

MOISTURE INDICATORS

Introduction

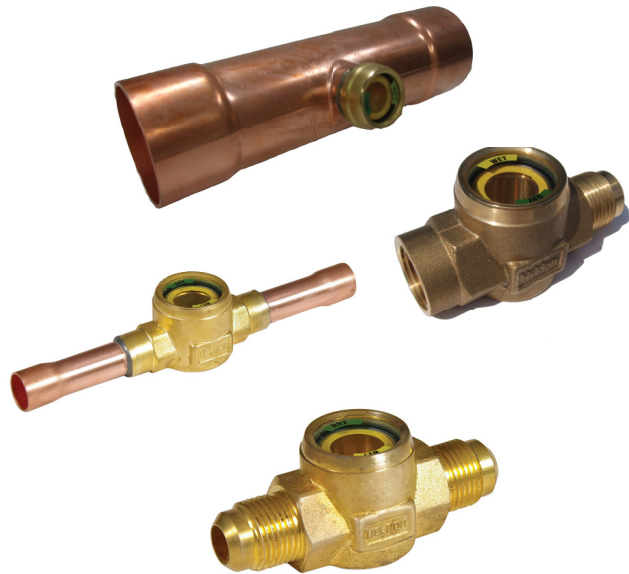
Liquid Moisture Indicators are used in refrigeration and air conditioning systems as a means of visually checking refrigerant quality and quantity.

This moisture indicator is particularly important with HFC refrigerants using POE oil due to the hygroscopic nature of the POE oil. The combination of HFC refrigerants and the potential moisture present in the POE oil can result in the formation of undesirable acids and alcohol which can be detrimental to the refrigeration and air-conditioning system. They are also ideally suited for installation in the oil return line between the oil separator and the compressor.

The Henry moisture indicator features a hermetically sealed glass, a large diameter viewing window and highly visible moisture indicator.

The Henry moisture indicator is machined from forged brass and the glass is hermetically sealed into the housing incorporating a double seal design to provide a superior seal on the glass and a longer service life.

Suitable for liquid, suction and oil lines with all fluorinated refrigerants and oils up to 4,200 kPa Safe Working Pressure.



Features

1. Designed for maximum flow and minimal pressure drop.
2. Solid forged brass construction.
3. Solid copper extended connections. (Solder version)
4. Suitable for all refrigerants up to 4,200 kPa (not NH₃).
5. Large sight glass and indicator.
6. Working range -40°C to 85°C .

Benefits

1. Negligible lost in system efficiency.
2. Strong stable platform.
3. Easy installation and soldering.
4. Compatible with most fluorinated refrigerants and oils.
5. Better viewing angle and clarity.
6. Suitable for a wide range of applications.
7. Quick identification of flow and liquid quantity.

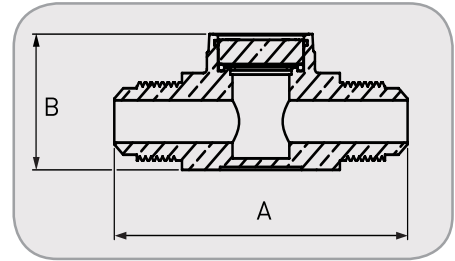
Manufacturing Standards

Manufactured in accordance with AS/NZS 1677.2

Dimensions and Capacities

Male SAE to Male SAE

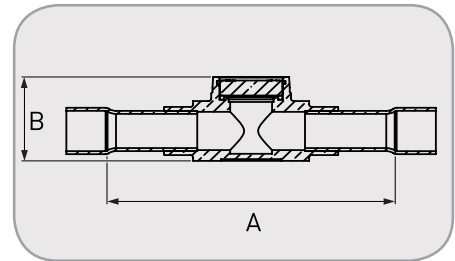
Part No.	Connection	Dimensions (mm)		Weight (kg)
		Lay-In Length		
		A	B	
650-0404H	1/4 MSAE x 1/4 MSAE	72	27	0.55
650-0606H	3/8 MSAE x 3/8 MSAE	76	27	0.18
650-0808H	1/2 MSAE x 1/2 MSAE	83	34	0.23
650-1010H	5/8 MSAE x 5/8 MSAE	88	34	0.24



650H Series

Female Solder with Extended Copper Tails

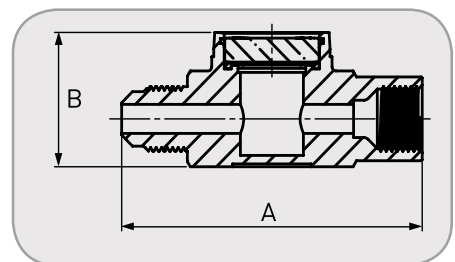
Part No.	Connection	Dimensions (mm)		Weight (kg)
		Lay-In Length		
		A	B	
665-0404H	1/4 ID x 1/4 ID extended tails	85	27	0.17
665-0606H	3/8 ID x 3/8 ID extended tails	99	27	0.18
665-0808H	1/2 ID x 1/2 ID extended tails	122	27	0.18
665-1010H	5/8 ID x 5/8 ID extended tails	116	33	0.24
665-1212H	3/4 ID x 3/4 ID extended tails	141	33	0.26



665H Series

Male SAE to Female SAE

Part No.	Connection	Dimensions (mm)		Weight (kg)
		Lay-In Length		
		A	B	
655-0404H	1/4 MSAE x 1/4 FSAE	61	27	0.55
655-0606H	3/8 MSAE x 3/8 FSAE	76	33	0.18
655-0808H	1/2 MSAE x 1/2 FSAE	72	33	0.23

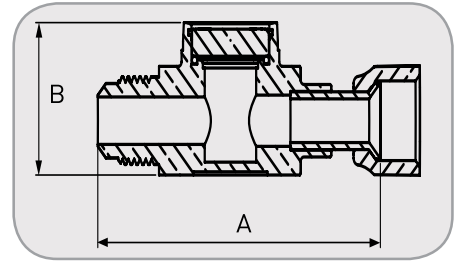


655 Series

Dimensions and Capacities

Male SAE to Female SAE

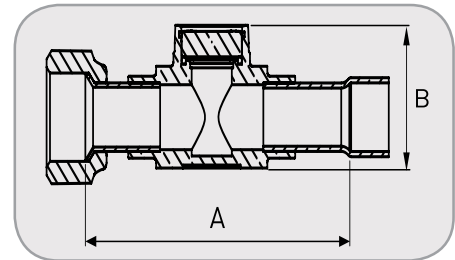
Part No.	Connection	Dimensions (mm)		Weight (kg)
		Lay-In Length		
		A	B	
658-0404H	1/4 MSAE x 1/4 F/Swivel	77	27	0.17
658-0606H	3/8 MSAE x 3/8 F/Swivel	82	27	0.20
658-0808H	1/2 MSAE x 1/2 F/Swivel	88	33	0.25
658-1010H	5/8 MSAE x 5/8 F/Swivel	94	33	0.26



658 Series

Male SAE to Female SAE

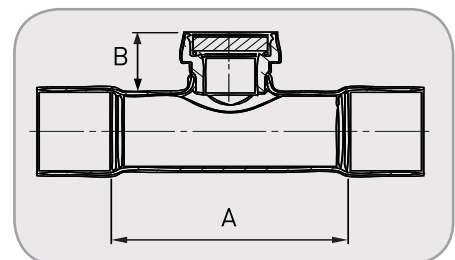
Part No.	Connection	Dimensions (mm)		Weight (kg)
		Lay-In Length		
		A	B	
659-0404H	1/4 ID SOLDER x 1/4 F/Swivel	82	27	0.17
659-0606H	3/8 ID SOLDER x 3/8 F/Swivel	94	27	0.20
659-0808H	1/2 ID SOLDER x 1/2 F/Swivel	107	27	0.20
659-1010H	5/8 ID SOLDER x 5/8 F/Swivel	108	33	0.25



659 Series

Female Solder Single Port

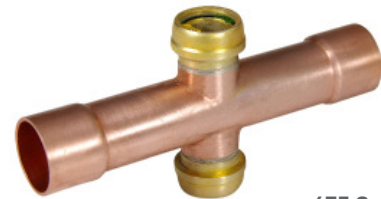
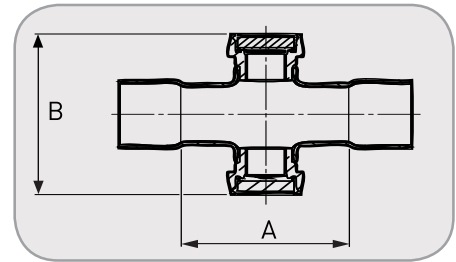
Part No.	Connection	Dimensions (mm)		Weight (kg)
		Lay-In Length		
		A	B	
670-1414	7/8 ID Solder	122	24	0.22
670-1818	1 1/8 ID Solder	114	24	0.29
670-2222	1 3/8 ID Solder	151	24	0.49
670-2626	1 5/8 ID Solder	145	24	0.51
670-3434	2 1/8 ID Solder	132	24	0.74



670 Series

Dimensions and Capacities

Female Solder Dual Port				
Part No.	Connection	Dimensions		Weight (kg)
		Lay-In Length A	B	
675-1414	7/8 ID Solder	122	72	0.41
675-1818	1 1/8 ID Solder	114	78	0.44
675-2222	1 3/8 ID Solder	151	84	0.50
675-2626	1 5/8 ID Solder	145	91	0.88
675-3434	2 1/8 ID Solder	132	104	0.65



675 Series

Moisture Content vs Colour Change

Indication (ppm of water) Liquid Temperature (°C)	Dry (Green)			Caution (Light Green)			Wet (Yellow)		
	25	40	50	25	40	50	25	40	50
R12	<5	<5	<5	5-25	5-40	5-70	>25	>40	>70
R134a (<20)	<35	<60	20-130	35-160	60-200	>130	>160	>200	-
R22	<25	<35	<50	25-145	35-200	50-290	>145	>200	>290
R407C(<25)	<40	<60	25-150	40-230	60-360	>150	>230	>360	-
R410A(<30)	<60	<75	30-170	60-280	75-420	>170	>280	>420	-
R404A/507 (<15)	<25	<45	15-120	25-150	45-180	>120	>150	>180	-
R502	<5	<5	<10	5-50	5-90	10-150	>50	>90	>150

ROTALOCK SIGHT GLASSES

Introduction

Sight Glasses are used throughout the refrigeration and air-conditioning industry as an easy means of visually checking the levels of liquid refrigerant and compressor oil in a system. Typically located on liquid receivers, suction accumulators, surge drums, liquid level columns and oil management systems, sight glasses provide a quick and easy means of determining the operating status of the system and its liquid levels.

Heldon is excited to announce the newest addition to their ever expanding range: Rotalock Sight Glasses.

In what will prove to be another step forward in the area of monitoring and serviceability for the industry, Heldon offer the convenience of a Sight Glass with the superior seal tight locking joint of a rotalock fitting.

A industry favourite, the rotalock utilises a connection that consists of both a male & female component, that when joined compress a sacrificial teflon washer. By compressing this teflon washer, a seal is created that can maintain its integrity regardless of large changes in temperature and constant system vibration.



Features

1. A nickel plated steel body with a range of fused glass viewing lenses ensure excellent visibility for the operator.
2. Sight Glass available with either 1 1/4" or 2 1/4" Rotalock nut. Combined with a dedicated teflon washer, this assembly provides a superior seal tight locking joint.
3. Simple 3 piece design incorporates a locking nut, glass lens assembly and "Quad-Ring" teflon washer.
4. Four different styles available: Clear lens/Dimple lens/Frost Shield/Clear lens with Ball Float (on 1 1/4" only).
5. The Rotalock Sight Glass range is suitable for all fluorinated refrigerants and their oils.

Benefits

1. Nickel plating for outstanding corrosion resistance. Rugged fused glass can withstand the toughest conditons. Choose the lens to best suit your application.
2. Rotalock fittings provides enhanced sealing capability and less chance of leakage. Rugged UNF thread ensures the nut hangs on tight.
3. Easy installation with no special tooling required.
4. A glass lens option to suit every need that is supplied ready for installation.
5. The Rotalock Sight Glass is perfectly suited for use in today's industry.

Installation

When installing a Rotalock Sight Glass please observe the following precautions:

- The Rotalock Sight Glass is best positioned in an accessible location away from possible traffic and harm.
- A compatible male threaded spigot is required to be in place on the refrigeration plant.
- The refrigeration system must be pumped down or all refrigerant recovered before installation is to occur. If sight glasses are to be installed as part of an oil management system, oil must be isolated and equipment free of pressure before commencing work.
- Carefully remove assembly from packaging.
- Visually check parts before installation, for any signs of apparent damage.
- Make sure parts are clean and free of debris.
- Carefully fit new Quad-Ring teflon washer into the rotalock spigots face groove. Lubricate the teflon washer with clean refrigeration oil.
- Assemble sight glass and thread on rotalock nut finger tight. Tension to the recommended torque setting specified. Note that over-tensioning a Rotalock Sight Glass can result in fracturing the glass lens and so void warranty.
- Before putting into service, thoroughly leak test the complete assembly under pressure.

Caution

Only competent, trained refrigeration mechanics should install or service Rotalock Sight Glasses. The stated pressure and temperature limits should never be exceeded. Sight Glass lenses should be inspected routinely and replaced if damaged. Escaping refrigerant is hazardous to both the environment and to your health.

Specifications

- Operating temperature range of -40°C to 85°C
- Safe Working Pressure: 5,200 kPa
- Burst Test Pressure: 26 MPa

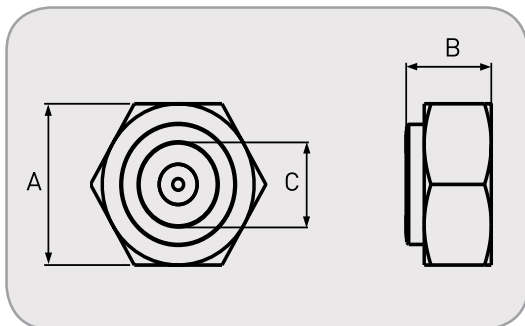
Manufacturing Standards

Manufactured in accordance with AS/NZS 1677.2

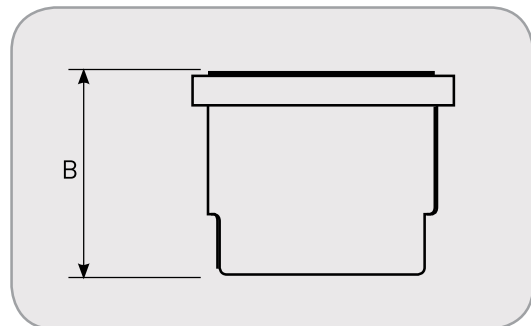
Dimensions and Capacities

Part No.	Description	Rotalock Connect.	Dimensions (mm)					Weight (kg)
			Nut Size	Lens Size	Lens Dia.	E	D	
			A	B	C	E	D	
647-2020-1	R/L Sight Glass - Dimpled	1 1/4" - 12 UNF	35	11	19	20	16	0.072
647-2020-2	R/L Sight Glass - with Ball Float	1 1/4" - 12 UNF	35	20	19	20	16	0.086
647-2020-3	R/L Sight Glass - Flat	1 1/4" - 12 UNF	35	11	19	29	16	0.072
647-2020-4	R/L Sight Glass - Frost Shield	1 1/4" - 12 UNF	35	25	17	35	16	0.135
647-3636-1	R/L Sight Glass -Frost Shield	2 1/4" - 12 UNF	65	31	38	46	25	0.454
647-3636-2	R/L Sight Glass - Dimpled	2 1/4" - 12 UNF	65	21	38	37	25	0.401

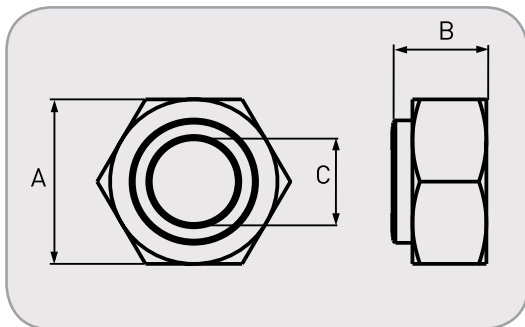
647-2020-1



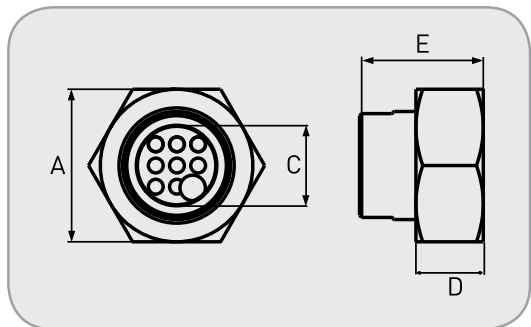
Sight Glass Frost Shield



647-2020-3



647-2020-2



Part Number Structure and Nomenclature

To demonstrate Heldon nomenclature, a typical part number would read #647-2020-1. The following table will explain further:

Nomenclature			
Series Number	Glass Body Size	Rotalock Connection Size	Glass Type
i.e. 647-XXXX-X	i.e 647-20XX-X	i.e 647-XX20-X	i.e 647 - XX20-1 or 2 or 3 or 4
	i.e 647-36XX-X	i.e 647-XX36-X	i.e 647 - XX36-1 or 2
647 = Rotalock Sight Glass	20 = 1 1/4" OD Body	20 = 1 1/4" - 12 UNF	20-1 = Bulls eye with frost shield
	36 = 2 1/4" OD Body	36 = 2 1/4" - 12 UNF	20-2 = Plain with Ball Float
			20-3 = Plain
			20-4 = Plain with frost shield
			36-1 = Plain
			36-2 = Bulls eye

Quad Ring Teflon Washer	
Part No.	Size
800-26XX-20	1 1/4" Sight Glass
800-26XX-36	2 1/4" Sight Glass

Heldon Recommended Rotalock Sight Glass Torque Settings

Rotalock Stub Size	Torque Setting (N.m)
Rotalock 1 1/4" - 12 UNF	120-135
Rotalock 2 1/4" - 12 UNF	165-190

Please note that all torque settings must be adhered to as over tensioning the nut could result in fracturing the glass lens.

SIGHT GLASSES

Introduction

Ideal for the visual inspection of liquid refrigerant or oil levels, Heldon now offer a complete range of plated steel bodies, MNPT threaded, Sight Glasses with built-in fused lense. Suitable for a wide variety of pressure vessel applications, these sturdy items are suited for most refrigerants and oils.

Applications

Sight glasses are used in refrigeration and air conditioning systems for both liquid refrigerant and oil applications.

The SG-12 series sight glasses are suitable for HCFC and HFC refrigerants, along with their associated oils.

The SG -10 and SG -11 series sight glasses are suitable for HCFC, FC and ammonia refrigerants, along with their oils.

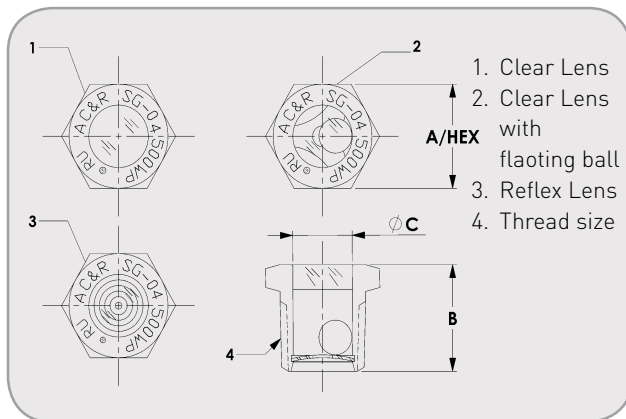


Features

1. Three sight glass lens options - Reflex, Clear and Clear with float ball.
2. Hermetically sealed fused glass construction.
3. Plated Steel body.

Benefits

1. Provides flexibility of application.
2. Avoids potential leakage path.
3. Corrosion resistant.



Technical Specifications

Safe Working Pressure = 3,450 kPa

SG-10 and SG-11 Series:

Allowable Operating Temperature = -40°C to 160°C

SG-12 Series:

Allowable Operating Temperature = -40°C to 90°C

Manufacturing Standards

Manufactured to UL207

Part No.			Thread Size NPT	Dimensions (mm)			Weight (kg)
Clear	Reflex	Clear W/Ball		A Hex	Length B	Dim. C	
SG-1004	SG-1104	SG-1204	1/2	23.9	24.3	14.3	0.03
SG-1006	SG-1106	SG-1206	3/4	28.4	26.9	19.1	0.06
SG-1008	SG-1108	SG-1208	1	35.1	33.6	23.8	0.12
SG-1010	SG-1110	SG-1210	1 1/4	44.5	35	30.2	0.20
SG-1012	SG-1112	SG-1212	1 1/2	50.8	35.9	33.4	0.29
SG-1016	SG-1116	SG-1216	2	63.5	36.1	41.4	0.46

SG-12 series is not suitable for use with ammonia

CAUTION: Overtightening should be avoided to prevent sight glass cracking

LIQUID INDICATORS

Introduction

Liquid Indicators are ideal for the visual inspection of refrigerant or oil levels. Heldon offer a new range of plated steel and ductile iron liquid indicators suitable for use with ammonia. Perfect for a wide variety of applications including pressure vessels.

LI-50 series

The LI-50 series incorporating a Bulls-Eye with reflex lens. These pieces have the ability to indicate the actual level of a liquid without requiring the installation of a second indicator for light admission. Their reflex lens configuration appears dark in the presence of liquid and light when liquid is absent.

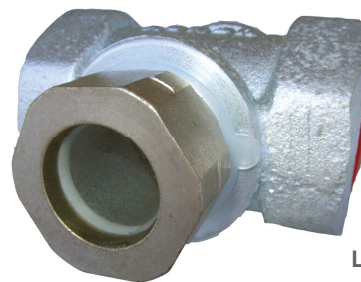
Also, to properly view systems internal liquid levels under frosting conditions or when insulation material is present, a Frost Shield option is available. Easily press fitted in front of the Bulls-Eye, this clear perspex cylinder aids clarity of vision for the operator.

LI48 series

The LI48 series is an inline Liquid Indicator featuring double port glass viewing windows. Constructed from plated ductile iron and steel these pieces are recommended for use as a sight glass for oil, gas or liquid ammonia.



LI-50 series



LI48 series

Features (LI-50 series)

1. Bulls-Eye with reflex lens.
2. Removable top of hermetically sealed fused glass construction.
3. Plated steel construction; weld type housing ASME SA36 (ASTM A36)
4. Frost Shield option available.

Benefits

1. Provides clear view of systems internal liquid levels.
2. Avoids potential leakage path.
3. The housing is designed to be permanently welded into the pressure vessel.
4. Allows clear viewing of liquid levels under frosting conditions or when insulation material is present.

Features (LI48 series)

1. Double Port glass viewing windows.
2. Plated ductile iron and steel construction.
3. Fused glass viewing windows.

Benefits

1. Easy visual inspection.
2. Designed for long life.
3. Avoids potential leak paths.

Manufacturing Standards

Manufactured to accepted International Boiler and Pressure Vessel Codes.

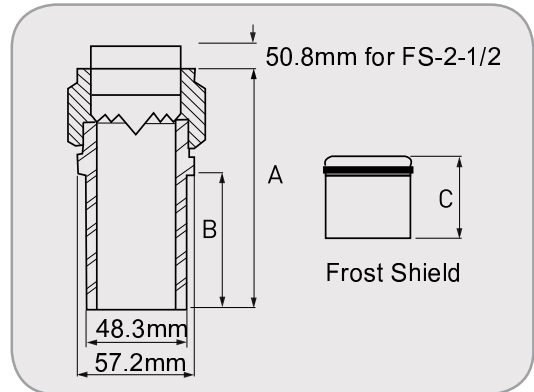
Maximum Working Pressure: 4,820 kPa (LI-50 series) (700 psi)
3,510 kPa (LI48 series)

Allowable Operating Temperature: -40°C to 121°C (LI-50 series)
-29°C to 121°C (LI-48 series)

Dimensions and Capacities



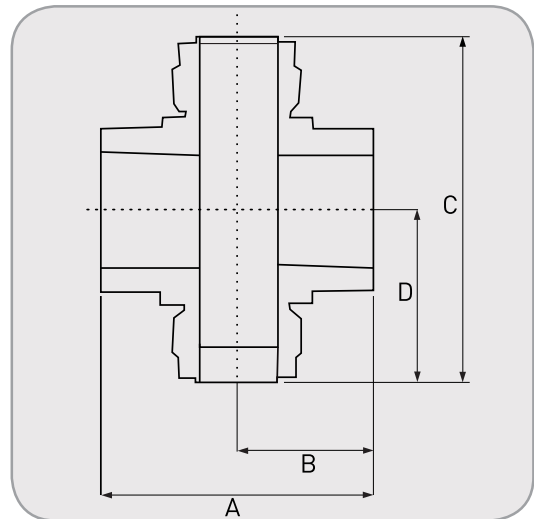
LI-50 series



Part No.	Item	Size & Type Connection	Dimensions (mm)		Weight (kg)
			A	B	
LI-50-2W	Reflex Lens	Weld	69.9	19.1	0.68
LI-50-4W	Reflex Lens	Weld	114.3	63.5	0.91
Part No.	Item		Use to Temperature	Dimension C (mm)	
FS-2-1/2	Frost Shield		-29°C	63.5	0.11



LI48 series



Part No.	Connection Size (Inch)	Dimensions (mm)			
		A	B	C	D
LI48A-1/2	1/2 FNPT	76.2	38.1	95.3	47.8
LI48A-3/4	3/4 FNPT	76.2	38.1	95.3	47.8
LI48A-1	1 FNPT	76.2	38.1	95.3	47.8

VIBRATION ELIMINATORS

Introduction

The function of a Vibration Eliminator is to absorb compressor vibration. By installing a vibration eliminator, the risk of damage to system equipment and pipework is reduced.

The Vibration Eliminator is constructed of a deep pitch corrugated stainless steel hose covered with a stainless steel braid. The hose and braid are reinforced by stainless steel ferrules at each end and are connected to copper tube ends for the V series by a high temperature braze alloy or are TIG welded to stainless steel tube ends for the VS series.

A vibration eliminator are suited for installation in both the suction and discharge lines of refrigerants and air-conditioning systems.

Vibration eliminators are suitable for HCFC, HFC and CO₂ refrigerants, along with their associated oils.

Note: Heldon 1400 series Vibration Eliminators have been replaced by the Henry V-Series.



Features

1. Proven design.
2. Large hose ID.
3. Stainless steel hose and braid.
4. Stainless steel ferrules.
5. Helium leak tested.
6. CE marked and UL listed (V series only).
7. VS Series constructed entirely of stainless steel.
8. Features VS Series rated to 60 bar MWP up to 1/3/8" I.D.

Benefits

1. Long life guaranteed.
2. Minimal pressure drop.
3. Corrosion resistant.
4. Providing superior strength.
5. Known to be leak proof.
6. Fully tested to recognised international standards.
7. No need to wet rag the VS series during installation.
8. Ideal for CO₂ (subcritical) applications.

Installation – Main issues

Take special care to install vibration eliminators horizontally when used in suction lines or where operating temperatures are below freezing point. Condensation may form on the outside of the unit and if installed vertically this may accumulate in the lower braid collar. In subsequent freezing this may deform and destroy the unit. If vertical installation is the only option, or indeed if condensation is possible with horizontal mounting, the entire flexible section, ferrules and braided hose, must be covered with a watertight synthetic material e.g. a heat shrinkable PVC sleeve.

The ferrule and start of braid must be wet-ragged for brazing when installing the V series to prevent overheating and subsequent damage.

The V Series

Each unit is constructed of a deep pitch corrugated hose covered with a stainless steel braid. The hose and braid are reinforced by ferrules at each end and connected to copper tube ends by a high temperature braze alloy.

The VS Series

The VS Series is based on the proven design of the V series with a few modifications. The VS series is constructed entirely of stainless steel and all joints are TIG welded. Consequently there is no need to wet-rag the product during the installation process. The maximum working pressures are higher, as detailed in the table.

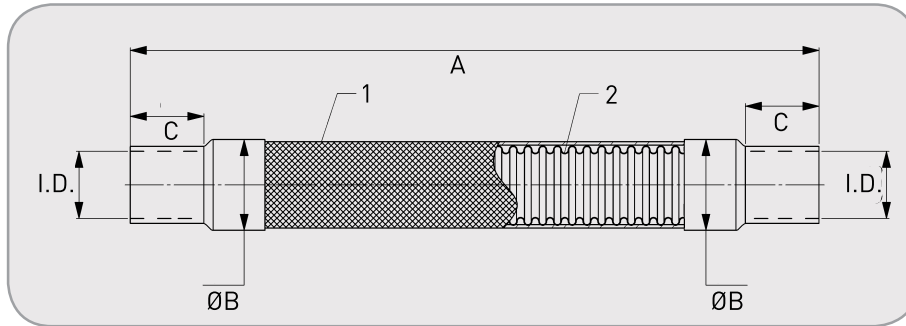
Manufacturing Standards

Manufactured to CE and UL classifications

Safe Working Pressure: As per table

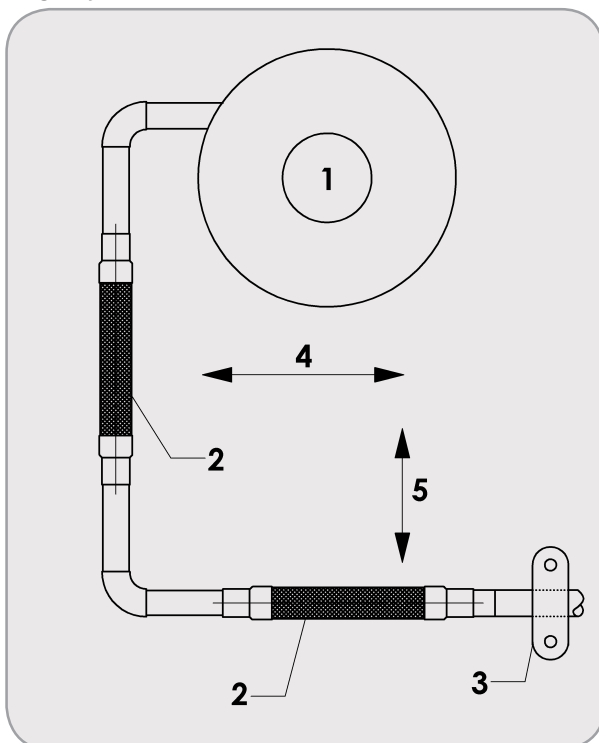
Allowable Operating Temperature: -40°C to 120°C

Dimensions and Capacities

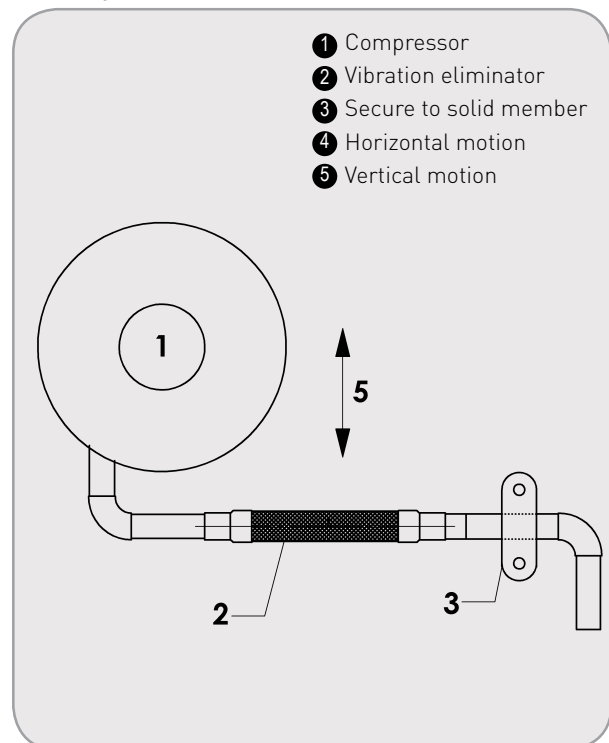


Part No.		Connection Size ID (Inch)	Dimensions		Hose Internal Dia.	MWP (kPa)		Weight (kg)
V Series	VS Series		A	B		V Series	VS Series	
V-3/8	VS-3/8	3/8	215	18	10	4480	6000	0.14
V-1/2	VS-1/2	1/2	225	18	13	4480	6000	0.15
V-5/8	VS-5/8	5/8	247	20	16	4480	6000	0.21
V-3/4	VS-3/4	3/4	266	23	19	4480	6000	0.32
V-7/8	VS-7/8	7/8	301	25	23	4480	6000	0.31
V-1-1/8	VS-1-1/8	1 1/8	329	32	29	4130	6000	0.42
V-1-3/8	VS-1-3/8	1 3/8	392	35	35	3790	6000	0.66
V-1-5/8	VS-1-5/8	1 5/8	425	40	42	3510	6000	0.98
V-2-1/8	-	2 1/8	520	50	55	2750	-	1.46
V-2-5/8	-	2 5/8	613	60	67	2410	-	2.60
V-3-1/8	-	3 1/8	680	70	80	2200	-	3.60

Single system



Double system



- ① Compressor
- ② Vibration eliminator
- ③ Secure to solid member
- ④ Horizontal motion
- ⑤ Vertical motion

DISCHARGE MUFFLERS

Introduction

The function of a Discharge Muffler is to reduce noise in the discharge line of a refrigeration or air-conditioning system. Mufflers have internal baffles designed for minimum pressure drop. These baffles change the velocity of the discharge gases passing through the muffler. This results in a dampening effect on high frequency sound waves on high speed compressors. Pulsating waves are also muffled in both low speed and high speed compressors.

The muffler is designed to be installed directly after the compressor. They are sized to the discharge line of the compressor.

The product range is designed for use with HCFC and HFC refrigerants, along with their associated oils.

Note: Henry S-6 Series Discharge Mufflers is replacing Heldon 3400 Series.



S-6XXX Series

Features

1. Designed for maximum flow and minimal pressure drop.
2. Robust design.
3. Bi-directional flow.
4. Special baffle design.
5. Manufactured and tested to relevant pressure vessel codes.
6. Powder coated finish.
7. Oil drain passage.

Benefits

1. Negligible loss in system efficiency.
2. Guaranteed long life.
3. Flexibility of installation.
4. Cuts out the harmonic pulse.
5. Quality and verified vessel integrity.
6. Exceeds 500 hour salt spray tests.
7. No oil collection when installed in the correct orientation.

Installation - Main Issues

1. Install the mufflers as close as possible to the compressor and before the oil separator.
2. When mounted in a horizontal or angled position, the connectors should always be installed in the low position to help prevent oil collection inside the muffler. Oil inside the muffler will reduce the performance along with causing a loss of oil in the compressor crankcase. Positioning the muffler at a slight angle so that the outlet port is below the inlet will also help prevent oil collection. Mufflers that are mounted vertically will not coil oil.
3. A vibration eliminator should be installed between the compressor and the muffler to prevent transmitted

vibration. The muffler should be supported at each side to prevent discharge pipe vibration, due to the weight of the muffler.

4. Mufflers will only remove noise due to discharge gas pulsations. If the noise is due to vibration, vibration eliminators should be added to the discharge line and possibly the suction line.
5. A single muffler may be installed on a common discharge line. However, some customers prefer to install one muffler per compressor on parallel racks.

Materials of Construction

The main body and internal baffles are made from carbon steel. The connections are made from plated carbon steel.

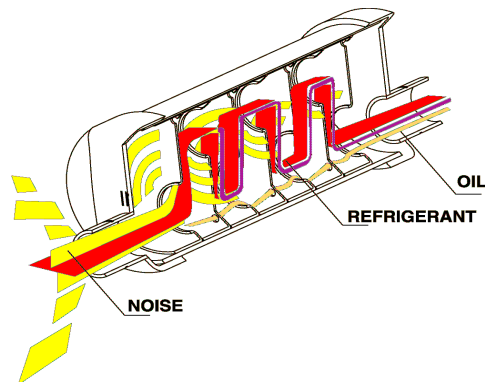
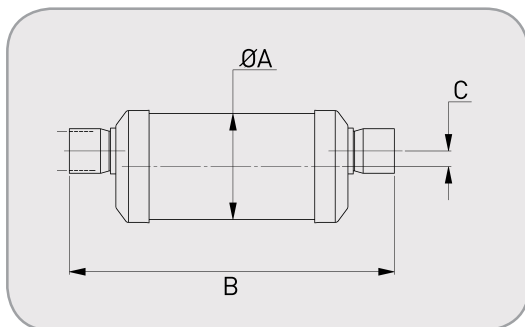
Technical Specification

Allowable Operating Pressure = 0 to 3,100 kPa
 Allowable Operating Temperature = 0°C to 120°C (1/2 to 7/8 ID)
 Allowable Operating Temperature = -15°C to 120°C (1-1/8 to 3-1/8 ID)

Dimensions and Capacities

Part No.	Connection Size (Inch)	Dimensions (mm)			Weight (kg)
		A	B	C	
S-6304	1/2	76	197	19	1.06
S-6305	5/8	76	197	19	1.08
S-6307	7/8	76	246	11	1.25
S-6311	1 1/8	76	246	11	1.32
S-6404	1/2	102	171	24	1.62
S-6405	5/8	102	171	24	1.62
S-6406	3/4	102	178	24	1.62
S-6407	7/8	102	178	24	1.62
S-6411	1 1/8	102	324	24	2.30
S-6413	1 3/8	102	349	24	2.62
S-6415	1 5/8	102	464	19	3.35
S-6621	2 1/8	152	533	32	8.20
S-6625	2 5/8	152	533	25	9.00
S-6631	3 1/8	152	568	19	9.00

Discharge Muffler



Heldon vs Henry Cross Reference

Henry	Heldon Old	Connection Size (Inch)
N/A	3400-3206	3/8
S-6304	3400-3208	1/2
S-6305	3400-3210	5/8
N/A	3400-3212	3/4
S-6307	3400-4814	7/8
S-6311	3400-4818	1 1/8
S-6413	3400-6422	1 3/8
S-6415	3400-6426	1 5/8
S-6621	3400-9634	2 1/8
S-6625	3400-9642	2 5/8
S-6631	3400-9650	3 1/8