



USER MANUAL

SafeSwap

Pressure relief valve removal aid

Introduction

The SafeSwap system consists of a series of tools designed to be used when replacing relief valves. Fitting the correct SafeSwap over the valve and isolation device (also known as a check device) before unscrewing the relief valve prevents accidental removal of the relief valve in case the isolation device fails to close.

SafeSwap is not designed to be used on taper-threaded relief valves

Principles

SafeSwap puts a limit on how far a pressure relief valve can be unscrewed. This allows the operator to make sure that the isolation device is working properly before removing the relief valve.

According to the EN14129 standard for LPG pressure relief valves, all pressure relief valves designed for use with isolating devices must have an unambiguous and certain way to tell that the isolating device has closed completely. This is achieved by the combination of a tell-tale vent hole in the relief valve, as well as a noticeable audible change in the release of gas when removing the relief valve.

Attempting to remove a relief valve from a pressurised vessel when the isolation device has not closed is extremely dangerous and should not be attempted. The relief valve can be ejected with high velocity and cause uncontrolled discharge of LPG vapour. The relief valve can be ejected with high velocity, striking anything in its path, while simultaneously causing an uncontrolled discharge of LPG vapour. It is almost impossible to reattach a relief valve when working against a release of LPG vapour, especially if the isolator thread was damaged during the ejection.

The risk to the operator is even higher when removing valves from underground tanks, as the operator is usually working above the relief valve and is directly in the firing line if the relief valve is ejected.

When replacing relief valves on above-ground tanks, the hole is visible, but using a SafeSwap is still a smart choice as it only takes seconds to fit.



Current availability

RELIEF VALVE	ADAPTOR	SAFESWAP
Calor 25/10	525 (wide flats)	906700
Calor 25/10	525 (narrow flats)	906701
Calor 25/10 NPS	6525	906704
Calor 25/11	525 (wide flats)	906847
Calor 25/11	525 (narrow flats)	906848
Calor 25/12	535/1, 535/2 535/3 & 545/1 (wide flats)	906706
Calor 25/12	535 (narrow flats)	906710
RegO RS3132	CD32	906703
Ceodeux 71052	70652	906707
Omeca EU20	ST20	906850
Omeca EU25	ST32	906705
Cavagna VS367	CD36	906713

On each SafeSwap, the model number and corresponding relief valve is indicated. They also have a code on the underside to ensure a matched pair is used. The collars, which fit a range of SafeSwaps, are marked with the size of SafeSwap they will fit.

Others will be added to the range as dictated by demand.

Many relief valves have similar inlet threads, making it theoretically possible to mix valves and adaptors from different manufacturers. This should generally be avoided. A SafeSwap may fit onto a mixed combination but should not be used under any circumstances unless that exact combination is shown in the table.

Always check the full relief valve and isolation device identities carefully.

Company procedures

In all cases you should follow your company procedures or the instructions laid out by each manufacturer as to how their relief valve should be exchanged on in service vessels. Use of the SafeSwap can be incorporated into those instructions.

In the absence of such instructions the following general guidelines can be used.

Procedure for use of the SafeSwap

Follow procedures in accordance to tank identify and for keeping record.

1. Identify type and pressure setting of relief valve.
2. Identify the change adaptor type and compatibility with the relief valve.

If incompatible, the SafeSwap may fit but should not be used.

3. Select replacement relief valve and a suitable bonded seal for the change adaptor. Ensure its pressure is compatible with the tank and the date complies with your company policy for fitting. If a suitable valve is not available, do not proceed.
4. Select the correct SafeSwap from specification sheets. These are marked with valve and **change adaptor**. Some combinations suitable for the SafeSwap may have not be identified nor listed yet. It is the operator's responsibility to ensure that the relief valve markings are compatible with the specification sheet before attempting to use the SafeSwap.
5. Use a pair of wrenches to break the joint between the valve and check adaptor and leave hand tight. Only use the hexagon flats on the valve and adaptor body for wrenching.

Fitting wrenches to any other part of the assembly is potentially dangerous and must not be attempted.

Relief valve joint cracking tools are available from MAKEEN Gas Equipment for breaking the joint without disturbing the tank to adapter joint.

6. Apply the two halves of the SafeSwap. The two halves should fit together with a maximum 2mm gap and the correct sleeve fits snugly over the top. If this is not possible, recheck the identity of the valve and check assembly. If necessary, use mirrors, chalk, emery cloth, a suitably rated torch, or other means to safely identify the markings.
7. When the SafeSwap has been fitted correctly, unscrew the relief valve by hand, until it reaches the stop. While unscrewing, listen for the gas escaping. This should either stop completely (soft seated check adaptors), or minimise (metal seated) just before the relief valve reaches the stop.
8. Once the change adaptor has closed, remove the collar, separate the two halves of the SafeSwap, and the relief valve can be safely removed.

If the change valve has not closed do not attempt to remove the relief valve. Fully screw it back into the change adaptor, and re-tighten after removing the SafeSwap.

9. Immediately fit the replacement relief valve with new bonded seal. Tighten relief valve with wrenches.

Complete records as per your company procedures.

Valve identification

The valve identification tables on pages 6 - 7 assist in the identification of each combination of valve by manufacturer, markings, appearance, and size.

These are based on information currently available. Newer details might not be included.

If the identifications on a valve are not included in the specification sheet, do not attempt to use the SafeSwap, even if it appears to fit. Consult MAKEEN Gas Equipment before proceeding.

ADAPTOR

SafeSwap identification chart

Select the relief valve from the left column and the change adaptor from the top row. Find the required SafeSwap in the chart.

The numbers in the chart are the last 2 digits of the SafeSwap part number, followed by the required sleeve size.

RELIEF VALVE

	Calor/Cavagna 525	Calor/Cavagna 525 (short body)	Calor/Cavagna 535-1	Calor/Cavagna 535-2	Calor/Cavagna 535-3	Calor/Cavagna 535 (Narrow flats)	Calor/Cavagna 545/1	Calor/Cavagna 6525	Ceodeux 70652	Omeca ST25	Omeca 36mm	Omeca ST20	RegO® CD32	RegO® CD35	RegO® CD36	RegO® CD36E	RegO® CD45E	RegO® EP520	SRG A4294 M45	SRG M36	SRG M45	
Calor/Cavagna 25/10	00/70	01/70						04/70														
Calor/Cavagna 25/11	47/80	48/80																				
Calor/Cavagna 25/12			06/90	06/90	06/90	10/90	06/90													21/90		
Cavagna/Omeca VS367 M36 Eurovalve											52/80				13/80	53/80					52/80	
Ceodeux 71052									07/80													
Omeca EU20												50/62										
Omeca EU25										05/70												
RegO® EP3131																			14/62			
RegO® EPW3132																			12/80			
RegO® RS3131												49/62										
RegO® RS3132													03/80									
RegO® RS3135														51/90								
RegO® RS3136 36mm Eurovalve											52/80				13/80	53/80					52/80	
RegO® RS3145																	51/90					
SRG 485-415 M36 Eurovalve											52/80				13/80	53/80					52/80	
SRG 485-417 M45 (machined flats)			06/90	06/90	06/90	10/90	06/90													21/90		54/90
SRG 485-17 M45 (wide flats)																				22/90		

MAKEEN Gas Equipment Headquarters

Alsvej 21
8940 Randers SV
Denmark
Tel +45 8644 8734

mge@makeenenergy.com
www.makeengasequipment.com
www.makeenenergy.com

Follow us on:



Find more information about your local MAKEEN Gas Equipment contact on
makeengasequipment.com/get-in-touch

Or scan the QR-code.



Before using the
SafeSwap, we advise that
you use the MAKEEN Gas
Equipment relief valve
cracking tool to loosen
the valve safely.