Auto Air Vent & Drain

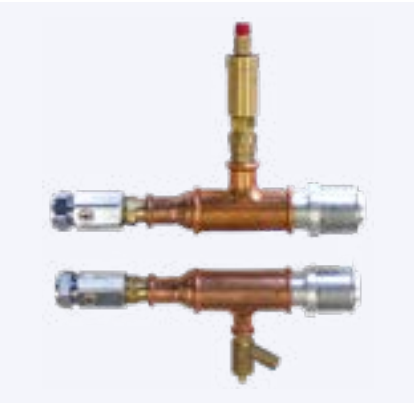
See page 51 for more information on the pre-assembly of automatic air vent kits.



25MM

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: HBCIAAD25MM



40MM

FCU Unit Sizes	Max Pipe Run
63 - 80	60m

Code: HBCIAAD40MM



40MM Twin Port*

FCU Unit Sizes	Max Pipe Run
100 - 120	60m

Code: HBCIAAD40MM-T

KELOX Multilayer HBC Isolation Valve Kit with Auto Air Vent (No Drain)

See page 51 for more information on the pre-assembly of automatic air vent kits.



25MM

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: HBCIAA25MM



40MM

FCU Unit Sizes	Max Pipe Run
63 - 80	60m

Code: HBCIAA40MM



40MM Twin Port*

FCU Unit Sizes	Max Pipe Run
100 - 120	60m

Code: HBCIAA40MM-T

KELOX Multilayer HBC Isolation Valve Kit with Manual Air Vent (No Drain)



25MM

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: HBCIMA25MM



40MM

FCU Unit Sizes	Max Pipe Run
63 - 80	60m

Code: HBCIMA40MM



40MM Twin Port*

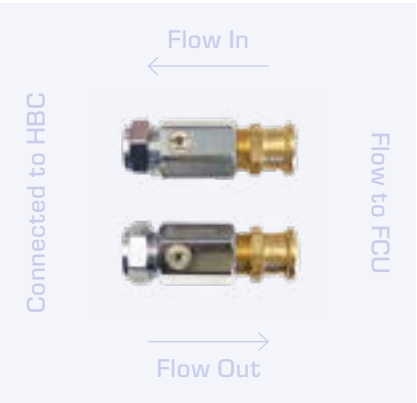
FCU Unit Sizes	Max Pipe Run
100 - 125	60m

Code: HBCIMA40MM-T

COPPERFIX HBC Connection Kits

Image Key:
Left hand side:
Valve connected to HBC
Right hand side:
Copperfix press connection

COPPERFIX HBC Isolation Valve Kit (No Air Vent or Drain)



22MM

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: HBCI22MM

35MM

FCU Unit Sizes	Max Pipe Run
63 - 80	60m

Code: HBCI35MM

35MM Twin Port*

FCU Unit Sizes	Max Pipe Run
100 - 120	60m

Code: HBCI35MM-T

COPPERFIX HBC Isolation Valve Kit with Auto Air Vent & Drain

See page 51 for more information on the pre-assembly of automatic air vent kits.



22MM

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: HBCIAAD22MM



35MM

FCU Unit Sizes	Max Pipe Run
63 - 80	60m

Code: HBCIAAD35MM



35MM Twin Port*

FCU Unit Sizes	Max Pipe Run
100 - 120	60m

Code: HBCIAAD35MM-T

COPPERFIX HBC Isolation Valve Kit with Auto Air Vent (No Drain)

See page 51 for more information on the pre-assembly of automatic air vent kits.



22MM

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: HBCIAA22MM



35MM

FCU Unit Sizes	Max Pipe Run
63 - 80	60m

Code: HBCIAA35MM



35MM Twin Port*

FCU Unit Sizes	Max Pipe Run
100 - 120	60m

Code: HBCIAA35MM-T

COPPERFIX HBC Isolation Valve Kit with Manual Air Vent (No Drain)



22MM

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: HBCIMA22MM



35MM

FCU Unit Sizes	Max Pipe Run
63 - 80	60m

Code: HBCIMA35MM



35MM Twin Port*

FCU Unit Sizes	Max Pipe Run
100 - 125	60m

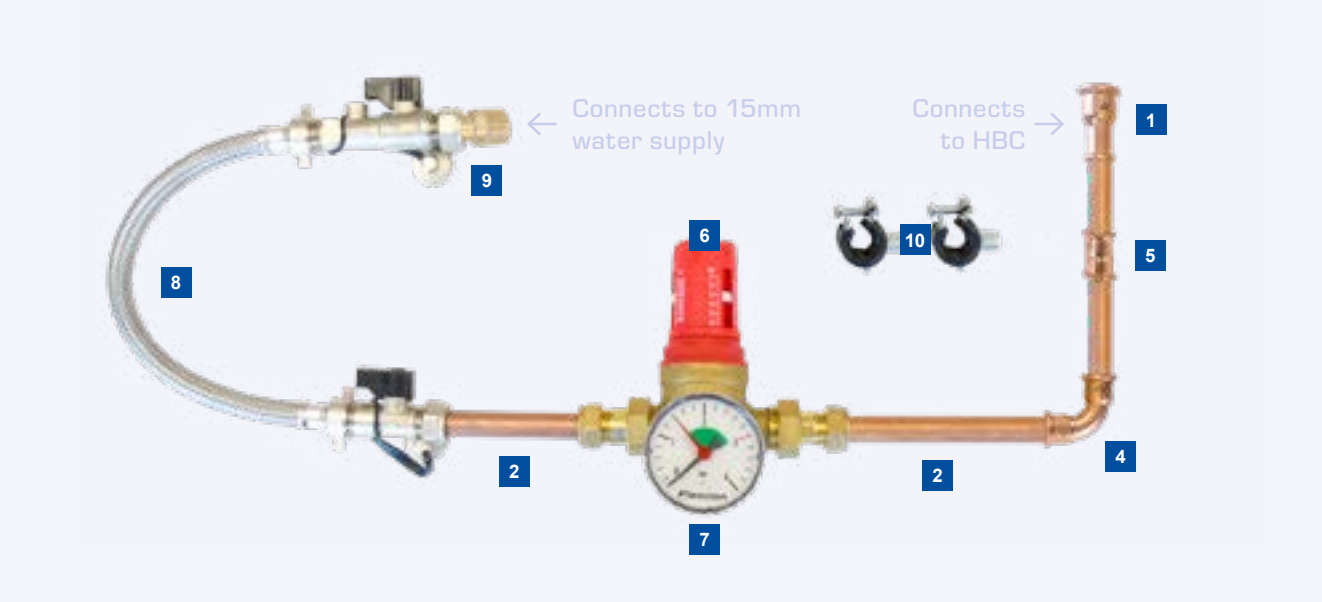
Code: HBCIMA35MM-T

HBC Water Filling & Expansion Kits

Note: The following kits can be ordered as whole, or by individual parts.

Main HBC Water Supply Filling Connection Kit to connect to 22mm Water Connection on HBC

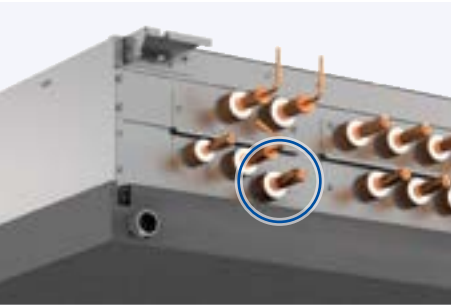
Code: HBCWSFK



What's Included:

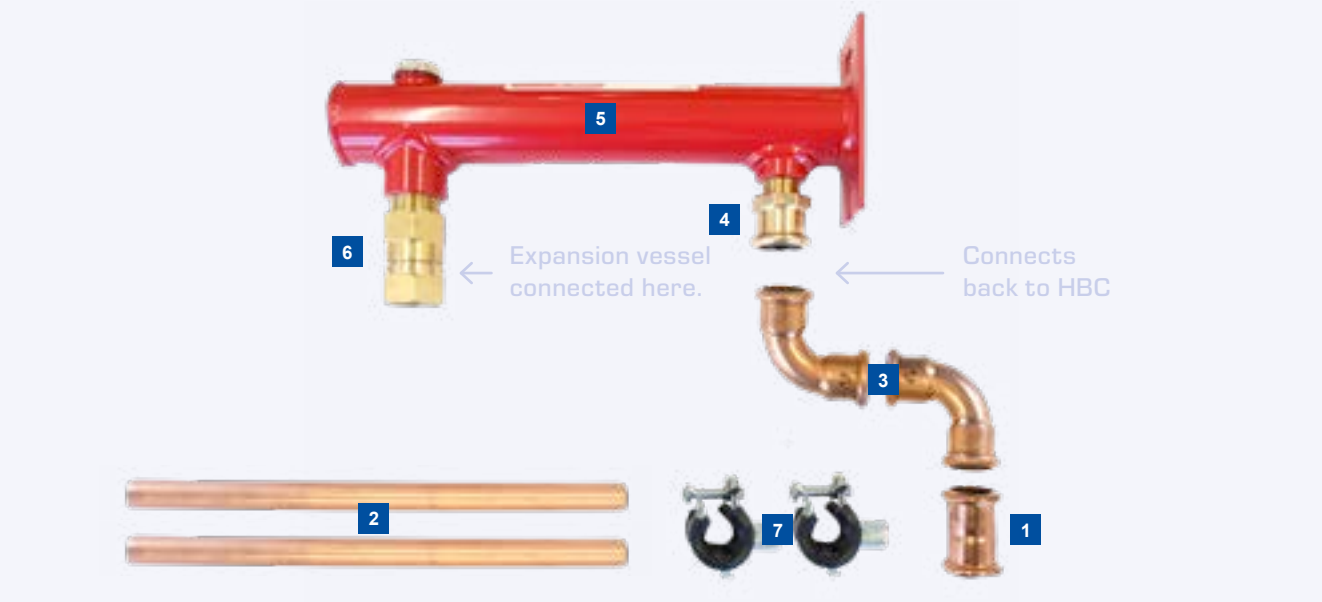
Description	Code	Qty
1 COF412 COPPERFIX Press - Reducer F/F 22 x 15mm	52602DB0	1
2 COPPERFIX Tube Length 15 x 0.7 mm (100mm Length)	56100XB00	2
3 COPPERFIX Tube Length 22 x 0.9 mm (1800mm Length)	561800XD00	2
4 COF420 COPPERFIX Press - Elbow 90° 15mm	52615BB0	4
5 COF410 COPPERFIX Press - Straight Coupling 15mm	52600BB0	3
6 Prescor PRV PN25 1.0-6.0 bar compression (15mm) Comes complete with strainer.	27466	1
7 FLAMCO Pressure Gauge 63mm 1/4" Ax./3.0b, 1.5 - 3.0 bar	27210	1
8 FLAMCO Uni Fil P Filling Loop (59797) Comes Complete with Isolation Valves, flexible hose and check valve.	27305	1
9 COF453 COPPERFIX Press - Straight Connector Male 15 x 1/2"	52704B02	1
10 FLAMCO Fixing BSH clip M8-M10 x 15-18	38361	4

Where to connect at the HBC:



Main HBC Expansion Vessel Connection Kit 8L - 25L

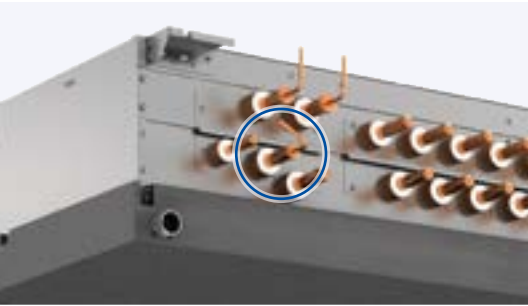
Code: HBCEVKW



What's Included:

Description	Code	Qty
1 COF410 COPPERFIX Press - Straight Coupling 22mm	52600DD0	3
2 COPPERFIX Tube Length 22 x 0.9 mm (1800mm Length)	561800XD00	2
3 COF420 COPPERFIX Press - Elbow 90° 22mm	52615DD0	4
4 COF450 COPPERFIX Press - Adapter Male 22 x 1/2"	52702D02	1
5 FLAMCO FlexConsole 3/4 x 1/2 for Expansion Vessel 2 - 25L	27910	1
6 FLAMCO Flexfast 3/4" See page 51 for information about servicing expansion vessel.	27920	1
7 FLAMCO Fixing BSH clip M8-M10 x 19-22	38362	4

Where to connect at the HBC:



Choose an Expansion Vessel Size (not included in kit):

Refer to page 51 for HVRF Expansion Vessel "Rule of Thumb Sizing Chart"



**FLAMCO Flexcon
Premium Expansion
Vessel 8L, 2.5 (6bar)**

Code: 16942



**FLAMCO Flexcon
Premium Expansion
Vessel 12L, 2.5 (6bar)**

Code: 16945



**FLAMCO Flexcon
Premium Expansion
Vessel 18L, 2.5 (6bar)**

Code: 16948



**FLAMCO Flexcon
Premium Expansion
Vessel 25L, 2.5 (6bar)**

Code: 16952

Main HBC Expansion Vessel Connection Kit
35L - 50L

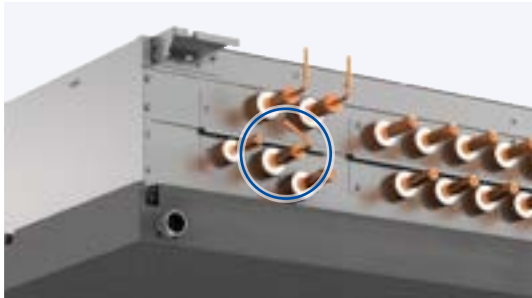
Code: HBCEVKF



What's Included:

Description	Code	Qty
1 COF466 COPPERFIX Press - Union Female Thread 22 x 3/4"	52742D04	1
2 FLAMCO FlexControl 3/4 M See page 51 for information about servicing expansion vessel.	28925	1
3 COF410 COPPERFIX Press - Straight Coupling 22mm	52600DD0	3
4 COF420 COPPERFIX Press - Elbow 90° 22mm	52615DD0	4
5 FLAMCO Fixing BSH clip M8-M10 x 19-22	38362	4
6 COPPERFIX Tube Length 22 x 0.9 mm (1800mm Length)	561800XD00	2

Where to connect at the HBC:



Choose an Expansion Vessel Size (not included in kit):

Refer to page 51 for HVRF Expansion Vessel "Rule of Thumb Sizing Chart"



FLAMCO Flexcon
Premium Expansion
Vessel 35L, 2.5 (6bar)

Code: 16956



FLAMCO Flexcon
Premium Expansion
Vessel 50L, 2.5 (6bar)

Code: 16960

Main HBC to Slave HBC Connection
22mm with Isolation Valve

Code: HBCTSHBC22



What's Included:

Description	Code	Qty
1 BROEN Ballofix Straight Valve w/o Handle Female/Compression 3/4 x 22mm	44154500-225032	8
2 COF453 COPPERFIX Press - Straight Connector Male 22 x 3/4"	52704D04	8
3 COF421 COPPERFIX Press - Elbow 90° M/F 22mm	52616DD0	16
4 COPPERFIX Copper Tube (1/2 Hard) 22 x 0.9 mm (5.8m)	5620XD00	3
5 FLEXICELL NBR Insulation 22mm x 32mm Wall (2m Length)	NBRT3222	8
6 FLAMCO Fixing CK 9 Clip M8/M10 x 84-89	37508	12
7 NBR Insulation Block 22mm ID x 32mm Wall	IBNBR3222	12

Where to connect at the HBC:



Main HBC to Slave HBC Connection
35mm with Isolation Valve

Code: HBCTSHBC35



What's Included:

Description	Code	Qty
1 BROEN Ballofix Straight Valve w/o Handle Female/Compression 3/4 x 22mm	44154500-225032	8
2 COF453 COPPERFIX Press - Straight Connector Male 22 x 3/4"	52704D04	8
3 COF411 COPPERFIX Press - Reducer M/F 35 x 22mm	52601FD0	8
4 COF410 COPPERFIX Press - Straight Coupling 35mm	52600FF0	8
5 COF420 COPPERFIX Press - Elbow 90° 35mm	52615FF0	16
6 COPPERFIX Copper Tube (Hard) 35 x 1.2 mm (5.8m)	5630XF00	3
7 FLEXICELL NBR Insulation 35mm x 34mm Wall (2m Length)	NBRT3435	8
8 FLAMCO Fixing CK 11 Clip M8/M10 x 96-101	37510	12
9 NBR Insulation Block 35mm ID x 34mm Wall	IBNBR3435	12

Water Connections at Fan Coil Units (FCU)

Ceiling, Wall & Floor

Hybrid VRF Fan Coil Units are supplied with European Copper Standard EN1057, 22mm OD copper or BSP female threaded 3/4" or 1 1/4" connection. KE KELIT New Zealand supply exclusively European dimensional standard piping systems that make the use of KE KELIT piping systems the perfect choice for HVRF installations.

NOTE: Hybrid VRF Fan Coil connection kits are not pre-assembled and the assembly is to be completed by the installing contractor on site.

Fan Coil Units & Connection Details

Mitsubishi's Fan Coil units are equipped with one of three types of connections. Below, you'll find a list of all the units along with their respective inlet and outlet connection types.

22MM Copper Pipe Connections

Ceiling Models - Cassette



PLFY-WL20-125VEM-E



PLFY-WL10-40VFM-E

Floor Model



PFFY-W20-50VCM-A



PEFY-WL40-125VMHS-A

Ceiling Models - Concealed



PEFY-W10-50VMS-A



PEFY-W20-125VMA-A



PEFY-W20-125VMAL-A



PEFY-W20-125VMA2-A

3/4" Screw Connections

Ceiling Model - Cassette



PEFY-WP10-50VMS1-E



PEFY-WP20-50VMA-E

Wall Models



PKFY-WL10-25VLM-E*



PKFY-WL32-50VKM-E*

Floor Model



PFFY-WP20-50VLRMM-E

1 1/4" Screw Connections

Ceiling Model - Cassette



PEFY-WP63-125VMA-E

Wall Model



PKFY-WL63-80VKM-E*

*These Wall units are Mitsubishi Electric's standard connections attached to copper tails. The connections depicted on page 27 and 33 require the removal of these connections, and replaced the with connections supplied in the kit.

KELOX Multilayer FCU Connection Kits

Image Key:
Left hand side:
Connection to FCU
Right hand side: KELOX Protec
or KELOX Windox connection

Ceiling Connections with Isolation Valve



22MM connection to 25MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUI22X25MM

22MM connection to 40MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCUI22X40MM



3/4" connection to 25MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUI3/4X25MM



1 1/4" connection to 40MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCUI11/4X40MM

Ceiling Connections with No Isolation Valve



22MM connection to 25MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCU22X25MM



22MM connection to 40MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCU22X40MM



3/4" connection to 25MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCU3/4X25MM



1 1/4" connection to 40MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCU11/4X40MM

Image Key:
Left hand side:
Connection to FCU
Right hand side: KELOX Protec
or KELOX Windox connection

Ceiling Connections with Flexible Hose & Isolation Valve



22MM connection to 25MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUIH22X25MM



22MM connection to 40MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCUIH22X40MM



3/4" connection to 25MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code:FCUIH3/4X25MM



1 1/4" connection to 40MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCUIH11/4X40MM

Ceiling Connections with Flexible Hose & NO Isolation Valve



22MM connection to 25MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUH22X25MM



22MM connection to 40MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

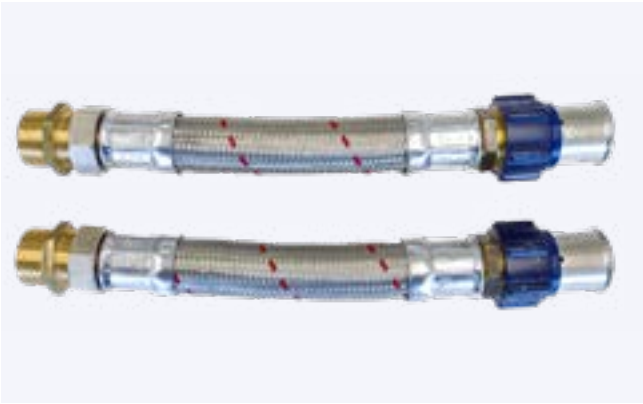
Code: FCUH22X40MM



3/4" connection to 25MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUH3/4X25MM



1 1/4" connection to 40MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCUH11/4X40MM

Image Key:
Left hand side:
Connection to FCU
Right hand side: KELOX Protec
or KELOX Windox connection

Floor Connections with Isolation Valve



22MM connection to 25MM pipe

FCU Unit Sizes	Max Pipe Run
20 - 25 - 32 - 40 - 50	60m

Code: FCUFI22X25MM

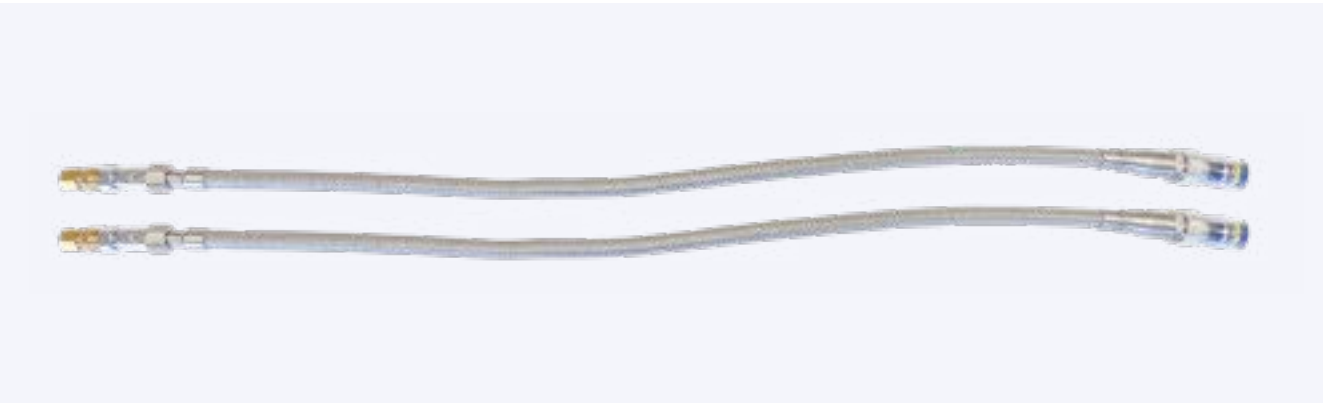


3/4" connection to 25MM pipe (with flexible hose)

FCU Unit Sizes	Max Pipe Run
20 - 25 - 32 - 40 - 50	60m

Code: FCUWFIH3/4X25MM

Wall Connections with Isolation Valve



3/4" connection to 25MM pipe
(with flexible hose)

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 - 25	60m

Code: FCUWFIH1/2X25MM

3/4" connection to 25MM pipe
(with flexible hose)

FCU Unit Sizes	Max Pipe Run
32 - 40 - 50	60m

Code: FCUWFIH5/8X25MM

1 1/4" connection to 40MM pipe*
(with flexible hose)

FCU Unit Sizes	Max Pipe Run
63 - 80	60m

Code: FCUWFIH11/4X40MM

Floor Connections with NO Isolation Valve



22MM connection to 25MM pipe

FCU Unit Sizes	Max Pipe Run
20 - 25 - 32 - 40 - 50	60m

Code: FCUF22X25MM



3/4" connection to 25MM pipe (with flexible hose)

FCU Unit Sizes	Max Pipe Run
20 - 25 - 32 - 40 - 50	60m

Code: FCUWFH3/4X25MM

*Note: Fitting on right hand side will be Kelox Windox press fitting.

COPPERFIX FCU Connection Kits

Ceiling Connections with Isolation Valve



22MM connection to 22MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUI22X22MM



22MM connection to 35MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCUI22X35MM



3/4" connecting 22MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUI3/4X22MM



1 1/4" connection to 35MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCUI11/4X35MM

Ceiling Connections with NO Isolation Valve



22MM connection to 22MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCU22X22MM



22MM connection to 35MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCU22X35MM



3/4" connection to 22MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCU3/4X22MM



1 1/4" connection to 35MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCU11/4X35MM

Image Key:
Left hand side:
Connected to FCU
Right hand side:
Copperfix press connection

Ceiling Connections with Flexible Hose and Isolation Valve



22MM connection to 22MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUIH22X22MM



22MM connection to 35MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

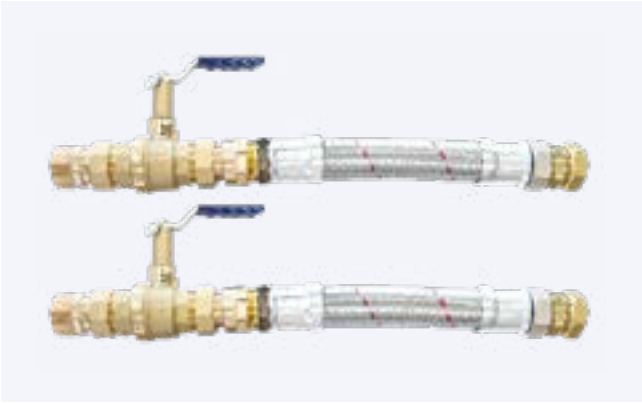
Code:FCUIH22X35MM



3/4" connection to 22MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUIH3/4X22MM



1 1/4" connection to 35MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCUIH11/4X35MM

Ceiling Connections with Flexible Hose and NO Isolation Valve



22MM connection to 22MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUH22X22MM



22MM connection to 35MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCUH22X35MM



3/4" connection to 22MM pipe

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: FCUH3/4X22MM



1 1/4" connection to 35MM pipe

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 125	60m

Code: FCUH11/4X35MM

Image Key:
Left hand side:
Connected to FCU
Right hand side:
Copperfix press connection

Floor Connections with Isolation Valve



22MM connection to 22MM pipe

FCU Unit Sizes	Max Pipe Run
20 - 25 - 32 - 40 - 50	60m

Code: FCUFI22X22MM



3/4" connecting to 22MM pipe (with flexible hose)

FCU Unit Sizes	Max Pipe Run
20 - 25 - 32 - 40 - 50	60m

Code: FCUWFIH3/4X22MM

Wall Connections with Isolation Valve



3/4" connection to 22MM pipe (with flexible hose)

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 - 25	60m

Code: FCUWFIH1/2X22MM

3/4" connection to 22MM pipe (with flexible hose)

FCU Unit Sizes	Max Pipe Run
32 - 40 - 50	60m

Code: FCUWFIH5/8X22MM

1 1/4" connection to 35MM pipe (with flexible hose)

FCU Unit Sizes	Max Pipe Run
63 - 80	60m

Code: FCUWFIH11/4X35MM

Floor Connections with NO Isolation Valve



22MM connection to 22MM pipe

FCU Unit Sizes	Max Pipe Run
20 - 25 - 32 - 40 - 50	60m

Code: FCUF22X22MM



3/4" connection to 22MM pipe (with flexible hose)

FCU Unit Sizes	Max Pipe Run
20 - 25 - 32 - 40 - 50	60m

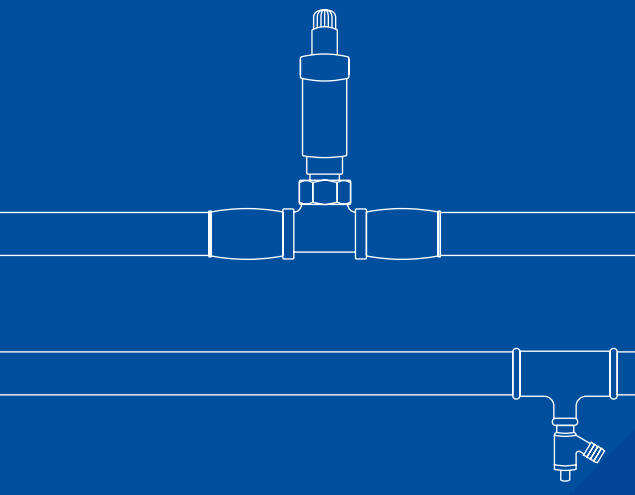
Code: FCUWFH3/4X22MM

Inline Air Removal & Drain Kits

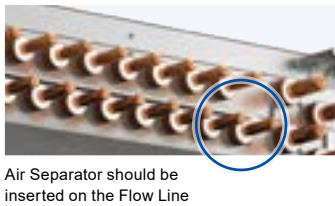
Air removal and drain kits play vital roles in maintaining the efficiency of any HVRF system. To streamline installation processes, we have meticulously crafted air removal and drain kits tailored for effortless integration into HVRF systems. These kits are engineered to simplify placement for engineers and streamline assembly for installers, ensuring seamless integration of these essential components.

Air vents facilitate the removal of air bubbles within the circulation system, enhancing its overall effectiveness and efficiency, thereby reducing the likelihood of callbacks.

Similarly, inline drain kits are indispensable for draining the system when necessary. Properly positioned within the system, these kits obviate the need to drain the entire system, as valves can be closed off to isolate and drain specific areas. This not only saves maintenance time but also conserves water, offering a more sustainable solution



FLAMCO Air Separators Kits
for de-aeration and removal of micro-bubbles
It is recommended to have one Air Separator on the HBC for the continued removal of air once the system is commissioned.



Air Separator should be inserted on the Flow Line

For KELOX Multilayer Piping



25MM

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: ILAS25MM

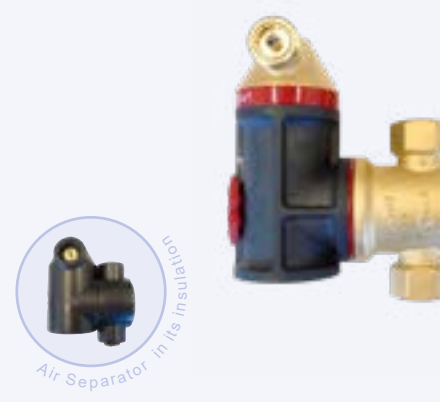


40MM

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 120	60m

Code: ILAS40MM

For COPPERFIX Piping



COPPERFIX Carrier Pipe 22MM

FCU Unit Sizes	Max Pipe Run
10 - 15 - 20 25 - 32 - 40 - 50	60m

Code: ILAS22MM



COPPERFIX Carrier Pipe 35MM

FCU Unit Sizes	Max Pipe Run
63 - 80 - 100 - 120	60m

Code: ILAS35MM

FLAMCO Auto Air Vents Kits

for removing air bubbles at high points

Air Intake Preventer supplied unattached, if auto air vent is installed on the suction/return line an air intake preventor is required to prevent air entering via the automatic air vent.

For KELOX Multilayer Piping



25MM Pipe

FCU Unit Sizes	Max Pipe Run
10 - 15	60m
20 - 25 - 32	
40 - 50	

Code: ILAV25MM

40MM Pipe

FCU Unit Sizes	Max Pipe Run
63 - 80	60m
100 - 120	

Code: ILAV40MM

Inline Drain Kits

For KELOX Multilayer Piping



25MM Pipe

FCU Unit Sizes	Max Pipe Run
10 - 15	60m
20 - 25 - 32	
40 - 50	

Code: ILD25MM

40MM Pipe

FCU Unit Sizes	Max Pipe Run
63 - 80	60m
100 120	

Code: ILD40MM

For COPPERFIX Piping



22MM Pipe

FCU Unit Sizes	Max Pipe Run
10 - 15	60m
20 - 25 - 32	
40 - 50	

Code: ILAV22MM

35MM Pipe

FCU Unit Sizes	Max Pipe Run
63 - 80	60m
100 - 120	

Code: ILAV35MM

For COPPERFIX Piping



22MM Pipe

FCU Unit Sizes	Max Pipe Run
10 - 15	60m
20 - 25 - 32	
40 - 50	

Code: ILD22MM

35MM Pipe

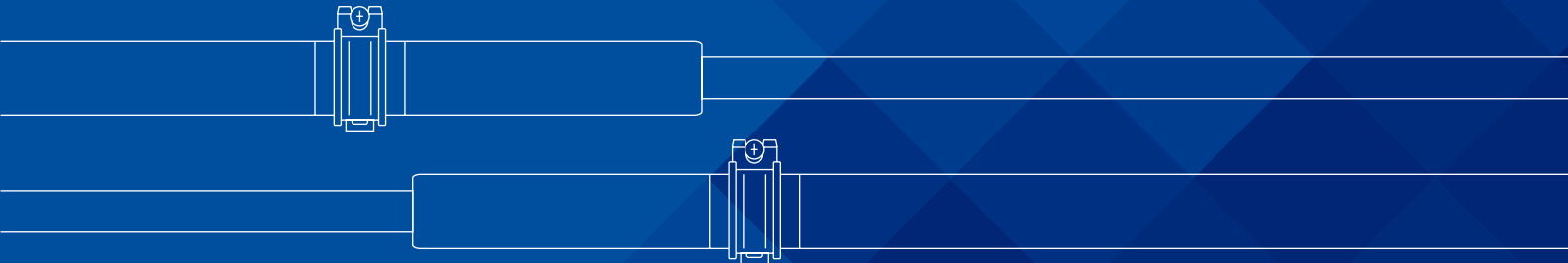
FCU Unit Sizes	Max Pipe Run
63 - 80	60m
100 - 120	

Code: ILD35MM

Pipe, Insulation & Accessories

KE KELIT is thrilled to provide not only the water piping and connections for your HVRF project but also insulation, tools, and any additional accessories required for completion.

We offer comprehensive solutions to ensure every aspect of your HVRF project is covered, and the following pages showcase all the additional products you may need.



Fittings & Accessories

KELOX Multilayer PROTEC Push & WINDOX Press Fittings

Image	Code	Size	Units (Per pack)
KELOX PROTEC - Coupling			KMP410
	73100EE0	25/25mm	10
	73600EE0	PPSU 25/25mm	10
KELOX PROTEC - Elbow 90°			KMP420
	73103EE0	25/25mm	10
	73603EE0	PPSU 25mm	10
KELOX PROTEC - Elbow 45°			KMP425
	73106EE0	25mm	10
KELOX PROTEC - Adapter Tee Female			KMP447
	73240E02	25 x 1/2"	4
KELOX PROTEC - Adapter Male			KMP450
	73202E04	25 x 3/4"	10
KELOX PROTEC - STEELFIX Press Adapter			KMP489
	73272DE0	25 x 22mm	10
KELOX WINDOX W - Coupling			KWW410
	72300EE0	Coupling 25/25mm KWU code: 72600EE0	10
	72300GG0	Coupling 40/40mm KWU code: 72600GG0	2
KELOX WINDOX W - Elbow 90°			KWW420
	72304EE0	25mm KWU code: 72603EE0	10
	72304GG0	40mm KWU code: 72603GG0	2
KELOX WINDOX W - Elbow 45°			KWW425
	72306EE0	25mm KWU code: 72606EE0	10
	72306GG0	40mm KWU code: 72606GG0	2
KELOX WINDOX W - Adapter Tee Female			KWW447
	72440E02	25 x 1/2" KWU code: 72740E02	5
	72440E04	25 x 3/4" KWU code: 72740E04	5
KELOX WINDOX W - Adapter Male			KWW450
	72402E04	25 x 3/4" KWU code: 72702E04	10
	72402G06	40 x 1 1/4" KWU code: 72702G06	2

Image	Code	Size	Units (Per pack)
KELOX WINDOX U - Brass Male Adapter			KMX450
	83202G06	40 x 1 1/4"	5
KELOX WINDOX W - Adapter Female			KWW457
	72406D02	20 x 1/2" KWU code: 72706D02	10
	72406D04	20 x 3/4" KWU code: 72706D04	10
	72406E04	25 x 3/4" KWU code: 72706E04	10
KELOX ULTRAX - STEELFIX Press Adapter			KMU489
	53272DE0	25 x 22mm	10
	53272FG0	40 x 35mm	5

COPPERFIX Fittings

Image	Code	Size	Units (Per pack)
COPPERFIX Press - Straight Coupling			COF410
	52600DD0	22mm	10
	52600FF0	35mm	5
COPPERFIX Press - Reducer M/F			COF411
	52601FD0	35 x 22mm	5
	52601FE0	35 x 28mm	5
COPPERFIX Press - Elbow 90°			COF420
	52615DD0	22mm	10
	52615FF0	35mm	5
COPPERFIX Press - Elbow 90°			COF421
	52616DD0	22mm	10
	52616FF0	35mm	5
COPPERFIX Press - Elbow 45°			COF425
	52620DD0	22mm	10
	52620FF0	35mm	5
COPPERFIX Press - Elbow M/F 45°			COF426
	52621DD0	22mm	10
	52621FF0	35mm	5
COPPERFIX Press - Tee			COF440
	52630DDD	22/22/22mm	10
	52630FBF	35/15/35mm	5
	52630FDF	35/22/35mm	5

Image	Code	Size	Units (Per pack)
COPPERFIX Press - Tee Female Thread			COF447
	52740D02	22 x 1/2"	5
	52740D04	22 x 3/4"	5
	52740F02	35 x 1/2"	5
COPPERFIX Press - Adapter Male			COF450
	52702D02	22 x 1/2"	5
	52702D04	22 x 3/4"	10
COPPERFIX Press - Straight Connector Male			COF453
	52704D04	22 x 3/4"	5
	52704F06	35 x 1.1/4"	10
COPPERFIX Press - Straight Connector Female			COF454
	52705D02	22 x 1/2"	10
	52705D04	22 x 3/4"	10
COPPERFIX Press - Union F/F			COF456
	52746DD0	22mm	5
	52746FF0	35mm	5
COPPERFIX Press - Stop End Cap			COF471
	52735D00	22mm	10
	52735F00	35mm	2

FLAMCO Clips

Image	Code	Size
FLAMCO Fixing BSH Clip		
	38363	M8-M10 x 23-26
	38364	M8-M10 x 27-30
	38365	M8-M10 x 32-35
	38367	M8-M10 x 40-44
FLAMCO Fixing CK 4 Clip		
	37503	M8/M10 x 58-61
	37504	M8/M10 x 64-67
	37506	M8/M10 x 73-76
	37507	M8/M10 x 80-83
	37508	M8/M10 x 84-89
	37509	M8/M10 x 90-95
	37510	M8/M10 x 96-101

HBC Water Filling & Expansion Accessories

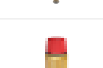
Image	Code	Size
FLAMCO		
	39413	Fixing Backplate GP M10 80 x 30mm
	70013	Fixing Threaded Rod D M10 Zinc Plated 1m
	27740	Flexvent Air Vent R 1/2 M
	27755	Air intake preventer
	27210	Pressure Gauge 63mm 1/4" Ax./3.0b, 1.5 - 3.0 bar
	27910	FlexConsole 3/4 x 1/2 for Expansion Vessel 2 - 25L
	27920	Flexfast 3/4"
	27305	Uni Fil P Filling Loop
Pegler Valve Gunmetal Draincock		
	PGL-542027	Type A to BS 2879-2, Male 1/2" (DN15) Taper Thread to BS 21
Pegler Press - dzt draining tap		
	PGL-65936	Male end for insertion into fitting. draining tap to bs 2879 type 2
Pegler Yorkshire PS913 Bronze Y Strainer Press		
	15472	15mm
BROEN Ballofix Straight Valve w/o Handle Female/Compression		
	44154500-225032	3/4 x 22mm
NEXUS VALVE RELAX		
	N80597.723	DN32 1 1/4" F, Kvs=15.5
Inoflexi - Stretch		
	M46011	DN20 x 175 - 3/4" F x 3/4" M
	M46014	DN25 x 175 - 1" F x 1" M
	M46017	DN32 x 175 - 1 1/4" F x 1 1/4" M

Image	Code	Size
S1202 VSH Super straight connector (F/M)		
	0880539	FM 22xG3/4
	0880550	FM 35xG1 1/4
Prescor PRV PN25 1.0-6.0 bar compression		
	27466	15mm
FLAMCO Flexcon Premium Expansion Vessel*		
	16942	8L, 2.5 (6bar)
	16945	12L, 2.5 (6bar)
	16948	18L, 2.5 (6bar)
	16952	25, 2.5 (6bar)
	16956	35L - 2.5 (6bar)
	16960	50L - 2.5 (6bar)

* Please refer to page 51 for sizing and pre-charge information.

Insulation Blocks

Image	Code	Description
KINGSPAN Insulation Block 60mm Wide		
	KSPAN2532	Thickness x ID = 25x32mm (OD For Clip=82mm)
	KSPAN4032	Thickness x ID = 40x32mm (OD For Clip=112mm)
	KSPAN2540	Thickness x ID = 25x40mm (OD For Clip=90mm)
	KSPAN4040	Thickness x ID = 40x40mm (OD For Clip=120mm)

Tools & Equipment

Image	Code	Description
FLAMCO		
	27902	Expansion Vessel Carrier
	27907	Precharge Pressure Tester
COPPERFIX Insertion Depth Gauge		WZ241
	54019	15mm - 108mm
KELOX Bending Spring		WZ920
	7600250	25mm
	7600200	20mm

Image	Code	Description
KELOX Calibration Tool		WZ915
	7609050	Calibration SET 6
	7609153	Calibration SET 5
KELOX 3-in-1 Multi Chamfer Tool		WZ916A
	7608100	16mm, 20mm & 25mm
KELOX Deburrer		WZ913
	7602400	40mm
KELOX Chamfer Tool		WZ915
	7609320	32mm
	7609250	25mm
	7609200	20mm
KELIT Pipe Cutter for KELOX		WZ130
	2690000	Pipe Cutter for KELOX
	2690070	Replacement Blade 16-40
KELOX Wheel Pipe Cutter		WZ935
	7600060	16mm to 75mm
	7600070	Spare Cutting Wheel 16mm - 75mm
KELOX Pipe Cutter		WZ932
	7601000	16-20mm
	7601100	16-20mm - Replacement Blades
KELOX Stopper Replacement O-Ring		KM258
	7604401	40mm
	7604251	25mm
KELOX Stopper for Pressure Testing		KM258
	7604400	40mm x 1/2
	7604250	25mm x 1/2"
KELOX ULTRAX - End cap		KMU471
	71120	25mm
COPPERFIX Press - Stop End Cap		COF471
	52735D00	22mm
	52735F00	35mm
REMS Akku-Curvo 22V Battery Bending Tool		
	580014	Basic Pack with no Bending & Back Formers
	15mm - 35mm	Tube Cutters
	22mm	Quick Tube Cutter

KELOX Multilayer Pipes Insulation Pipe Blocks & Insulation

KE KELIT Insulation Block & Clip to Suit KE KELIT KELOX Multilayer Pipes				
Code		Description	FCU Unit Sizes	Max Pipe Run
	CAB25MM	KELOX Multilayer 25mm HVRF CK Clip and NBR Insulation Block for Insulation 32mm Wall	10 - 15 - 20	60
			25 - 32 - 40 - 50	
	CAB40MM	KELOX Multilayer 40mm HVRF CK Clip and XLPE Insulation Block for Insulation 40mm Wall	63 - 80 - 100 - 125	60

KE KELIT KELOX Multilayer Pipes Coiled or Straight				
Code		Description	FCU Unit Sizes	Max Pipe Run
	7022500	KM100 KELOX Multilayer Pipe Coil - 25 x 2.5mm (50m)	10 - 15 - 20	60
			25 - 32 - 40 - 50	
	7020250	KM110 KELOX Multilayer Pipe Straight - 25 x 2.5mm (5m) (Alt Code: 7410250)	10 - 15 - 20	60
			25 - 32 - 40 - 50	
	7020400	KM110 KELOX Multilayer Pipe - 40 x 4mm (5m) (Alt Code: 7410320)	63 - 80 - 100 - 125	60

KE KELIT FLEXICELL NBR Insulation for 25MM KELOX Multilayer Pipes				
All Insulation Thicknesses are H1/VM3 Compliant				
Code		Description	FCU Unit Sizes	Max Pipe Run
	NBRT3225	FLEXICELL NBR Insulation 25mm x 32mm Wall (2m Length)	10 - 15 - 20	60
			25 - 32 - 40 - 50	

KE KELIT FLEXICELL XLPE Insulation for 40MM KELOX Multilayer Pipes				
All Insulation Thicknesses are H1/ VM3 Compliant				
Code		Description	FCU Unit Sizes	Max Pipe Run
	XLPET4040	FLEXICELL XLPE Insulation 40mm x 40mm Wall (2m Length)	63 - 80 - 100 - 125	60

COPPERFIX Tubes Insulation Pipe Blocks & Insulation

KE KELIT Insulation Block & Clip to Suite KE KELIT COPPERFIX Tubes				
Code		Description	FCU Unit Sizes	Max Pipe Run
	CAB22MM	COPPERFIX 22MM HVRF CK Clip and NBR Insulation Block for Insulation 32mm Wall	10 - 15 - 20	60
			25 - 32 - 40 - 50	
	CAB35MM	COPPERFIX 35MM HVRF CK Clip and NBR Insulation Block for Insulation 34mm Wall	63 - 80 - 100 - 125	60

KE KELIT COPPERFIX Tubes				
Code		Description	FCU Unit Sizes	Max Pipe Run
	5620XD00	COPPERFIX Copper Tube (1/2 Hard) 22 x 0.9 mm (5.8m)	10 - 15 - 20	60
			25 - 32 - 40 - 50	
	5630XF00	COPPERFIX Copper Tube (Hard) 35 x 1.2 mm (5.8m)	63 - 80 - 100 - 125	60

KE KELIT FLEXICELL NBR Insulation for 22MM & 35MM COPPERFIX Tubes				
All Insulation Thicknesses are H1/ VM Compliant				
Code		Description	FCU Unit Sizes	Max Pipe Run
	NBRT3222	FLEXICELL NBR Insulation 22 x 32mm Wall, 2m Length (Box=12)	10 - 15 - 20	60
			25 - 32 - 40 - 50	
	NBRT3435	FLEXICELL NBR Insulation 35 x 34mm Wall, 2m Length (Box=12)	63 - 80 - 100 - 125	60

ACO153

PRESSING UNIT



Press from
15 - 40mm



One hand operation



Rotatable head



Illumination of
the press area



Data transfer
via Bluetooth

- Powerful Milwaukee® Lithium-Ion batteries for reliable performance.
- Redundant switch-off and press force control with LED indication.
- Automatic pressing cycle.
- Safe handling with slip-proof rubberised housing and ergonomic design.
- Illumination of the press area for safe working.
- Analysis of the pressing tool performance via NovoCheck app.



novopress
because quality matters

Compact for high-performance efficiency

The **ACO153** has many valuable features to make working easier, faster and safer. Weighing only 1.7kg it has an LED signal located under the transparent start button which gives information about the battery and the status of the pressing unit or occurred failures. Thanks to Bluetooth Technology, device-related data can be seen via the NovoCheck app.



M Profile Jaws

Suitable for Copperfix, Steelfix & VSH Xpress Gas



U Profile Jaws

Suitable for Kelox



Hiring & Purchasing

For hiring and questions please email tools@kekelit.co.nz.



U Profile Press Jaw Set

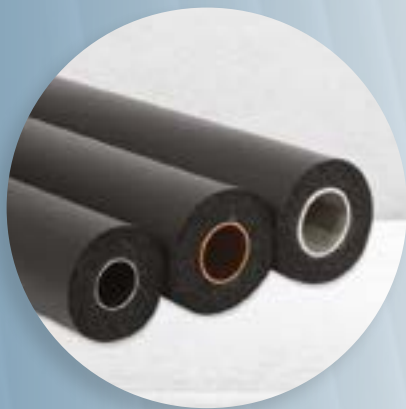
Purchase all the jaws (16-40mm) in one bundle!

Code: 48888-50



SEAL IN THE SAVINGS

Premium Insulation Solutions for Efficient Heating & Cooling



FlexiCell NBR

FlexiCell NBR is a flexible closed-cell thermal insulation material for condensation control in air-conditioning, refrigeration and chilled water installations. It is suitable for reducing thermal losses in heating and other plumbing systems.

The FlexiCell NBR range covers a range of standard pipe sizes, below are the recommended thickness for insulation suitable for HVRF piping sizes.

Tape provides excellent flexibility and is suitable for thermal insulation. The use of FlexiCell tapes is recommended for the correct installation of all FlexiCell products.

NBR Insulation

Image	Code	Description / Size
FLEXICELL NBR Insulation		
	NBRT1322	22 x 13mm Wall, 2m Length
	NBRT1325	25 x 13mm Wall, 2m Length
	NBRT1335	35 x 13mm Wall, 2m Length
	NBRT1922	22 x 19mm Wall, 2m Length
	NBRT1925	25 x 19mm Wall, 2m Length
	NBRT1935	35 x 19mm Wall, 2m Length

NBR Thermal Insulation Blocks

Image	Code	Description / Size
NBR Insulation Block		
	IBNBR3222	22mm ID x 32mm Wall (OD For Clip = 86mm)
	IBNBR3225	25mm ID x 32mm Wall (OD For Clip = 89mm)
	IBNBR3435	35mm ID x 34mm Wall (OD For Clip = 103mm)
	INBR1922	22mm ID x 19mm Wall (OD For Clip = 60mm)
	INBR1925	25mm ID x 19mm Wall (OD For Clip = 63mm)
	INBR2535	35mm ID x 25mm Wall (OD For Clip = 85mm)

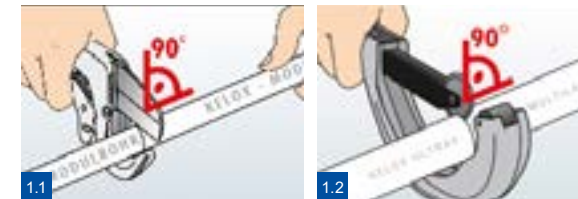
Insulation Tape & Foil

Image	Code	Size
FLEXICELL NBR Foam Gasket & Insulation Tape		
	NBRTAPE5015*	3mm x 50mm x 15m
	FLEXICELL XLPE Tape Aluminium Reinforced Foil	
	XPETAPE4850	48mm x 50m

* Tape can be used to insulate pipes and connections in tight spaces, by cutting strips and wrapping as required.

KELOX Windox W Press Fittings Installation Instructions

- Cut pipe to length**, always cut at right angles – you must straighten coils before cutting!
 - d16 – 20mm with WZ932 pipe cutter or d16 – 25mm with WZ130 pipe cutter to length.
 - d32-75mm with WZ935 pipe cutter cut to length.



- When calibrating and chamfering**, always turn the chamfering tool clockwise into and out of the pipe!
 - d16-32mm Click the universal handle onto the WZ915 calibration mandrel and turn it as far as it will go clockwise.
 - d40 Turn the WZ913 deburring tool as far as it will go clockwise.



- Alternatively, you can use an electric drill or a cordless screwdriver running at a slow speed (maximum of 500 rpm).
 

Remove the handle in this case.

This achieves the following: Cutting angle is corrected to 90°, inner pipe wall is calibrated, outside is deburred.

Circumferential inside chamfer at the end of the pipe with a depth of approx. 1mm – **carry out a visual inspection!** Pipes that have already been inserted into a fitting must **NOT** turn during calibration! If necessary, use WZ939 KELOX pipe-holding pliers!

- The plastic/aluminium chips must be removed from the calibration tool after each calibration process.**



- Push on the press connections WITHOUT exercising any force!** Push the press fitting straight **WITHOUT** tilting all the way onto the calibrated pipe end.
 - Check the correct insertion depth in the 360° viewing windows of the press fittings! Carry out pressing immediately after joining the pipe connection!



- Pressing KELOX-W**
Fit the KELOX-compatible pressing tool with KELOX pressing jaws (U-profile) of the correct size.

The pressing sleeves of the moulded parts are fitted with a double stop mechanism, which ensures that the pressing jaw is positioned correctly (U-profile) even in difficult installation situations.

Additional testing security

“leak before pressed” or the audible whistle signal are no substitute for a visual inspection. Thanks to the design, in conjunction with the special profile geometry, it is possible to reliably identify and localise unpressed fittings of d16-40mm at functional or air-pressure testing. – Just press – and done!

- The pressing procedure is complete once the pressing jaws are completely closed. Open the pressing jaws and lift the pressing tool off the pressed part. Never perform the pressing process more than once.

Proceed in the same way when using the WZ983 manual pressing tool.

Connections that were **NOT** pressed may pose a risk

particularly during an air-pressure test because of the pipe and fitting sliding apart. The longitudinal friction lock is only achieved through pressing.



When carrying out a pressure test (0.15-0.5bar) with air, it is easy to detect unpressed locations by means of an audible leakage signal.

A visual check must be performed on ALL connections.

A maximum of one rotation is allowed for installation corrections after pressing!

KELOX-PROTEC Push Fittings Installation Instructions

1. Cut pipe to length, always cut at right angles – this means that you must straighten coils before cutting!

1.1 Cut to length using the WZ932 pipe cutter for d16–20mm or the WZ130 pipe shears for d16–25mm.



1.2 Cut to length using the WZ935 pipe cutter for d32mm.

2. Calibrate and chamfer always turning the chamfering tool clockwise both going into and out of the pipe!

2.1 Click the universal handle onto the WZ915 calibration mandrel and turn it as far as it will go clockwise.

2.2 Alternatively, you can use an electric drill or a cordless screwdriver running at a slow speed (maximum of 500 rpm). Remove the handle in this case.

This achieves the following:

- Cutting angle is corrected to 90°
- Inner pipe wall is calibrated
- Outside is deburred
- Circumferential inside chamfer at the end of the pipe with a depth of approx. 1mm – **Perform a visual check.** Pipes that have already been inserted into a fitting must **NOT** turn during calibration! Use WZ939 KELOX pipe-holding pliers, if required!



3. The plastic/aluminium chips must be removed from the calibration tool after each calibration process.



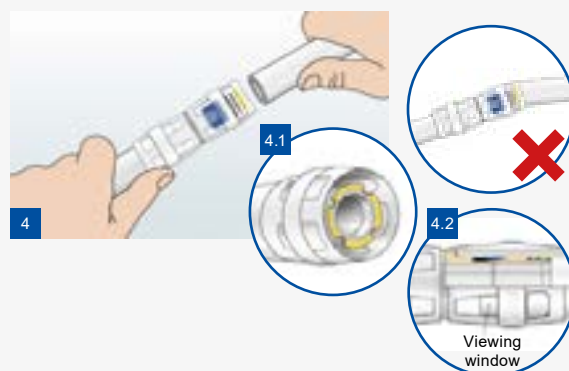
4. Push the push fitting straight WITHOUT tilting all the way onto the calibrated pipe end.

4.1 An intact protector ring prevents non-calibrated pipes from being inserted into the fitting!

This results in:

- A permanently leakproof connection.
- A longitudinal friction lock thanks to the grab ring.
- Insertion controls at the push connector!

4.2 The pipe end must **NOT** be visible in the viewing window after the pressure test and during operation!



A maximum of one rotation is allowed for installation corrections after pressing!

COPPERFIX Press Connection Assembly Instructions

1. Specification of the pipe lengths

The pipe lengths can be determined using the Z-measurement method. Check the pipe for surface damage and contamination! The fittings measurements and the Z-measurements can be taken from the program overview.

2. Separation of the pipes

Always cut to length at a right angle!

- with pipe cutter
- pipe cutter with electric motor
- fine-toothed handsaw
- mechanical saw with electric motor
- for processing copper pipes, the tools must be suitable for copper
- pipes must never be separated using separating disks, saws with rough toothings.
- Saw cuts must be carried out professionally and completely, i.e. breaking apart of cuts that are not made completely is NOT permitted!



3. Deburring the pipes

In order to avoid damaging the sealing elements when pushing on the press fittings, after cutting to length, the pipe ends must be carefully deburred and cleaned on the inside and outside.

- with WZ210 pipe deburrer up to d54 mm
- electric pipe deburrer
- Smoothing file – semi-circular (alternatively)
- sawdust or similar that adhere to the pipe must be removed
- for copper, stainless steel or C-galvanised steel pipes, separate pipe deburrers should be used.



4. Inspection of the pipes and fitting

Prior to assembly, the following points must be checked:

- the pipes must be cut off at right angles, deburred and round
- checking of the functionality and visual inspection of the O-rings in the fitting.
- check pipe and fittings for foreign bodies (dirt, burrs etc.), clean this off, if necessary.



5. Marking of the insertion depth on the pipe

In order to ensure secure and professional pressing, prior to assembly, the insertion depth must be permanently marked on the press fitting with insertion ends.

- Marking of the insertion depth with WZ240 press insertion gauge up to d54 mm.
- On pipes > d54, the insertion length is drawn on using the measuring tape.
- Fittings with insertion ends may only be shortened up to the minimum bending radius plus the insertion depth.

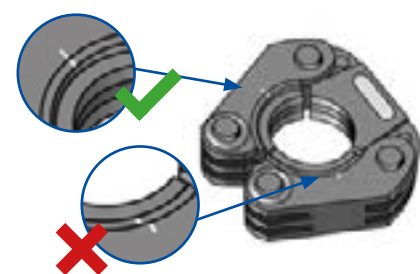
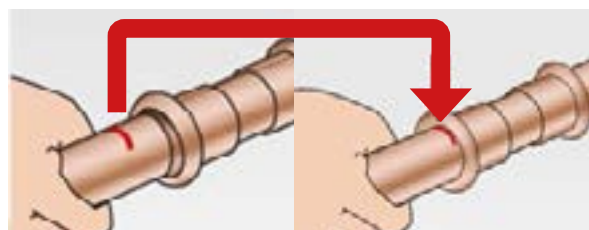
Dim	mm
d15	20
d18	20
d22	21
d28	23
d35	26
d42	30
d54	35
d66,7	50
d76,1	50
d88,9	64
d108	64

The Pressing Procedure

6. Insertion of the pipes into the press fittings

- Slide the pipe in while turning slightly and pressing in an axial direction at the same time up to the marked insertion depth.
- The marking of the insertion depth must still be visible on the pipe!

- For fittings without stop mechanism (e.g. sliding sleeves), the pipe must be pushed into at least the marked insertion depth.
- It is not permitted to “tip in” the pipe into the press fittings, as it can lead to damage to the O-ring.
- Depending on assembly, the O-ring may additionally be treated with water.
- IN NO CASE may oils or fats be used as lubricants.

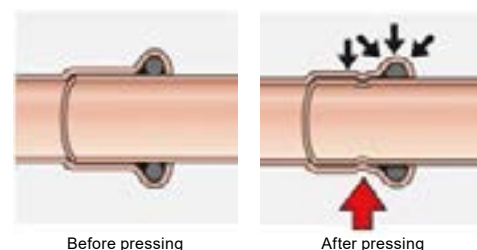


In order to ensure the proper function of the press slings, the sliding segments must be movable. It must be ensured that the markings on the sliding segments and the shells form one line in the starting position.

Attention! In the dimension d108 mm, 2 pressings are necessary with different WZ287 press adapters ZB 323 (108/1) and ZB 324 (108/2)!

- the pressing procedure must be carried out without interruption up to the end, KE KELIT offers pressing machines with a forced return
- after pressing, the marking must be visible on the pipe

The proper processing ensures a secure and permanently tight connection. The deformation of the pipe and coupler by the pressing contour is a well-proven connection with longitudinal traction.



- After 50 respective pressings in the dimensions of d42 –108mm, the joints and sliding elements press slings must be sprayed with graphite oil!
- The regular maintenance of machines and press jaws must be performed in accordance with the manufacturers' specifications. As a guideline, once per year / after 2500 pressings applies.



7. Pressing

It must be ensured that the instructions for operating the device are observed, as well as all pressings only being carried out with pressing machines in a proper condition and regular maintenance is performed according to the specifications of the pressing machine manufacturers.

- It must be ensured that the pressing jaws / press slings (M-contour) that are appropriate to the fitting dimension are used.
- Prior to pressing, the press jaw (M-contour) must be checked for dirt and cleaned off, if necessary.
- Checking of the press jaws for damage or similar.
- The groove of the press jaw / press sling must enclose the sealing chamber of the press fittings.

KE KELIT recommends:

WZ280 press jaws-M d12–35 mm

WZ281 press adapter d42–54 mm in conjunction with

WZ282 press sling-M d42–54 mm

WZ287 press adapter d67–108 mm in conjunction with

WZ288 press sling-M d67–108 mm



WZ280



WZ281/WZ287



WZ282/WZ288

Hybrid VRF Pressure Testing & Filling Sequence Instructions

It's important not to power up the system until after the system has been filled and pressure tested. All valves in the HBC are in halfway position from the factory, once activated the position of the internal valves change potentially impacting the effectiveness of the fill sequence and process that is intended to aid the removal of air from the system.

When filling use a sequence that pushes air towards the air elimination points. Only fill the system with clean water from the water network.

Filling Sequence

1. Ensure all isolation valves at the HBC and FCU are closed.
2. Disconnect / isolate the expansion vessel from the system at the FLAMCO FlexiFast for expansion vessels ≤25l or the FLAMCO FlexControl for expansion vessels >25L.
3. Set the FLAMCO Pressure reducing valve at the filling set between 0.5 and 2.0 bar, this is the optimal setting to activate the leak before press function on any press or crimp fittings within the system.
4. Open main water supply at filling set to fill HBC and use the manual air vents in the HBC to purge any air from the HBC and close once water is present.
5. Check pressure at the pressure gauge on the FLAMCO pressure reducing valve at the filling set. Note the pressure so it can be used as a reference
6. If Automatic air vents are installed at the HBC on the return/suction line (top pipe) they must be complete with air intake preventers.
7. The filling sequence will be from return line (top pipe) to flow line (bottom pipe) and from right to left at the HBC, this is the opposite direction to the water flow when in operation.
8. Opening the first isolation valve on the return line at the HBC (top right-hand side, refer to Fig.1) check pipe runs for any visible leaks.
9. Once filled open the isolation valve at the indoor unit on the return line to fill the indoor unit (Fig.1). If the indoor unit has a manual air vent open to remove air until water is present and close manual air vent.
10. Open the isolation valve on the flow side of the indoor unit (Fig.1) to fill the pipework back to the HBC and check the pipework for leaks.
11. Open the isolation valve at the HBC on the flow side (bottom pipe) refer to Fig.1.
12. Open manual air vent at the HBC until water is present and close.

Remove/push any additional air through drain valve

13. Close the Isolation valve on the flow side (bottom pipe, refer to Fig.2, next page) at the HBC keeping the isolation valve on the return side (top pipe, refer to Fig.2) at the HBC and the isolation valves at the indoor unit open.
14. Attach a hose to the drain point installed at the HBC on the flow side (bottom pipe, Fig.2). Open drain and run water for 10 minutes or until such time as the air pockets and construction debris have been removed for these pipe runs.
15. Once all air pockets and construction debris have been removed from the first pipe runs, close the isolation valve on the flow and return side at the HBC. These pipe runs have now been filled and

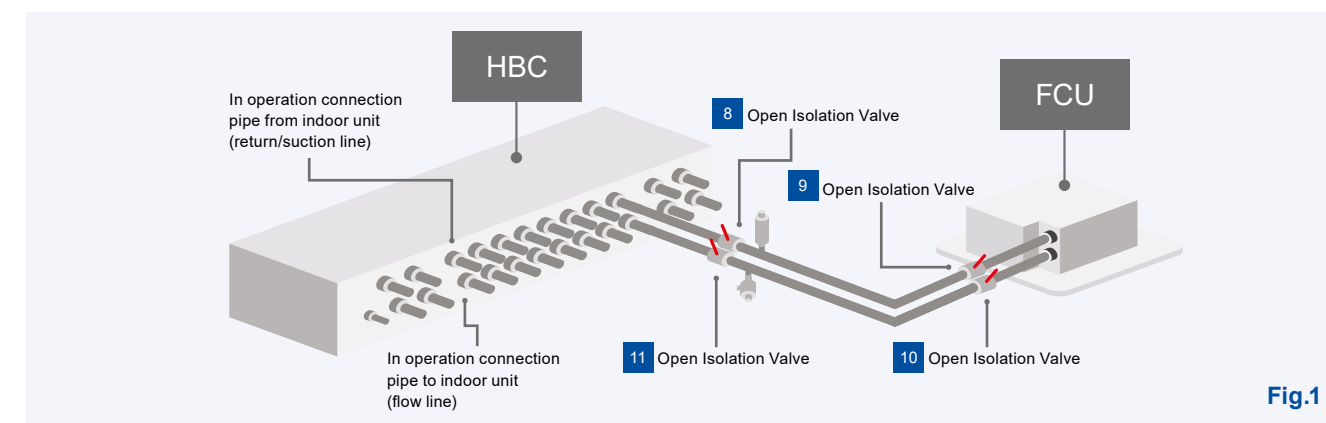


Fig.1

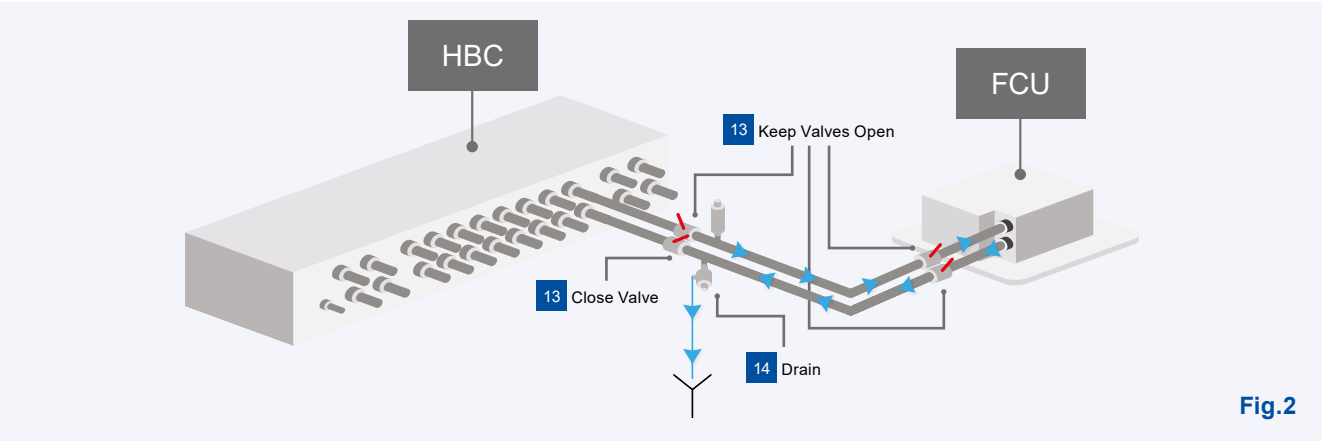


Fig.2

visually checked for any filling leaks, and have had any construction debris removed and any air pockets purged.

Repeat Sequence

- 16. Repeat this sequence until all pipe runs have been filled and checked for leaks.
- 17. Once the whole system has been filled, open all isolation valves at the HBC and FCU so the system is fully open.
- 18. Close isolation valve at the filling loop on the incoming mains water at the fill set before the FLAMCO pressure reducing valve, the pressure on the pressure gauge installed on the FLAMCO pressure reducing valve should read the reference pressure described in step 5.
- 19. Leave the system under filling pressure for 30min to stabilise, check pressure gauge and observe the pressure, leave for another 30min and if pressure is maintained and no drop in pressure is observed the filling sequence and fill test is complete. If a drop in pressure is observed, repressurise, check the system for leaks and repeat the process until the 30min filling pressure test can be completed without any drop in pressure.

Pressure Testing

- 20. Open mains water isolation valve at the water fill set, adjust pressure reducing valve to 3bar (300kPa), leave under pressure for 30 min and allow system to stabilise, during this time check all pipework for leaks. If the mains water pressure is insufficient to pressurise the system to 3bar the use of a pressure test pump will be required.
- 21. Once the system has stabilised and the pressure is at 3bar, close the two isolation valves on the filling loop on the mains water side of the filling set and before the FLAMCO pressure reducing valve and disconnect the flexible hose at the filling loop.

- 22. Leave for 30 minutes, and if no reduction in pressure is observed, the pressure test is complete. If a reduction in pressure is observed, repressurise, check the system for leaks, and repeat the process.

Final Filling

- 23. Set the pressure reducing valve to 1.6bar, drain a small amount of water from a drain point to reduce the pressure in the system.
- 24. Check the pre-charge setting on the expansion vessel and reconnect.
- 25. Reconnect the flexible hose at the filling loop and open the isolation valves at the filling loop so the mains water is connected.
- 26. Check the pressure reducing valve is set to 1.6bar by reading the pressure gauge, if over pressured relieve pressure through drain point.
- 27. The system can remain connected to the mains water supply if the double check valve supplied with the filling loop provides sufficient backflow prevention. If a higher level of backflow prevention is required, the flexible hose at the filling loop can be disconnected to provide a backflow prevention break.

Commissioning

- 28. The system is now ready for commissioning, it is recommended to leave the filling water connected and on during commissioning
- 29. During the commissioning sequence air within the water will form into air bubbles and be purged from the Automatic Air Vents.
- 30. Depending on the type of building and the backflow prevention requirements the double check valve provided with the systems filling loop could provide sufficient backflow prevention. If a higher level of backflow prevention is required the two isolation valves provided with the filling loop will need to be isolated and the filling loop hose disconnected to provide a backflow break.

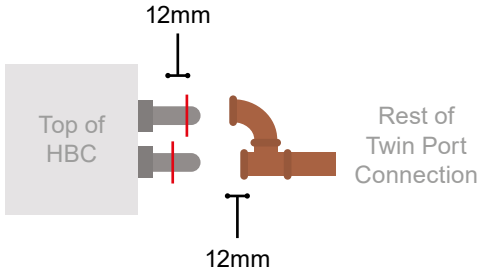
Additional Notes

HBC Automatic Air Vent Kits:

- All Automatic Air Vent (AAV) kits will be pre-assembled with a 'Manual Air Vent' in case space does not allow for AAV. Automatic Air Vents will be supplied in the kit and can be easily installed on site.
- Automatic Air Vent in kits are located on the flow/return line at the HBC for ease of installation. When AAV are installed on the return/flow line an air intake preventer is provided with the AAV.

HBC Twin Port Kits:

With Twin Port kits there is a 12mm space difference between the end of the Tee & 90° elbow that connect to the HBC. This will need to be compensated when connecting to the HBC ports illustrated below.



Main HBC Expansion Vessel Connection Kit (8L - 25L)

The FLAMCO Flexfast 3/4" is included so that the expansion vessel can be removed for service or maintenance without draining the system. There is an integral shut off / isolation valve that is activated when the expansion vessel is removed.

Expansion Tank Connection Kit to Main HBC Unit (35-50L)

The FLAMCO FlexControl 3/4 M is included so that the expansion vessel can be removed for service or maintenance without draining the system. There is an integral shut off / isolation valve that can be activated when the expansion vessel is to be serviced.

Nut & Olive Tightening Guide

Installers must ensure that olive and nut connections are tightened correctly to achieve a secure seal. Refer to the table for the precise number of turns required for each

connection size. To assist with assembly and minimise the risk of thread damage, [CRC's Food Grade Silicone Grease](#) lubricant may be applied to the nut.

Nominal Pipe Size	Number of Turns
15mm	¾ to 1
22mm	¾ to 1
35mm	1 to 1¼

HVRF Expansion Vessels Install and Sizing Guide

HVRF Standard conditions allow for:

- 1.6 bar static filling pressure.
- 3.7 bar pressure relief valve (PRV).
- 1.5 bar expansion vessel pre-charge.

The below table provides a rule of thumb expansion vessel sizing chart for **water only**:

Expansion Tanks	Max System Volume
8L	140L
12L	200L
18L	300L
25L	400L
35L	600L
50L	800L

Important things to note:

- The installing/commissioning contractors will need to check, (and if required) adjust the pre-charge setting in the provided expansion vessel.
- KE KELIT often supply 6 bar rated vessels with a 2.5bar pre-charge, this means pressure can be released until a desired pre-charged pressure is reached.
- You must always check the pre-charge setting on the expansion vessel (and adjust if required) **prior to connecting to the system.**
- For servicing, the expansion vessel must be disconnected from the system to check the pre-charge pressure.

Contact KE KELIT for support and project specific expansion vessel sizing calculations.

Errors and omissions excepted. While we strive to ensure the accuracy and completeness of the information provided in this catalogue, we cannot guarantee that all content is free from errors or omissions. Product specifications, availability, and pricing are subject to change without notice. Refer to our online product portal for up-to-date information.



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