

ITALIAN GENUINE PARTS

PERFECT DOWN TO THE LAST DETAIL



OLIAE®



GENERAL CATALOG - EDITION 2014

FLUIDS CONTROL SYSTEMS



IMPORTANT!

LEGAL NOTE FOR CATALOGUE CONSULTATION

All technical information provided in this catalogue are simply indicative. They are the result of laboratory tests carried out under specific conditions that do not cover the entire case history of the real conditions of use. On the basis of these considerations, the performances described here are liable to be considerably changed depending on the different conditions of use or assembly of the product onto the final equipment and plants. Therefore, we suggest the users should always subject the product to preliminary tests by simulating its real conditions of use.

WARRANTY PERIOD OF THE PRODUCT: 12 MONTHS



DURING ITS THIRTY-YEAR HISTORY, MARKED BY CONTINUAL GROWTH AND ONGOING IMPROVEMENTS, OLAB HAS CARVED OUT A NICHE FOR ITSELF IN THE SOLENOID VALVES AND FITTINGS SECTOR.



Alberto and Cesare Bottura

Passion, determination and faith in its own methods have carried the company successfully into the third millennium, establishing it as one of the soundest organisations in the industry. Each objective achieved by OLAB has always been viewed as a basis on which to consolidate and refine not only the company's products, but also its way of dealing with work management, the creation of a deep-rooted corporate culture, staff training, customer satisfaction, and environmental impact.

COMPLIANCE WITH STANDARDS

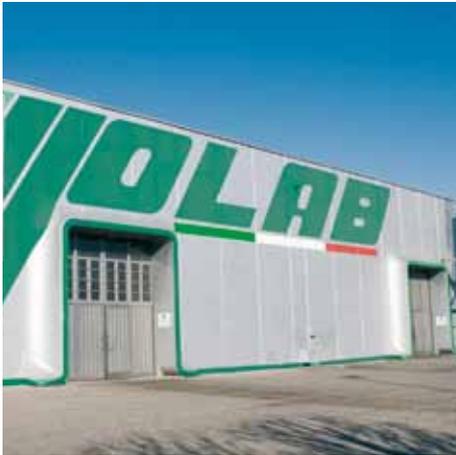
Activities directed at 'total quality', in addition to close relationships with company suppliers and customers, have made it possible to put special focus on updated standards over the years, and continually adapt company products to these standards. An example of such activity is verifying that the requirements set out by directives 97/23/EEC (PED) and 2002/95/EEC (RoHS) have been satisfied.

With regard to the first directive, various products have been endorsed for use on pressure containers under certain demanding operating conditions, whereas the design and production process for these devices is constantly monitored by TÜV SÜD via annual inspections. In particular, combined PED+DVGW certification has been issued for some models of solenoid valves, endorsing their use as category IV safety devices with group 1 hazardous fluids.

With regard to the second directive, not only does OLAB monitor its suppliers closely, the company also wanted to go further than directive requirements (i.e. self-certification relating to the compliance of company products with RoHS requirements), and compliance of the three main product families (solenoid valves, safety caps and vibration pumps) with the RoHS directive has been verified by a third accreditation body (the food and packaging materials section at the CSI laboratories in the IMQ Group).

CERTIFICATIONS OBTAINED BY OLAB





OLAB's new premises in Torbole Casaglia (Brescia)

BUSINESS EXPANSION

Last year OLAB started to harvest the fruits of intense research and development activity, and benefit from significant investments made in 2005 within the framework of a development plan to consolidate the company's presence in markets other than those deemed as the conventional, well-established markets for solenoid valves and fittings for small hydraulic and pneumatic circuits.

This resulted in the completion of the 18000 series range of indirect control elastomer membrane solenoid valves with BSPP female threaded inlet/outlet ports for fluid cut-off, where the 2-way normally-closed versions have been flanked with 2-way normally-open versions. With the availability of ports ranging from 3/8" NPT to 2" NPT and feedthrough aperture from \varnothing 0.45" to \varnothing 1.97", these solenoid valves are mainly designed for plant installations, ranging from boiler water filling to irrigation systems, and wherever a high flow rate is required compared to direct control solenoid valves.

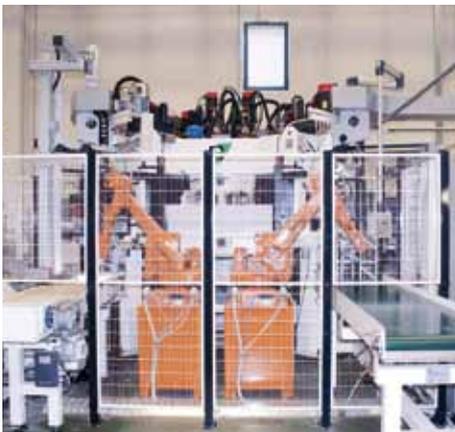
The 14000 series range of self-priming vibration pumps was completed in 2006. They are built using standard solenoid valve technology, with reduced dimensions thanks to the use of 0.87" coils, and are particularly suitable for transferring fluids from a tank or collection point to another tank or discharge point. Furthermore, a European patent covering various construction solutions incorporated in the pumps was registered for this family of products.

Lastly, OLAB's most important new feature for 2006 must not be forgotten.

Thanks to an in-depth knowledge of the increasingly demanding application requirements for solenoid valves and lengthy experience acquired in this field, the company launched an internal project in 2005 concerning two families of encapsulated coils for solenoid valves – 0.87" and 1.18". These can be constructed in both a threaded

COIL PRODUCTION LINE





lug version for connection via the DIN43650 standard connector, and a version without a threaded lug. These coils, which feature special technical solutions aimed at optimising performance (especially at high temperature), a careful choice of materials and accurate final testing, are currently constructed by OLAB using a fully automated overmoulding and winding production line, housed in a dedicated production unit.

The new production unit is OLAB's pride and joy, the only one of its kind in Italy and among one of the most innovative ones in the world, showcasing the company as a reliable OEM supplying individual coils.

All the coils made by OLAB are in class H, with class 200 wire, and incorporated with pure technopolymers, which means they contain no recycled materials. They undergo two electrical insulation tests – an in-process test immediately after overmoulding of the casing, so at a high temperature, to determine the hot behaviour of the plastic, and a post-process test at ambient temperature 24 hours later, to determine its behaviour once the material has settled.

AMBITIOUS AIMS

Although the concept of perfection can only be expressed in absolute and abstract terms, OLAB continues to seek improvements and set itself other ambitious targets. As a result, the company has already invested heavily in 2013 in technology to improve the already excellent quality of its products and increase its competitive edge.

Three new metalworking systems have already been designed and developed for the company.

There is also news on the fittings front, with the addition of a new product line to the already extensive range of brass and stainless steel fittings for pneumatic, hydraulic, chemical and industrial applications.

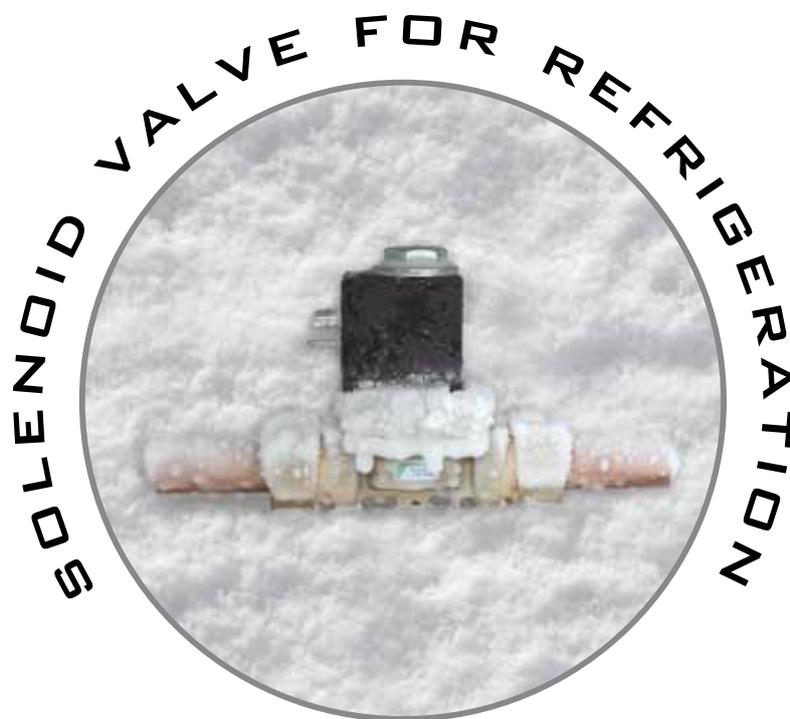
OLAB STAND



PRECISION & RELIABILITY MADE IN ITALY



OLAB®





OLAB®

100%



COMPONENTS FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS



SOLENOID VALVES FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS	36000 SERIES	Pg. 13
MOISTURE AND LIQUID INDICATORS FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS	32000-CS SERIES	Pg. 22
CHECK VALVES FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS	33000-CS SERIES	Pg. 25
BALL VALVES FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS	37000-CS SERIES	Pg. 28



COMPONENTS FOR REFRIGERATION SYSTEMS WITH TRADITIONAL CONNECTIONS



SOLENOID VALVES FOR REFRIGERATION SYSTEMS	30000 SERIES	Pg. 32
MOISTURE AND LIQUID INDICATORS FOR REFRIGERATION SYSTEMS	32000 SERIES	Pg. 42
CHECK VALVES FOR REFRIGERATION SYSTEMS	33000 SERIES	Pg. 46
BALL VALVES FOR REFRIGERATION SYSTEMS	37000 SERIES	Pg. 48



FITTINGS FOR REFRIGERATION SYSTEMS



FITTINGS FOR REFRIGERATION SYSTEMS	31000 SERIES	Pg. 52
SERVICE VALVE ADAPTERS AND MECHANISMS FOR REFRIGERATION SYSTEMS	31500 SERIES	Pg. 61



SOLENOID VALVES FLUID CONTROL

PILOT-OPERATED SOLENOID VALVES RANGE	18000 SERIES	Pg. 73
SOLENOID VALVES - PILOT OPERATED - 2 WAY NORMALLY CLOSED (N.C.)	18020 SERIES	Pg. 75
SOLENOID VALVES - PILOT OPERATED - 2 WAY NORMALLY OPEN (N.O.)	18520 SERIES	Pg. 76
GUIDED DIAPHRAGM PILOT OPERATED SOLENOID VALVE - 2 WAY NORMALLY CLOSED (N.C.)	20020 SERIES	Pg. 78
SOLENOID VALVES - DIRECT ACTION - 2 WAY NORMALLY CLOSED (N.C.)	8000 SERIES	Pg. 82
SOLENOID VALVES - DIRECT ACTION - 2 WAY NORMALLY OPEN (N.O.) - STAINLESS STEEL INSERT	8000 SERIES	Pg. 84
SOLENOID VALVES - DIRECT ACTION - 2 WAY NORMALLY CLOSED (N.C.) - STAINLESS STEEL SLEEVE AND INSERT	8200 SERIES	Pg. 86
SOLENOID VALVES - DIRECT ACTION - 3 WAY NORMALLY CLOSED (N.C.) - STAINLESS STEEL SLEEVE AND INSERT	8250 SERIES	Pg. 88
SOLENOID VALVES - DIRECT ACTION - 2 WAY NORMALLY CLOSED (N.C.) - COMPLETELY IN STAINLESS STEEL	8201K SERIES	Pg. 90
SOLENOID VALVES - DIRECT ACTION - 3 WAY NORMALLY CLOSED (N.C.) - COMPLETELY IN STAINLESS STEEL	8251-K SERIES	Pg. 92
CONNECTORS		Pg. 94
TM4 TREATMENT		Pg. 95

TRADITIONAL SYSTEM



INNOVATION SYSTEM



- BECAUSE IT'S SAFE
- BECAUSE IT'S RELIABLE
- BECAUSE IT'S INNOVATIVE



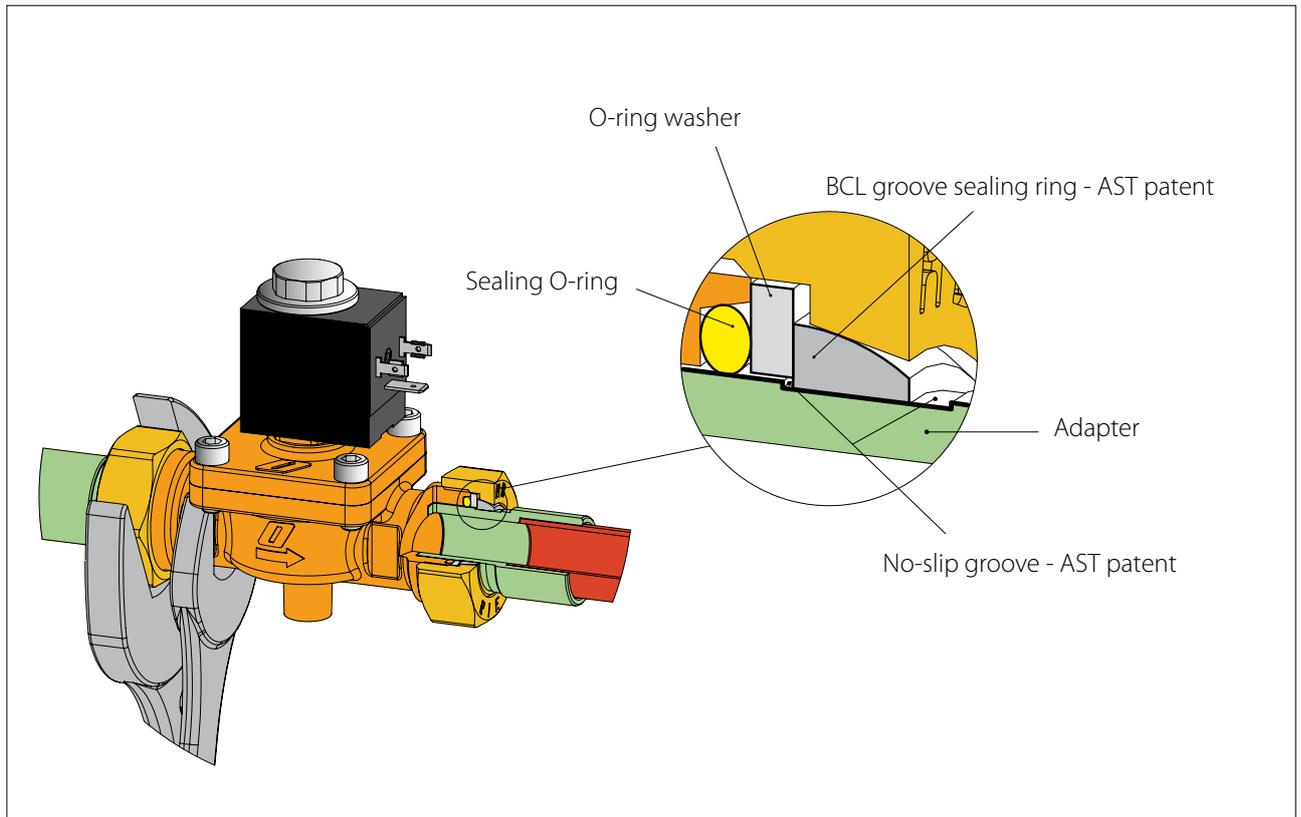
OLAB LOCK



INNOVATION SYSTEM



**COMPONENTS
FOR REFRIGERATION SYSTEMS
WITH OLABLOCK
CONNECTIONS**



Bearing in mind its experience with the manufacture of solenoid valves and fittings, the R&D department of OLAB has developed a strongly innovative connection system for refrigeration plants.

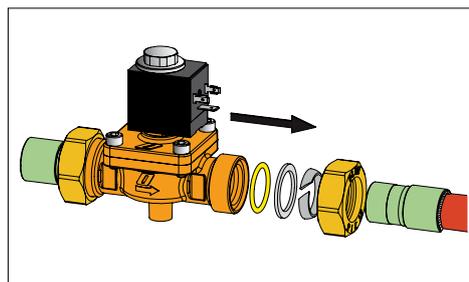


This system, which is **LOW-COST AND SAFE** compared to other systems presently on the market, can be applied to all connection points of refrigeration systems.

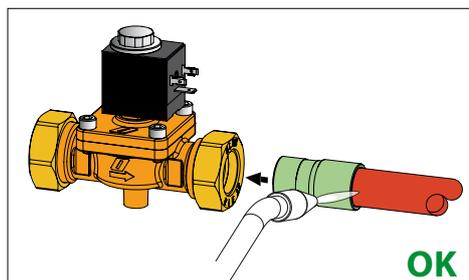


FIVE GOOD REASONS WHY YOU SHOULD USE OLABLOCK

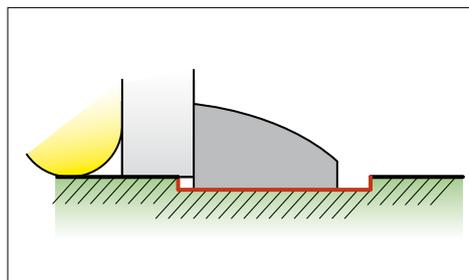
- 1.** Because it's **EASY** to use. Components can be easily assembled and disassembled.



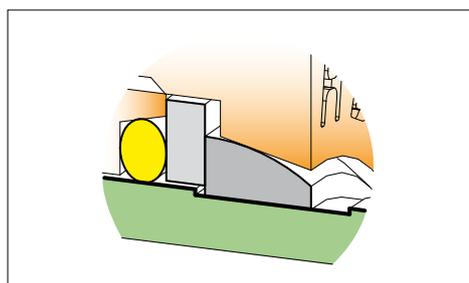
- 2.** Because it's **SAFE**. Welding operations are carried out under safety conditions and NOT directly on the component.



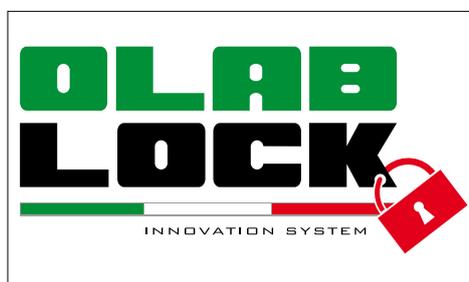
- 3.** Because it's **RELIABLE**. The AST patented device of OLABLOCK prevents pressure pipe slipping even with vibrations.



- 4.** Because of its **FULL SEALING CAPACITY**, which is ensured by a special gasket made of a compound expressly developed for these systems.



- 5.** Because it's **INNOVATIVE**. It is the right solution to all problems encountered during welding of traditional components.

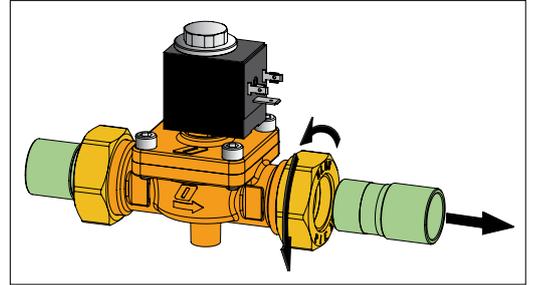




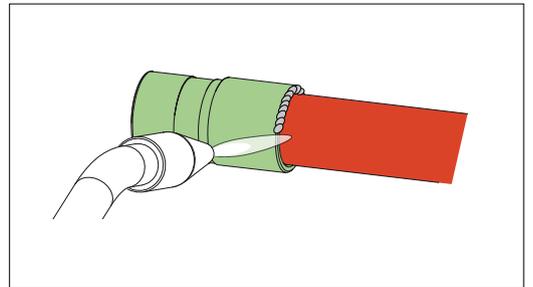
CONNECTION INSTRUCTIONS

SEQUENCE POSITION:

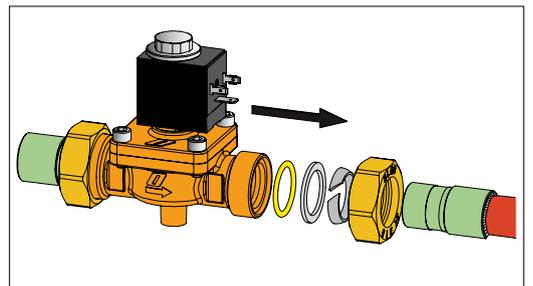
- a.** Loose OLABLOCK sealing nut and keep the adapter out.



- b.** Braze the pipe to the adapter.

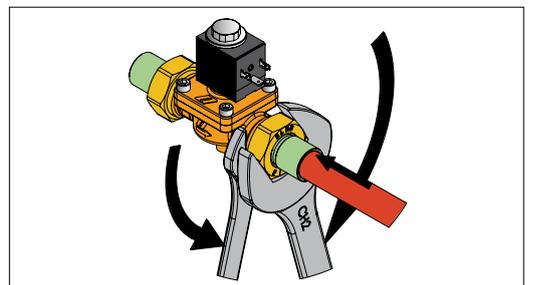


- c.** Remove from the valve all the components of OLABLOCK system and put them on the adapter respecting the given sequence.



- d.** Insert the complete adapter into the valve and tighten according to the correct torque wrench setting exercising a small force to keep it in its seat.

Nut wrench [in]	Torque wrench setting [lb-ft]
0,827	26
0,945	33
1,181	37
1,654	66
1,890	88





36000 SERIES

SOLENOID VALVES FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS

USE:

The solenoid valves of 36000 series are designed to be installed on refrigeration and air-conditioning systems using refrigerants of group II (Part Number 9, par. 2.2 of Directive 97/23/EC with reference to directive 67/548/EEC). Group II include all refrigerants classified as A1 in annex E of EN 378-1:2008 standard.

OPERATION:

The valves of 36000, 36100 and 36200 series are two-way normally closed valves with OLABLOCK connection system.

CONSTRUCTION:

The main construction components of the solenoid valves of the 36000 series are:

- Hot-forged brass body EN12165 - CW617N
- AISI303 stainless steel sleeve
- Ferritic stainless steel for cores
- AISI 302 stainless steel spring
- Outside neoprene sealing gaskets
- PTFE seat sealing gasket
- Austenitic stainless steel for clamping screws between cover and body

OLABLOCK connection system includes:

- Hot-forged brass nut EN 12165 - CW617N
- BCL ring, brass washer and adapter EN12164 - CW614N
- Sealing O-ring made of HNBR (temperature range $-49^{\circ}\text{F} \div 302^{\circ}\text{F}$).

All the coils are class H with winding made of enameled copper wire with insulation class 356°F.

The outer casing is made of resin with dielectric properties that provide an effective waterproof insulation.

The coil is always provided with two O-rings at the upper and lower ends that protect the device from humidity.

Coils are designed for continuous operation.

INSTALLATION:

Solenoid valves can be installed anywhere in the system provided that the cooling capacity of all different models is taken into account. The device must be installed ensuring that the refrigerant flows in the direction shown by the arrows on the valve body. All models of this series can be mounted in all positions except for the one with a coil turned downwards. Before connecting the device make sure the operating data shown on the coil correspond to those on the system.



36000 SERIES STRENGTH POINTS



The cup which fixes the coil to the body valve is screwed on a thread on the top of the sleeve, in order to grant easy and correct assembly. There is no need of auxiliary components.

INNOVATION & SOLUTION

Sleeve made up of stainless steel rod, which offers a better resistance to the most severe applications.



The fixed core is locked by rolling process, which assures mechanical deformation of the sleeve, without discontinuity points which could generate cracking.



SOLENOID VALVES FOR REFRIGERATION SYSTEMS



PROFESSIONAL



ORDERING CODE FOR SOLENOID VALVES 36000 SERIES

Family	-	Connections	-	Welding pocket size	-	Orifice diameter	-	Coil	-	Specials	
36020	-	T	-	01	-	2.2	-	E	-	1	
36010		T OLABLOCK with ODF connection		01	1/4 in	2.2	Ø2,2 mm	Ø0,086 in	E	220/230VAC 50/60Hz 21VA cUL	1 With fixing bracket
36110			02	3/8 in	2.5	Ø2,5 mm	Ø0,098 in	F	24VAC 50/60Hz 21VA cUL	2 HNBR O-rings	
36210			03	1/2 in	3.0	Ø3,0 mm	Ø0,118 in	G	110/120VAC 50/60Hz 21VA cUL		
36020			04	5/8 in	6.5	Ø6,5 mm	Ø0,255 in	H	240VAC 50/60Hz 21VA cUL		
36120			05	3/4 in	12.5	Ø12,5 mm	Ø0,490 in	I	12Vdc 24W		
36220			06	7/8 in	16.5	Ø16,5 mm	Ø0,650 in	L	24Vdc 24W		
			07	1 in	25.5	Ø25,5 mm	Ø1 in				
			08	1.1/8 in							
			09	1.3/8 in							
			10	1.5/8 in							
			11	5/16 in							
		M10	10 mm	0,394 in							
		M12	12 mm	0,472 in							
		M16	16 mm	0,630 in							
		M22	22 mm	0,866 in							
		M35	35 mm	1,378 in							
		M42	42 mm	1,653 in							

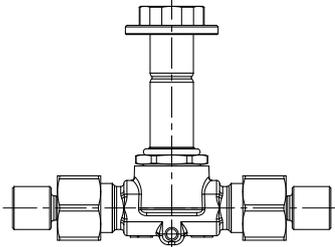
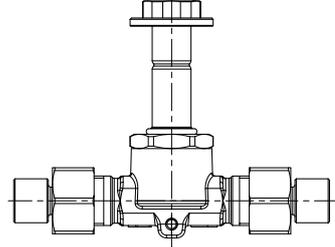
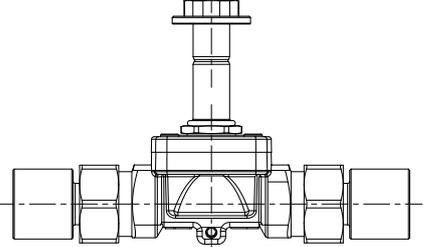
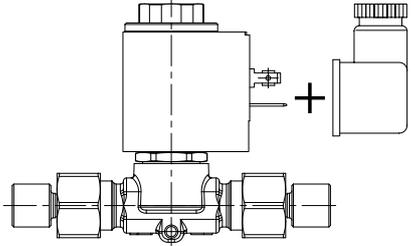
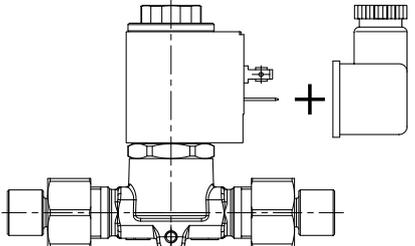
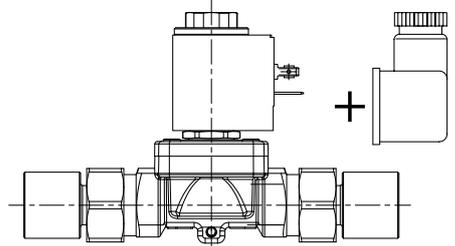
Different voltages available upon request

EXAMPLE 36020-T-02-3.0-E

2-way normally closed direct action solenoid valve, connections OLABLOCK with ODF Ø3/8 in, orifice diameter Ø0,118 in and 220/230V 50/60Hz 21VA coil with connector



GENERAL CHARACTERISTICS 36000 SERIES

Working principle	Code	Connections		Cv	PS [psi]	Differential opening pressure [psi]			TS [°F]		
		Ø [in]	Ø [mm]			min	MOPD		Min	Max	
							AC	DC			
Direct acting	36010-T-01-2.2	1/4		0,17	652	0	305	275	-31	230	
	36010-T-01-2.5	1/4		0,20							
	36010-T-01-3.0	1/4		0,27							
	36010-T-02-3.0	3/8									
	36010-T-M10-3.0	0,394	10								
Diaphragm pilot operated	36110-T-02-6.5	3/8		0,93	652	0,72	305	275	-31	230	
	36110-T-M10-6.5	0,394	10								
	36110-T-M12-6.5	0,472	12								
	36110-T-03-6.5	1/2									
Diaphragm pilot operated with flange	36210-T-M12-12.5	0,472	12	2,56	652	0,72	305	260	-31	230	
	36210-T-03-12.5	1/2									
	36210-T-04-12.5	5/8	16								
	36210-T-06-12.5	7/8	22					3,02			
	36210-T-04-16.5	5/8	16					4,42			
	36210-T-05-16.5	3/4						5,58			
	36210-T-06-16.5	7/8	22					6,63			
	36210-T-08-16.5	1.1/8						11,62			
	36210-T-08-25.5	1.1/8									
36210-T-09-25.5	1.3/8										
Direct acting	36020-T-01-2.2-A	1/4		0,17	652	0	305	275	-31	230	
	36020-T-01-2.5-A	1/4		0,20							
	36020-T-01-3.0-A	1/4		0,27							
	36020-T-02-3.0-A	3/8									
	36020-T-M10-3.0-A	0,394	10								
Diaphragm pilot operated	36120-T-02-6.5-A	3/8		0,93	652	0,72	305	275	-31	230	
	36120-T-M10-6.5-A	0,394	10								
	36120-T-M12-6.5-A	0,472	12								
	36120-T-03-6.5-A	1/2									
Diaphragm pilot operated with flange	36220-T-M12-12.5-A	0,472	12	2,56	652	0,72	305	260	-31	230	
	36220-T-03-12.5-A	1/2									
	36220-T-04-12.5-A	5/8	16								
	36220-T-06-12.5-A	7/8	22					3,02			
	36220-T-04-16.5-A	5/8	16					4,42			
	36220-T-05-16.5-A	3/4						5,58			
	36220-T-06-16.5-A	7/8	22					6,63			
	36220-T-08-16.5-A	1.1/8						11,62			
	36220-T-08-25.5-A	1.1/8									
36220-T-09-25.5-A	1.3/8										

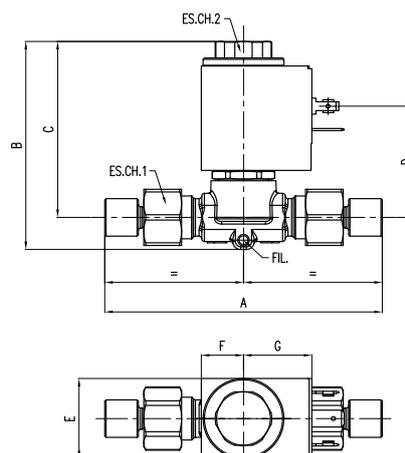


PART NUMBER 36020-T

Solenoid valve for refrigeration, direct action, with OLABLOCK connections.



+



Code	Dimensions [in]									
	A	B	C	D	E	F	G	ES.CH.1	ES.CH.2	FIL
36020-T-01-2.2- ...	3,858	3,063	2,590	1,638	1,181	0,616	0,919	0,827	0,787	M4 horizontal
36020-T-01-2.5- ...										
36020-T-01-3.0- ...										
36020-T-02-3.0- ...										
36020-T-M10-3.0- ...										

Code	Cooling capacity [kW]																		
	Liquid						Steam						Hot gas						
	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	
36020-T-01-2.2-...	2,55	2,75	2,6	1,8	2,6	1,73							1,28	1,6	1,74	1,44	2,04	1,43	
36020-T-01-2.5-...	2,98	3,2	3,0	2,08	3,0	2,0							1,5	1,9	2,03	1,68	2,38	1,67	
36020-T-01-3.0-...																			
36020-T-02-3.0-...	3,9	4,2	3,95	2,74	3,95	2,65							1,96	2,5	2,67	2,2	3,13	2,19	
36020-T-M10-3.0-...																			

The mentioned capacities refer to the following working conditions: Evaporation temperature = 39,2°F - dew point=100,4°F - pressure drop = 2,17 psi
 For hot gas: Suction temperature = 64,4°F - pressure drop = 14,5 psi

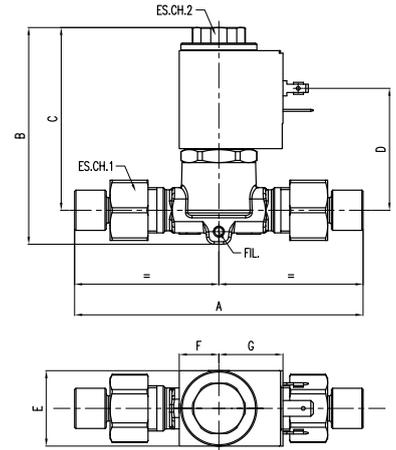


PART NUMBER 36120-T

Solenoid valve for refrigeration, pilot-controlled diaphragm, with OLABLOCK connections.



+



Code	Dimensions [in]									
	A	B	C	D	E	F	G	ES.CH.1	ES.CH.2	FIL
36120-T-02-6.5- ...	4,488	3,398	2,866	1,913	1,181	0,616	0,919	0,945	0,787	M4 horizontal
36120-T-M10-6.5- ...										
36120-T-M12-6.5- ...										
36120-T-03-6.5- ...										

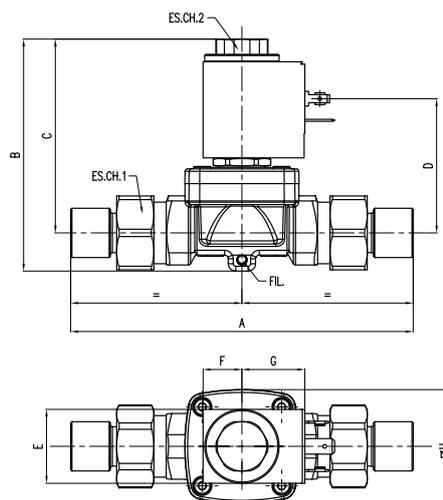
Code	Cooling capacity [kW]																	
	Liquid						Steam						Hot gas					
	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507
36120-T-02-6.5- ...	13,5	14,6	13,8	9,5	13,7	9,2	1,5	2,04	1,8	1,78	2,4	1,78	6,8	8,6	9,3	7,7	10,9	7,6
36120-T-M10-6.5- ...																		
36120-T-M12-6.5- ...																		
36120-T-03-6.5- ...																		

The mentioned capacities refer to the following working conditions: Evaporation temperature = 39,2°F - dew point=100,4°F - pressure drop = 2,17 psi
For hot gas: Suction temperature = 64,4°F - pressure drop = 14,5 psi



PART NUMBER 36220-T

Solenoid valve for refrigeration, pilot-controlled diaphragm with flanged cover, with OLABLOCK connections.



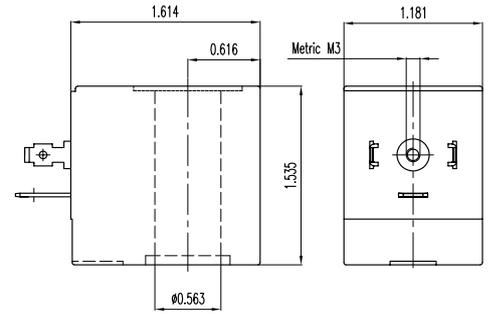
Code	Dimensions [in]										
	A	B	C	D	E	F	G	H	ES.CH.1	ES.CH.2	FIL
36220-T-M12-12.5- ...	5,118	3,709	3,098	2,146	1,181	0,616	0,919	1,811	1,181	0,787	M4 horizontal
36220-T-03-12.5- ...								5,433			
36220-T-04-12.5- ...	5,984	4,280	3,216	2,264	1,181	0,616	0,919	2,244	1,653	0,787	M8 vertical
36220-T-06-12.5- ...	6,299										
36220-T-04-16.5- ...	6,299										
36220-T-05-16.5- ...	6,614										
36220-T-06-16.5- ...	6,850	4,724	4,000	3,051	1,181	0,616	0,919	3,150	1,890	0,787	M8 vertical
36220-T-08-16.5- ...	7,047										
36220-T-08-25.5- ...	8,622	4,724	4,000	3,051	1,181	0,616	0,919	3,150	1,890	0,787	M8 vertical
36220-T-09-25.5- ...	8,858										

Code	Cooling capacity [kW]																	
	Liquid						Steam						Hot gas					
	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507
36220-T-M12-12.5- ...	37,4	40,3	37,9	26,2	37,8	25,3	4,16	5,6	5,0	4,9	6,6	4,9	18,7	23,8	25,6	21,0	30,0	21,0
36220-T-03-12.5- ...																		
36220-T-04-12.5- ...	44,4	47,8	45,0	31,1	44,8	30,0	4,93	6,6	5,9	5,8	7,8	5,8	22,2	28,2	30,3	25,0	35,5	25,0
36220-T-06-12.5- ...																		
36220-T-04-16.5- ...	64,6	69,5	65,5	45,2	65,2	43,7	7,2	9,7	8,6	8,5	11,4	8,5	32,3	41,0	44,2	36,5	51,7	36,3
36220-T-05-16.5- ...	81,6	87,8	82,7	57,0	82,4	55,2	9,1	12,2	10,9	10,7	14,4	10,7	40,8	51,8	55,8	46,0	65,3	45,8
36220-T-06-16.5- ...	97,0	104,3	98,2	67,8	98,0	65,6	10,8	14,5	12,9	12,7	17,0	12,7	48,5	61,5	66,2	54,7	77,5	54,4
36220-T-08-16.5- ...																		
36220-T-08-25.5- ...	170,0	183,0	172,3	119,0	171,7	115,0	18,9	25,5	22,7	22,3	30,0	22,3	85,0	108,0	116,2	96,0	136,0	95,4
36220-T-09-25.5- ...																		

The mentioned capacities refer to the following working conditions: Evaporation temperature = 39,2°F - dew point=100,4°F - pressure drop = 2,17 psi
For hot gas: Suction temperature = 64,4°F - pressure drop = 14,5 psi



PART NUMBER 30000BH



Terminal in compliance with DIN 43650/A

Coils family	Code	Voltage [V] *	Voltage tolerance	Frequency [Hz]	Power supply [VA]	Approvals
30000BH	30000BHFP/B1JU	24	±10%	50/60	21 VA	cUL* **
	30000BHFP/U1JU	110/120	+6% / -10%	50/60	21 VA	cUL* **
	30000BHFP/J1JU	220/230	+6% / -10%	50/60	21 VA	cUL* **
	30000BHFP/L1JU	240	±10%	50/60	21 VA	cUL* **

* Others types of coils can be made available upon request

** Approved cUL with connector 7000/CON

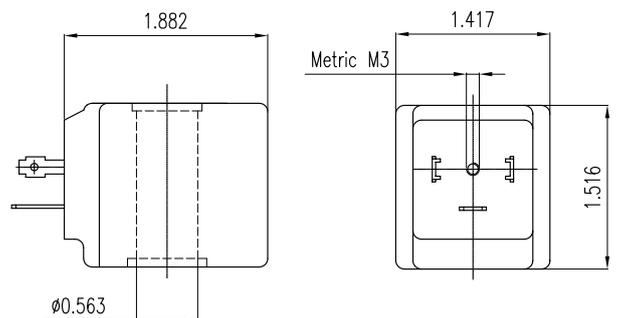
PART NUMBER 8851

Innovative system for d.c. power supply to the coil. The valve operation is ensured also in case of a wide tolerance range for nominal voltage. It includes a direct current coil + special connector provided with 2000 mm long cables and isolation gaskets.

1,417 in coil with Ø 0,563 in sleeve hole

Code	Voltage [V] *	Power supply	Approvals
8851	24 Vdc	24 W	
8851/A	12 Vdc	24 W	

* Voltage tolerance ±10%

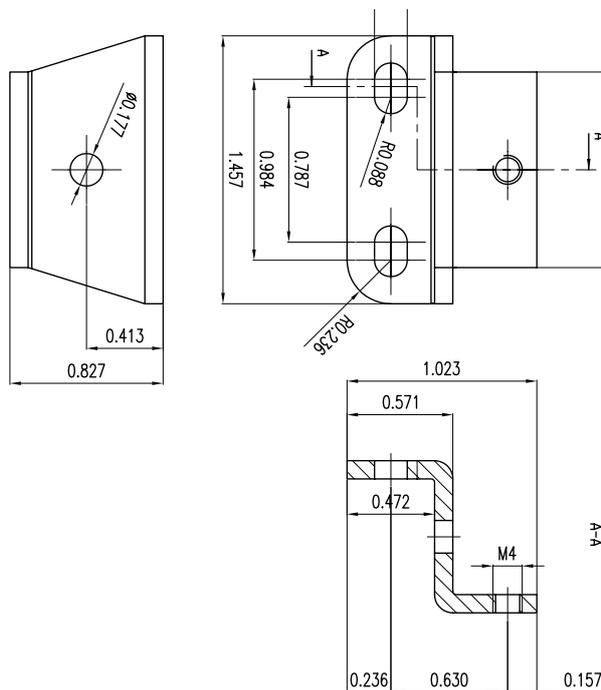


Terminal in compliance with DIN 43650/A



PART NUMBER 30000-15

White zinc-plated steel bracket with M4 screw



PART NUMBER 7000/CON (IP 67)

Connector



Max. cable section	0,059 in ²
Clamping screw	PG9, PG11
Protection degree	IP 67 (DIN40050)
Insulation class	Group C - VDE 0110
Connector colour	Black
Resistance	< 4 mΩ
Voltage rating	250 V
Pole number	2+ Ground
Protection	Glass reinforced nylon
Contact-holder	Glass reinforced nylon
Contact rated current	10 A
Max. contact rated current	16 A
Gasket	NBR nitrile rubber
Working temperature	- 40 + 194°F



32000-CS SERIES

MOISTURE AND LIQUID INDICATORS FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS

USE:

The liquid and humidity indicators are designed to be installed on refrigeration and air-conditioning systems for domestic and industrial use. It's possible to use them with all the refrigerant fluids of group II (Part Number 9, point 2.2 of Directive 97/23/CE, with reference to Directive 67/548/CEE) and they are defined as "pressure Equipments", as described in Directive 97/23/CE, Part Number 1, point 2.1.4, and Part Number 3, point 1.3. Group II includes all refrigerants classified as A1 in annex E of EN 378-1:2008 standard.

OPERATION:

The central test paper of 32000-CS indicators permits a sure and quick control of humidity level and the control of physical state of refrigerant fluid. The level of humidity inside the refrigerant fluid should be under the limits indicated on the following table.

CONSTRUCTION:

The body of 32000-CS indicator is made by hot forged brass (EN12165-CW617N). The indicator is equipped with tempered glass and special seal in PTFE, fixed by a flanging operation that guarantee a perfect sealing.

OLABLOCK connection system includes:

- Hot-forged brass nut EN 12165 - CW617N
- BCL ring, brass washer and adapter EN12164 - CW614N
- Sealing O-ring made of HNBR (temperature range -49°F ÷ 302°F).

INSTALLATION:

At the start-up of circuit the color of test paper can be yellow, in consequence of atmospheric humidity or humidity contamination of plant where the indicator is installed. When the humidity level of refrigerant fluid is steady, by the action of dryer filter, the color of test paper becomes green, because the equilibrium conditions are reached.

Normally, the time required to reach the stationary condition of circuit is 12 hour; if the yellow color of test paper remains, it means that is necessary a further action to eliminate the humidity presence inside the circuit.

Color	Humidity level inside the fluid [p.p.m]					
	R22	R134a	R404	R407C	R410A	R507
Green	<60	<75	<30	<30	<30	<30
"Chartreuse" Green	60	75	30	30	30	30
Yellow	>60	>75	>30	>30	>30	>30



MOISTURE/LIQUID INDICATOR FOR REFRIGERATION SYSTEMS



ORDERING CODE FOR MOISTURE AND LIQUID INDICATORS 32000-CS SERIES

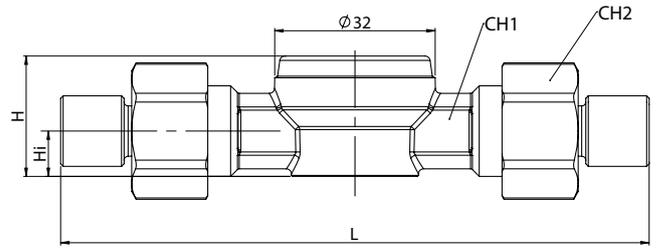
Family	-	Connections	-	Welding pocket size	-	Models	
32000	-	CS	-	01	-	0	
32000	Moisture and liquid indicators	CS	OLABLOCK connection with ODF welding pocket	01	1/4 in	0	Liquid indicator with test paper for humidity
				02	3/8 in	1	Liquid indicator without test paper for humidity
				03	1/2 in		
				04	5/8 in		
				05	3/4 in		
				06	7/8 in		
				07	1 in		
				08	1.1/8 in		
				M06	6 mm	0,236 in	
				M08	8 mm	0,315 in	
				M10	10 mm	0,394 in	
				M12	12 mm	0,472 in	
				M16	16 mm	0,630 in	
				M18	18 mm	0,709 in	
				M22	22 mm	0,866 in	

EXAMPLE 32000-CS-01-0 Indicator valve of liquid and moisture with Olablock System, ODF pocket Ø1/4 in connections





PART NUMBER 32000-CS

PART NUMBER 32000-CS
HUMIDITY AND LIQUID INDICATOR

Code	Connections			PS [psi]	TS (°F)		Sizes					
	SAE FLARE	Ø [in]	Ø [mm]		Min	Max	H [in]	Hi [in]	L [in]	CH.1 [in]	CH.2 [in]	Weight [oz]
32000-CS-M06-0		0,236	6	652	-31	230	0,827	0,295	4,055	0,433	0,827	5,3
32000-CS-01-0		1/4					0,827	0,295	4,055	0,433	0,827	5,3
32000-CS-02-0		3/8					0,945	0,354	4,567	0,472	0,945	6,9
32000-CS-M10-0		0,394	10				0,945	0,354	4,567	0,472	0,945	6,9
32000-CS-M12-0		0,472	12				1,063	0,433	5,039	0,591	1,181	9,0
32000-CS-03-0		1/2					1,063	0,433	5,039	0,591	1,181	9,0
32000-CS-04-0		5/8					1,181	0,512	5,709	0,669	1,26	9,9
32000-CS-M16-0		0,630	16				1,181	0,512	5,709	0,669	1,26	9,9
32000-CS-M18-0		0,709	18				1,299	0,591	6,299	0,748	1,339	10,6
32000-CS-05-0		3/4					1,299	0,591	6,299	0,748	1,339	10,6

Final code "0" = humidity and liquid indicator

PART NUMBER 32000-CS
LIQUID INDICATOR

Code	Connections			PS [psi]	TS (°F)		Sizes					
	SAE FLARE	Ø [in]	Ø [mm]		Min	Max	H [in]	Hi [in]	L [in]	CH.1 [in]	CH.2 [in]	Weight [oz]
32000-CS-M06-1		0,236	6	652	-31	230	0,827	0,295	4,055	0,433	0,827	5,3
32000-CS-01-1		1/4					0,827	0,295	4,055	0,433	0,827	5,3
32000-CS-02-1		3/8					0,945	0,354	4,567	0,472	0,945	6,9
32000-CS-M10-1		0,394	10				0,945	0,354	4,567	0,472	0,945	6,9
32000-CS-M12-1		0,472	12				1,063	0,433	5,039	0,591	1,181	9,0
32000-CS-03-1		1/2					1,063	0,433	5,039	0,591	1,181	9,0
32000-CS-04-1		5/8					1,181	0,512	5,709	0,669	1,26	9,9
32000-CS-M16-1		0,630	16				1,181	0,512	5,709	0,669	1,26	9,9
32000-CS-M18-1		0,709	18				1,299	0,591	6,299	0,748	1,339	10,6
32000-CS-05-1		3/4					1,299	0,591	6,299	0,748	1,339	10,6

Final code "1" = liquid indicator



33000-CS SERIES

CHECK VALVES FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS

USE:

The check valves are designed to be installed on refrigeration and air-conditioning systems for domestic and industrial use. It's possible to use them with all the refrigerant fluids of group II (Part Number 9, point 2.2 of Directive 97/23/CE, with reference to Directive 67/548/CEE) and they are defined as "pressure Equipments", as described in Directive 97/23/CE, Part Number 1, point 2.1.4, and Part Number 3, point 1.3. Group II includes all refrigerants classified as A1 in annex E of EN 378-1:2008 standard.

OPERATION:

The check valves eliminate flow reversals inside the refrigerant circuit. They are characterized by a low differential pressure.

CONSTRUCTION:

According to the model, the body of 33000-CS check valves is made by hot forged brass (EN12420-CW617N) or drawn machined brass (CW614N). The copper tube are as described in Directive EN 12735/1, while the seals are in PTFE.

OLABLOCK connection system includes:

- Hot-forged brass nut EN 12165 - CW617N
- BCL ring, brass washer and adapter EN12164 - CW614N
- Sealing O-ring made of HNBR (temperature range $-49^{\circ}\text{F} \div 302^{\circ}\text{F}$).

INSTALLATION:

At start-up ensure that there is no dust or contamination inside the pipes. The arrow direction on body valve should be in accord with the flow direction inside the circuit. All mounting positions are accepted.



CHECK VALVES FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS



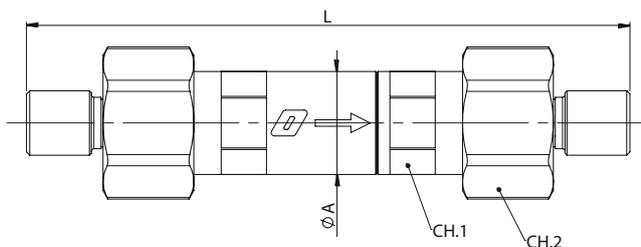
ORDERING CODE FOR CHECK VALVES 33000-CS SERIES

Family	-	Connections	-	Welding pocket size	-	Models	
33000	-	CS	-	01	-	D	
33000	Check valve	CS	OLABLOCK connection with ODF welding pocket	01	1/4 in	D	Straight inlet-outlet
				02	3/8 in	A	Angle inlet-outlet
				03	1/2 in		
				04	5/8 in		
				05	3/4 in		
				M06	6 mm	0,236 in	
				M08	8 mm	0,315 in	
				M10	10 mm	0,394 in	
				M12	12 mm	0,472 in	
				M16	16 mm	0,630 in	
				M18	18 mm	0,709 in	
				M22	22 mm	0,866 in	

EXAMPLE 33000-CS-01-D Check valve with Olablock connections, ODF pocket Ø1/4 in, straight inlet-outlet



PART NUMBER 33000-CS

PART NUMBER 33000-CS
CHECK VALVE

Code	Connections		Cv	Pd [psi]	TS (°F)		Sizes				
	Ø [in]	Ø [mm]			Min	Max	ØA [in]	L [in]	CH.1 [in]	CH.2 [in]	Weight [oz]
33000-CS-M06-D	0,236	6	0,57	1,45	-31	230	0,63	3,661	0,551	0,827	5,1
33000-CS-01-D	1/4		0,57				0,63	3,661	0,551	0,827	5,1
33000-CS-02-D	3/8		1,72				0,787	4,134	0,709	0,945	7,4
33000-CS-M10-D	0,394	10	1,72				0,787	4,134	0,709	0,945	7,4
33000-CS-M12-D	0,472	12	2,07				0,866	4,528	0,787	1,063	9,0
33000-CS-03-D	1/2		2,07				0,866	4,528	0,787	1,063	9,0
33000-CS-04-D	5/8		3,79				1,063	4,921	0,945	1,181	10,4
33000-CS-M16-D	0,630	16	3,79				1,063	4,921	0,945	1,181	10,4
33000-CS-M18-D	0,709	18	5,75				1,299	5,315	1,181	1,299	11,7
33000-CS-05-D	3/4		5,75				1,299	5,315	1,181	1,299	11,7



37000-CS SERIES

BALL VALVES FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS

USE:

37000-CS series ball valves are designed in accordance with the requirements of EN12284:2004 and EN378-1:2012 for installation on refrigeration and air-conditioning systems for civil and industrial use to allow intermittent disconnection of sections of the refrigerating circuit.

They have the following operating features:

Temperature range from -40°F to 302°F

Maximum pressure PS=652 psi

They can be used with all refrigerants listed in Annex E of EN 378-1:2008 belonging to the class A1 (fluids classified as group II according to Part Number 9, point 2.2 of Directive 97/23/CE). Among the refrigerants allowed by the standard, including non-toxic and non-explosive ones, those that currently can be found in refrigerating systems are:

R12 - R22- R134A - R404A - R407C - R410A - R502 – R507

OPERATION:

According to the standard requirements the 37000-CS series ball valves are provided with a metal protection cap that can be secured with a lead-sealed wire, if necessary, in order to prevent any unauthorized operations.

To operate the valve you must remove the cap using the suitable tool. For the activation of the valve you need a second tool. The metal protection cap, fitted with a sealing gasket, is designed to operate in the same conditions as the valve and therefore can ensure a perfect seal even when the two gaskets mounted on the operating rod may be accidentally deteriorated. The operating rod is designed to prevent its removal due to the internal pressure or tampering actions.

These valves require no maintenance.

CONSTRUCTION:

- Body made of hot forged brass EN12165 - CW617N
- Operating rod and locking pin made of stainless steel AISI 303
- Ball made of chrome-plated brass (EN12165 – EN12164 CW617N or - CW614N according to size)
- Seals (O-RING) of the operating rod and cap made of chloroprene
- Ball seals made of virgin PTFE
- Protection cap made of hot forged brass EN12165 - CW617N

The perfect seal of the body under every temperature, pressure and external mechanical stress condition is ensured by the welding of the various fixed components and by two O-rings mounted on the operating rod.

OLABLOCK connection system includes:

- Hot-forged brass nut EN12165 - CW617N
- BCL ring, brass washer and adapter EN12164 - CW614N
- Sealing O-ring made of HNBR (temperature -49°F ÷ 302°F)

INSTALLATION:

37000-CS series ball valves can be installed anywhere in the system taking into account the cooling capacities of the different models. The valve can be mounted regardless of the fluid flow direction since ball valves are bidirectional.



BALL VALVES FOR REFRIGERATION SYSTEMS WITH OLABLOCK CONNECTIONS



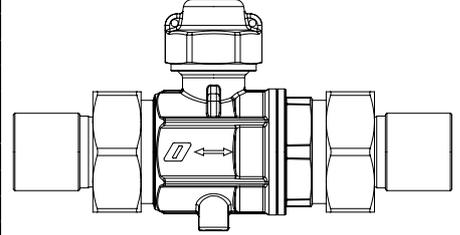
ORDERING CODE FOR BALL VALVES 37000-CS SERIES

Family	-	Connections	-	Welding pocket size	-	Orifice diameter	-	Variants	
37000	-	CS	-	06	-	20	-	0	
37000	Ball valve for refrigeration systems according to EN 12284:2004	CS	OLABLOCK with ODF connection	M6	0,236 in (6 mm)	12	0,472 in (12mm)	0	Not used
				01	1/4 in	15	0,591 in (15mm)		
				02	3/8 in	20	0,787 in (20mm)		
				M10	0,394 in (10mm)	25	0,984 in (25mm)		
				M12	0,472 in (12mm)	32	1,260 in (32mm)		
				03	1/2 in				
				04	5/8 in (16mm)				
				M18	0,709 in (18mm)				
				05	3/4 in				
				06	7/8 in (22mm)				
				M28	1,102 in (28mm)				
				08	1.1/8 in				
				09	1.3/8 in (35mm)				
				10	1.5/8 in				
				M42	1,654 in (42mm)				

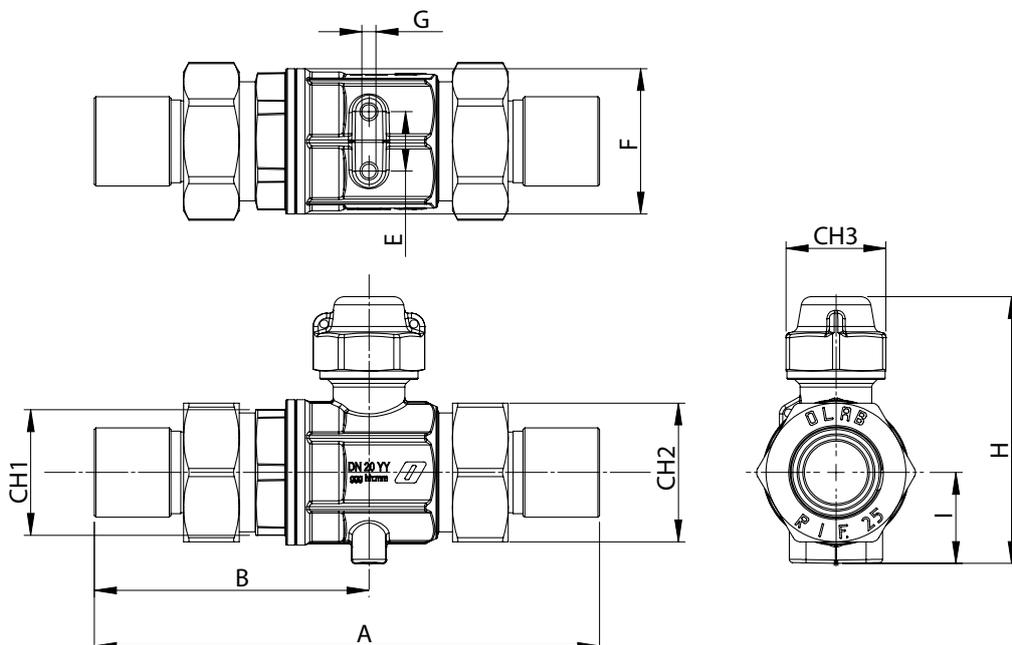


GENERAL CHARACTERISTICS 37000-CS SERIES

Code	Welding pocket size		Orifice [in]	Cv	PS [psi]	TS (°F)	
	Ø [in]	Ø [mm]				Min	Max
37000-CS-M6-12-0	0,236	6	0,472 (12mm)	1,2	652	-40	302
37000-CS-01-12-0	1/4			4,7			
37000-CS-02-12-0	3/8			8,1			
37000-CS-M10-12-0	0,394	10					
37000-CS-M12-12-0	0,472	12					
37000-CS-03-12-0	1/2						
37000-CS-04-15-0	5/8	16	0,591 (15mm)	16,3	652	-40	302
37000-CS-04-15-0	5/8	16					
37000-CS-M18-15-0	0,709	18					
37000-CS-05-15-0	3/4		0,787 (20mm)	22,1	652	-40	302
37000-CS-06-15-0	7/8	22					
37000-CS-06-20-0	7/8	22					
37000-CS-M28-20-0	1,102	28	0,984 (25mm)	32,6	652	-40	302
37000-CS-08-20-0	1 1/8						
37000-CS-M28-25-0	1,102	28					
37000-CS-08-25-0	1 1/8		1,260 (32mm)	58,1	652	-40	302
37000-CS-09-25-0	1 3/8						
37000-CS-09-32-0	1 3/8						
37000-CS-10-32-0	1 5/8		93,0	652	-40	302	
37000-CS-M42-32-0	1,658	42					



Code	Welding pocket size		Dimensioni [in]										Weight [oz]	
	Ø [in]	Ø [mm]	Orifice	A	B	E	F	G	H	I	CH1	CH2		CH3
37000-CS-M6-12-0	0,236	6	0,472	4,016	2,205	0,709	1,181	Metric M5	2,244	0,787	1,063 (27mm)	0,945 (24mm)	0,984 (25mm)	13,40
37000-CS-01-12-0	1/4			4,173	2,283									
37000-CS-02-12-0	3/8			4,213	2,283									
37000-CS-M10-12-0	0,394	10		4,528	2,441									
37000-CS-M12-12-0	0,472	12												
37000-CS-03-12-0	1/2													
37000-CS-04-12-0	5/8	16	0,591	4,961	2,756	0,709	1,417	Metric M5	2,5197	0,9449	1,126 (32mm)	1,339 (34mm)	0,984 (25mm)	21,69
37000-CS-04-12-0	5/8	16		5,276	2,913									
37000-CS-M18-12-0	0,709	18		5,512	3,031									
37000-CS-05-20-0	3/4		0,787	5,984	4,528	0,709	1,732	Metric M5	3,150	1,083	1,496 (38mm)	1,654 (42mm)	1,181 (30mm)	37,57
37000-CS-06-20-0	7/8	22		6,181	3,346									
37000-CS-06-20-0	7/8	22												
37000-CS-M28-20-0	1,102	28	0,984	6,496	3,583	1,181	2,067	Metric M6	3,425	1,181	1,732 (44mm)	1,890 (48mm)	1,181 (30mm)	50,44
37000-CS-08-20-0	1 1/8			6,732	3,701									
37000-CS-M28-25-0	1,102	28		7,008	3,780									
37000-CS-08-25-0	1 1/8		1,260	7,244	3,898	1,181	2,480	Metric M6	4,173	1,457	2,165 (55mm)	2,362 (60mm)	1,339 (34mm)	76,90
37000-CS-09-25-0	1 3/8													
37000-CS-09-32-0	1 3/8													
37000-CS-10-32-0	1 5/8		93,0	7,244	3,898	1,181	2,480	Metric M6	4,173	1,457	2,165 (55mm)	2,362 (60mm)	1,339 (34mm)	80,07
37000-CS-M42-32-0	1,658	42												





OLAB®

100%

**COMPONENTS FOR
REFRIGERATION SYSTEMS
WITH TRADITIONAL
CONNECTIONS**



30000 SERIES SOLENOID VALVES FOR REFRIGERATION SYSTEMS

USE:

The solenoid valves of 30000 series are designed to be installed on refrigeration and air-conditioning systems using refrigerants of group II (Part Number 9, par. 2.2 of Directive 97/23/EC with reference to directive 67/548/EEC). Group II includes all refrigerants classified as A1 in annex E of EN 378-1: 2008 standard.

OPERATION: the valves of 30000, 30100 and 30200 series are two-way normally closed valves.

CONSTRUCTION:

The main construction components of the solenoid valves of the 30000 series are:

- Hot-forged brass body EN12165 - CW617N
- AISI303 stainless steel sleeve
- Ferritic stainless steel for cores
- AISI 302 stainless steel spring
- Outside neoprene sealing gaskets
- PTFE seat sealing gasket
- Austenitic stainless steel for clamping screws between cover and body

All the coils are class H with winding made of enameled copper wire with insulation class 356°F. The outer casing is made of resin with dielectric properties that provide an effective waterproof insulation.

The coil is always provided with two O-rings at the upper and lower ends that protect the device from humidity. Coils are designed for continuous operation.

INSTALLATION:

Solenoid valves can be installed anywhere in the system provided that the cooling capacity of all different models is taken into account. The device must be installed ensuring that the refrigerant flows in the direction shown by the arrows on the valve body. All models of this series can be mounted in all positions except for the one with a coil turned downwards. Brazing of valves to weldable pipes must be carried out using an alloy with low melting point.

To avoid damages, make sure the flame is not pointed to the body during pipe welding.

Before connecting the device make sure the operating data shown on the coil correspond to those on the system.



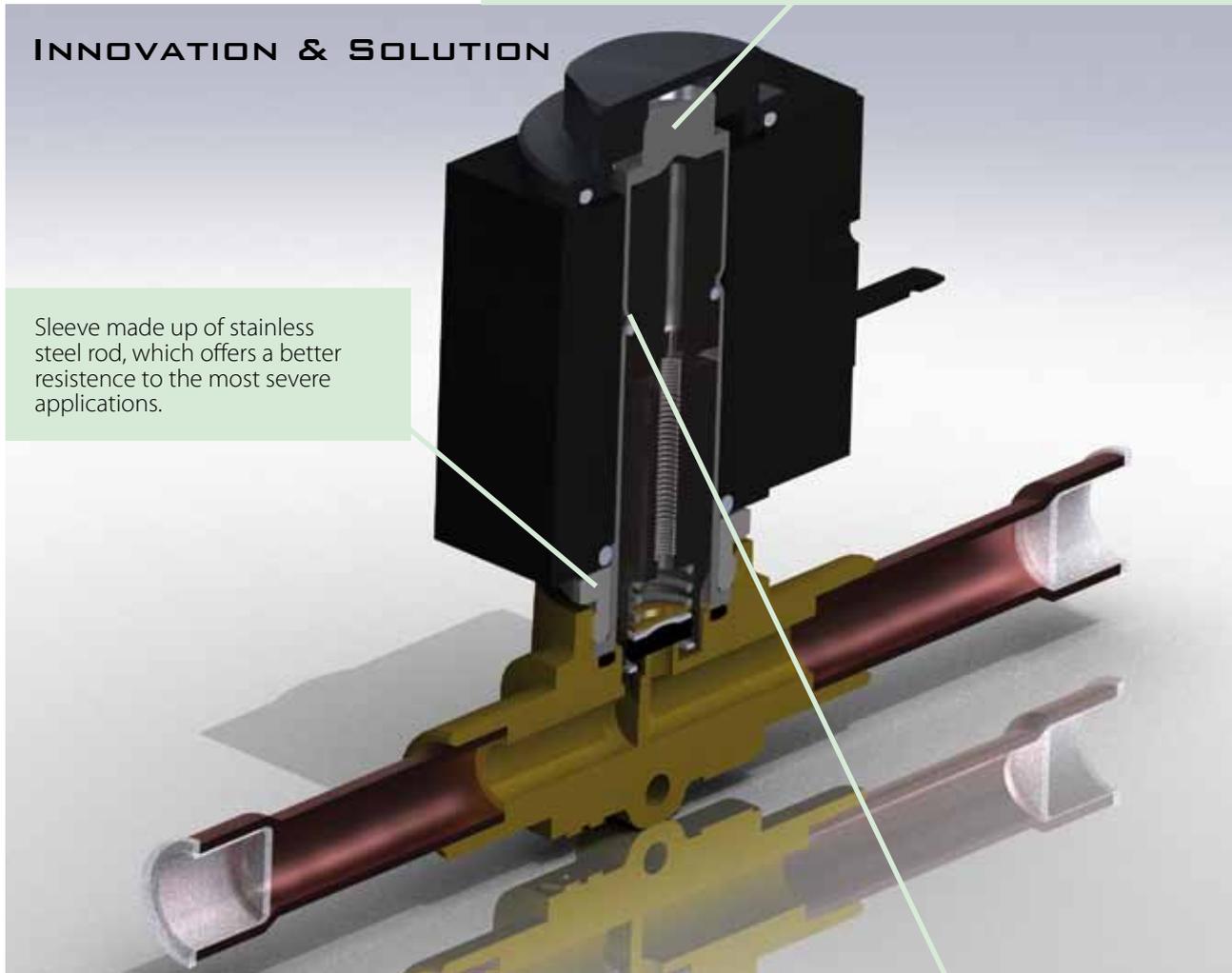
30000 SERIES STRENGTH POINTS



The cup which fixes the coil to the body valve is screwed on a thread on the top of the sleeve, in order to grant easy and correct assembly. There is no need of auxiliary components.

INNOVATION & SOLUTION

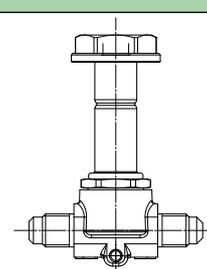
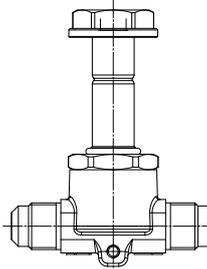
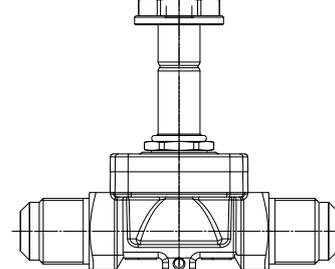
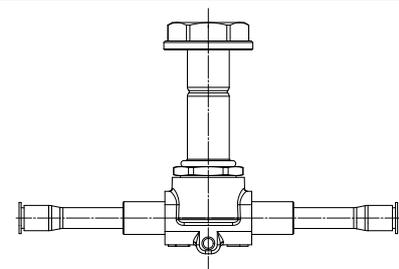
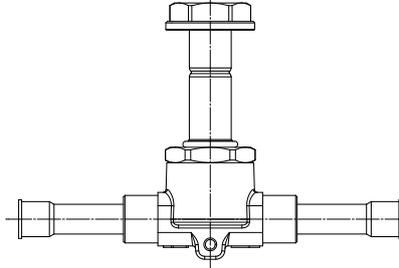
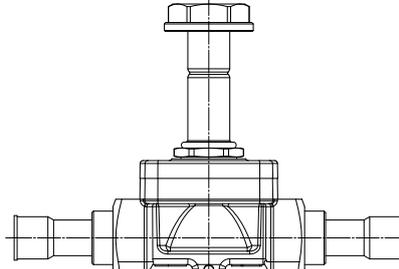
Sleeve made up of stainless steel rod, which offers a better resistance to the most severe applications.



The fixed core is locked by rolling process, which assures mechanical deformation of the sleeve, without discontinuity points which could generate cracking.

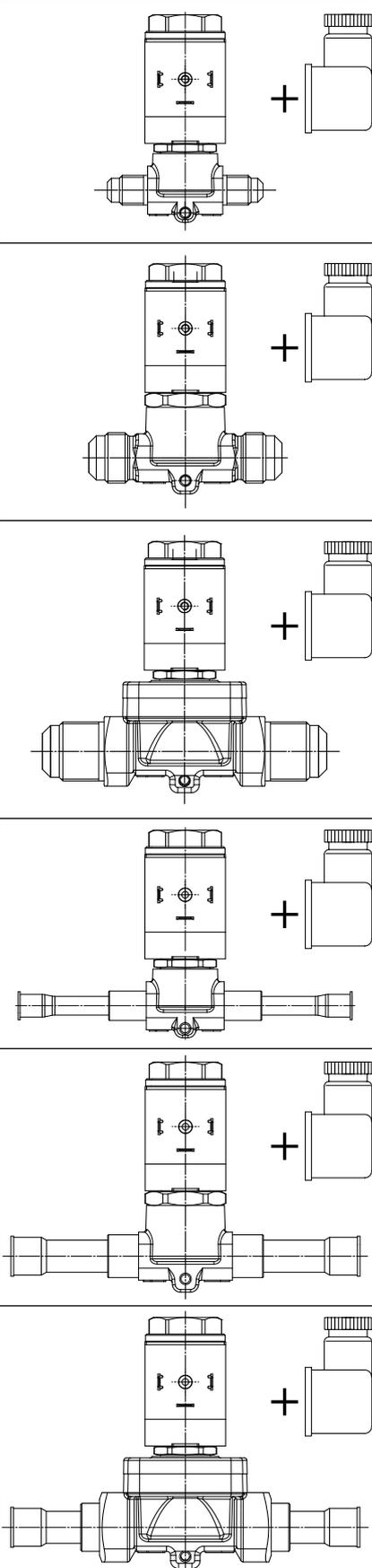
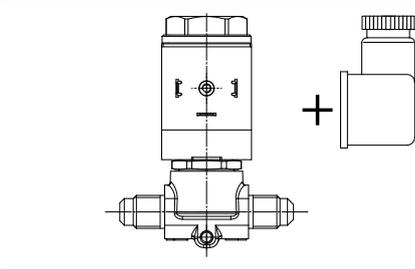
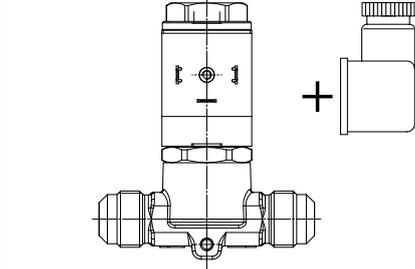
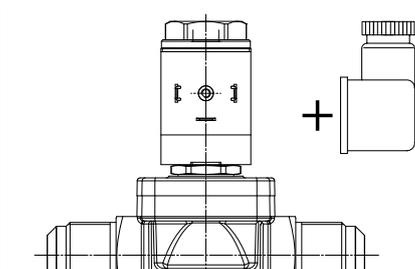
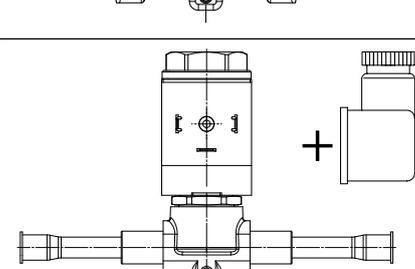
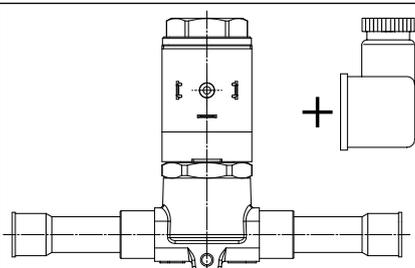
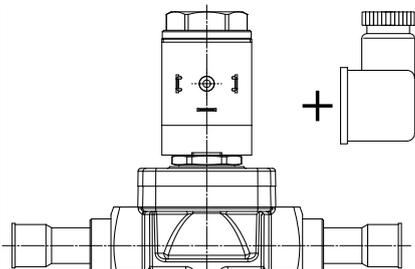


GENERAL CHARACTERISTICS 30000 SERIES SOLENOID VALVES WITHOUT COIL

Working principle	Code	Connections			Cv	PS [psi]	Differential opening pressure [psi]			TS [°F]		
		SAE FLARE	Ø [in]	Ø [mm]			min	MOPD		Min	Max	
								AC	DC			
Direct acting	30010-F-01-2.5	1/4			0,20	652	0	305	275	-31	230	
	30010-F-02-3.0	3/8			0,27							
Diaphragm pilot operated	30110-F-02-6.5	3/8			0,93	652	0,72	305	275	-31	230	
	30110-F-03-6.5	1/2										
Diaphragm pilot operated with flange	30210-F-03-12.5	1/2			2,56	652	0,72	305	260	-31	230	
	30210-F-04-12.5	5/8										
	30210-F-04-16.5	5/8			4,42				188			
	30210-F-05-16.5	3/4			5,58							
Direct acting	30010-T-01-2.2		1/4		0,17	652	0	305	275	-31	230	
	30010-T-01-3.0		1/4									
	30010-T-02-3.0		3/8		0,27							
	30010-T-M10-3.0	0,394	10									
Diaphragm pilot operated	30110-T-02-6.5		3/8		0,93	652	0,72	305	275	-31	230	
	30110-T-M10-6.5	0,394	10									
	30110-T-M12-6.5	0,472	12									
	30110-T-03-6.5		1/2									
Diaphragm pilot operated with flange	30210-T-M12-12.5	0,472	12		2,56	652	0,72	305	260	-31	230	
	30210-T-03-12.5	1/2										
	30210-T-04-12.5	5/8	16		3,02							
	30210-T-06-12.5	7/8	22		4,42				188			
	30210-T-04-16.5	5/8	16									
	30210-T-05-16.5	3/4			5,58							
	30210-T-06-16.5	7/8	22		6,63				275			
	30210-T-08-16.5	1.1/8			11,62							
	30210-T-08-25.5	1.1/8										
30210-T-09-25.5	1.3/8											



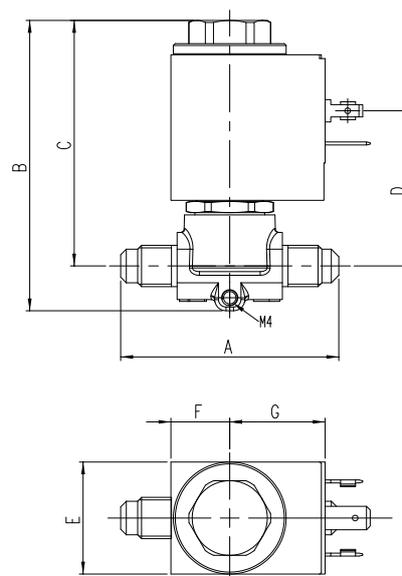
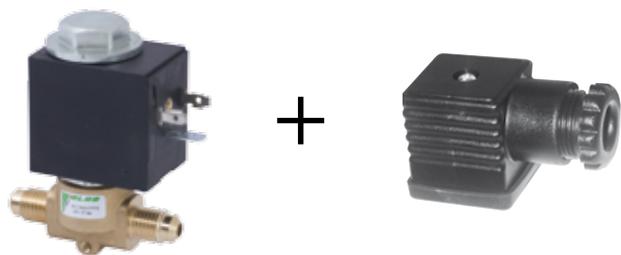
GENERAL CHARACTERISTICS 30000 SERIES SOLENOID VALVES WITH COIL AND WITH CONNECTOR

Working principle	Code	Connections			Cv	PS [psi]	Differential opening pressure [psi]			TS [°F]		
		SAE FLARE	Ø [in]	Ø [mm]			min	MOPD		Min	Max	
								AC	DC			
Direct acting	30020-F-01-2.5-A	1/4			0,20	652	0	305	275	-31	230	
	30020-F-02-3.0-A	3/8			0,27							
Diaphragm pilot operated	30120-F-02-6.5-A	3/8			0,93	652	0,72	305	275	-31	230	
	30120-F-03-6.5-A	1/2										
Diaphragm pilot operated with flange	30220-F-03-12.5-A	1/2			2,56	652	0,72	305	260	-31	230	
	30220-F-04-12.5-A	5/8										
	30220-F-04-16.5-A	5/8		4,42	5,58							
	30220-F-05-16.5-A	3/4										
Direct acting	30020-T-01-2.2-A		1/4		0,17	652	0	305	275	-31	230	
	30020-T-01-3.0-A		1/4									
	30020-T-02-3.0-A		3/8		10							
	30020-T-M10-3.0-A	0,394										
Diaphragm pilot operated	30120-T-02-6.5-A		3/8		0,93	652	0,72	305	275	-31	230	
	30120-T-M10-6.5-A	0,394	10									
	30120-T-M12-6.5-A	0,472	12									
	30120-T-03-6.5-A		1/2									
Diaphragm pilot operated with flange	30220-T-M12-12.5-A		0,472	12	2,56	652	0,72	305	260	-31	230	
	30220-T-03-12.5-A		1/2									
	30220-T-04-12.5-A		5/8	16	4,42							
	30220-T-06-12.5-A		7/8	22					5,58			
	30220-T-04-16.5-A		5/8	16	6,63							
	30220-T-05-16.5-A		3/4						11,62			
	30220-T-06-16.5-A		7/8	22	275							
	30220-T-08-16.5-A		1.1/8									
	30220-T-08-25.5-A		1.1/8									
30220-T-09-25.5-A		1.3/8										



PART NUMBER 30020-F

Solenoid valve for refrigeration, direct action, SAE FLARE connection.

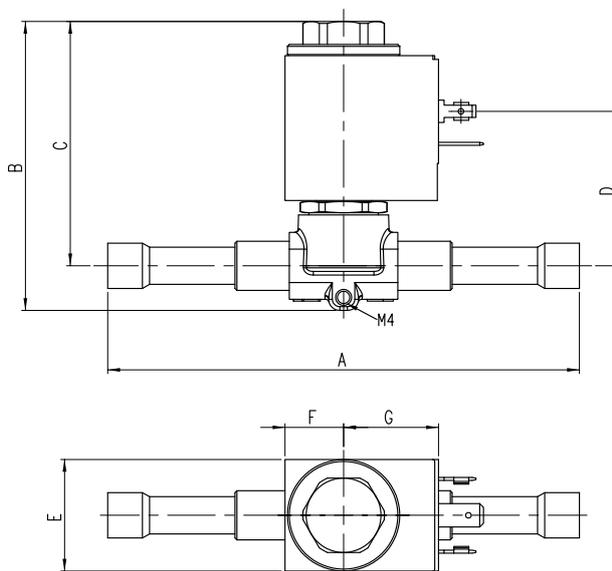
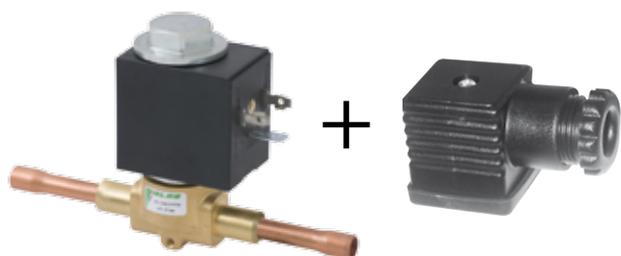


Code	Dimensions [in]						
	A	B	C	D	E	F	G
30020-F-01-2.5- ...	2,283	3,063	2,590	1,638	1,181	0,616	0,959
30020-F-02-3.0- ...	2,559						

Code	Cooling capacity [kW]																	
	Liquid						Steam					Hot gas						
	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507
30020-F-01-2.5- ...	2,98	3,2	3,0	2,08	3,0	2,0	-	-	-	-	-	-	1,5	1,9	2,03	1,68	2,38	1,67
30020-F-02-3.0- ...	3,9	4,2	3,95	2,74	3,95	2,65	-	-	-	-	-	-	1,96	2,5	2,67	2,2	3,13	2,19

PART NUMBER 30020-T

Solenoid valve for refrigeration, direct action, ODF copper pipe.



Code	Dimensions [in]						
	A	B	C	D	E	F	G
30020-T-01-2.2- ...	4,842	3,063	2,590	1,638	1,181	0,616	0,959
30020-T-01-3.0- ...							
30020-T-02-3.0- ...	4,960	3,063	2,590	1,638	1,181	0,616	0,959
30020-T-M10-3.0- ...							

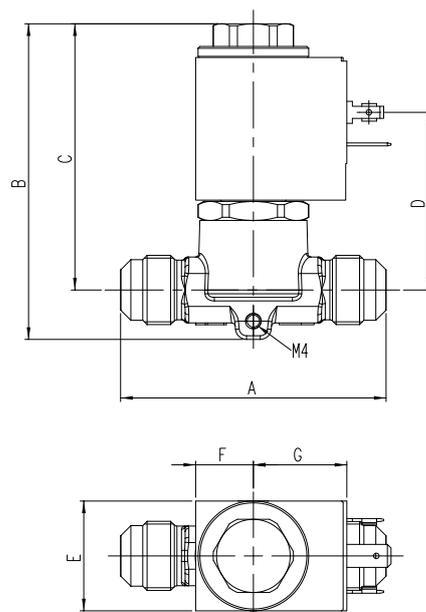
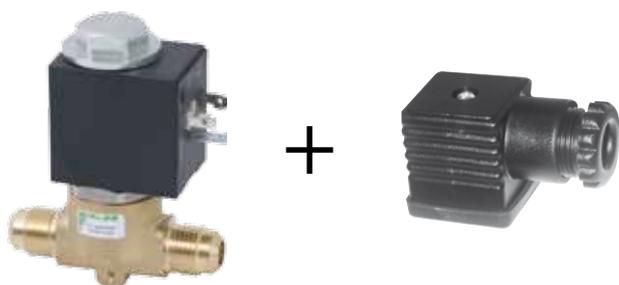
Code	Cooling capacity [kW]																	
	Liquid						Steam					Hot gas						
	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507
30020-T-01-2.2- ...	2,55	2,75	2,6	1,8	2,6	1,73	-	-	-	-	-	-	1,28	1,6	1,74	1,44	2,04	1,43
30020-T-01-3.0- ...	3,9	4,2	3,95	2,74	3,95	2,65	-	-	-	-	-	-	1,96	2,5	2,67	2,2	3,13	2,19
30020-T-02-3.0- ...																		
30020-T-M10-3.0- ...																		

The mentioned capacities refer to the following working conditions: Evaporation temperature = 39,2°F - dew point=100,4°F - pressure drop = 2,17 psi
For hot gas: Suction temperature = 64,4°F - pressure drop = 14,5 psi



PART NUMBER 30120-F

Solenoid valve for refrigeration, pilot-controlled diaphragm, SAE FLARE connection.

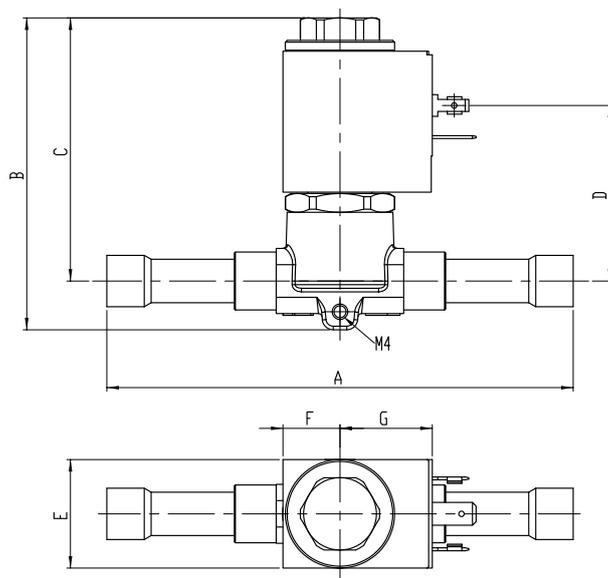
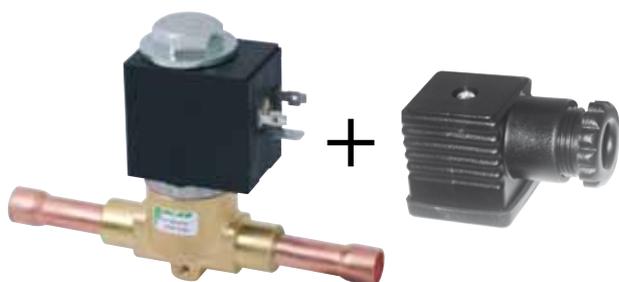


Code	Dimensions [in]						
	A	B	C	D	E	F	G
30120-F-02-6.5- ...	2,677	3,398	2,866	1,913	1,181	0,616	0,959
30120-F-03-6.5- ...	2,835						

Code	Cooling capacity [kW]																		
	Liquid						Steam					Hot gas							
	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	
30120-F-02-6.5- ...	13,5	14,6	13,8	9,5	13,7	9,2	1,5	2,04	1,8	1,78	2,4	1,78	6,8	8,6	9,3	7,7	10,9	7,6	
30120-F-03-6.5- ...																			

PART NUMBER 30120-T

Solenoid valve for refrigeration, pilot-controlled diaphragm, ODF copper pipe.



Code	Dimensions [in]						
	A	B	C	D	E	F	G
30120-T-02-6.5- ...	4,961	3,398	2,866	1,913	1,181	0,616	0,959
30120-T-M10-6.5- ...							
30120-T-M12-6.5- ...							
30120-T-03-6.5- ...	5,039						

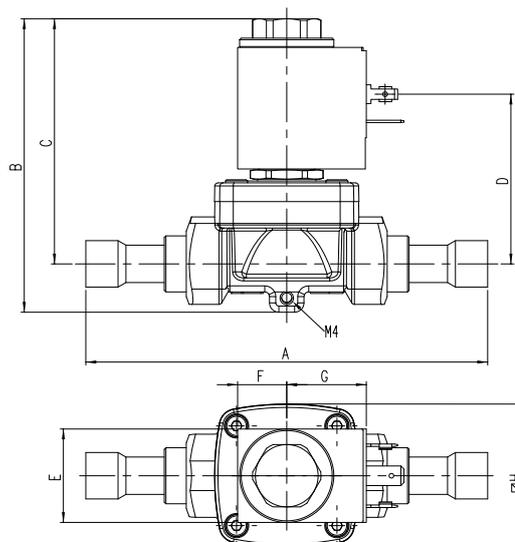
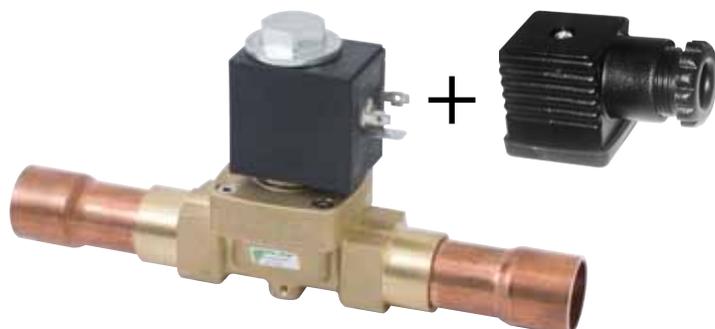
Code	Cooling capacity [kW]																	
	Liquid						Steam					Hot gas						
	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507
30120-T-02-6.5- ...	13,5	14,6	13,8	9,5	13,7	9,2	1,5	2,04	1,8	1,78	2,4	1,78	6,8	8,6	9,3	7,7	10,9	7,6
30120-T-M10-6.5- ...																		
30120-T-M12-6.5- ...																		
30120-T-03-6.5- ...																		

The mentioned capacities refer to the following working conditions: Evaporation temperature = 39,2°F - dew point = 100,4°F - pressure drop = 2,17 psi
For hot gas: Suction temperature = 64,4°F - pressure drop = 14,5 psi



PART NUMBER 30220-T

Solenoid valve for refrigeration, pilot-controlled diaphragm with flanged cover, ODF copper pipe.



Code	Dimensions [in]										
	A	B	C	D	E	F	G	H			
30220-T-M12-12.5- ...	5,039	3,709	3,098	2,146	1,181	0,616	0,959	1,772			
30220-T-03-12.5- ...	6,890										
30220-T-04-12.5- ...	7,480										
30220-T-04-16.5- ...	6,890	4,279	3,216	2,264				1,181	0,616	0,959	2,244
30220-T-05-16.5- ...	7,087										
30220-T-06-16.5- ...	8,504										
30220-T-08-16.5- ...	9,842	4,646	3,898	2,953				1,181	0,616	0,959	3,150
30220-T-08-25.5- ...	11,496										

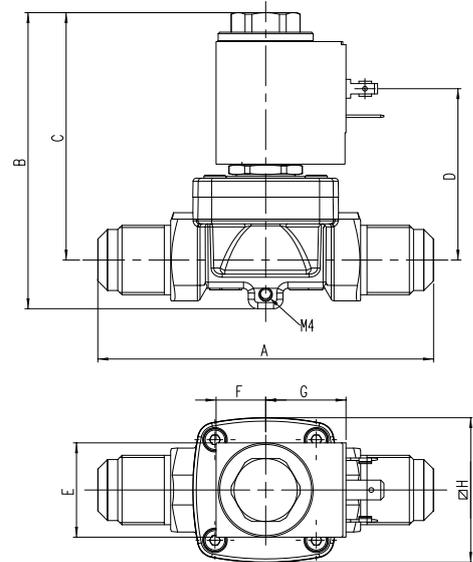
Code	Cooling capacity [kW]																		
	Liquid						Steam						Hot gas						
	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	
30220-T-M12-12.5- ...	37,4	40,3	37,9	26,2	37,8	25,3	4,16	5,6	5,0	4,9	6,6	4,9	18,7	23,8	25,6	21,0	30,0	21,0	
30220-T-03-12.5- ...																			
30220-T-04-12.5- ...	44,4	47,8	45,0	31,1	44,8	30,0	4,93	6,6	5,9	5,8	7,8	5,8	22,2	28,2	30,3	25,0	35,5	25,0	
30220-T-06-12.5- ...																			
30220-T-04-16.5- ...	64,6	69,5	65,5	45,2	65,2	43,7	7,2	9,7	8,6	8,5	11,4	8,5	32,3	41,0	44,2	36,5	51,7	36,3	
30220-T-05-16.5- ...	81,6	87,8	82,7	57,0	82,4	55,2	9,1	12,2	10,9	10,7	14,4	10,7	40,8	51,8	55,8	46,0	65,3	45,8	
30220-T-06-16.5- ...	97,0	104,3	98,2	67,8	98,0	65,6	10,8	14,5	12,9	12,7	17,0	12,7	48,5	61,5	66,2	54,7	77,5	54,4	
30220-T-08-16.5- ...																			
30220-T-08-25.5- ...	170,0	183,0	172,3	119,0	171,7	115,0	18,9	25,5	22,7	22,3	30,0	22,3	85,0	108,0	116,2	96,0	136,0	95,4	
30220-T-09-25.5- ...																			

The mentioned capacities refer to the following working conditions: Evaporation temperature = 39,2°F - dew point=100,4°F - pressure drop = 2,17 psi
For hot gas: Suction temperature = 64,4°F - pressure drop = 14,5 psi



PART NUMBER 30220-F

Solenoid valve for refrigeration, pilot-controlled diaphragm with flanged cover, SAE FLARE connection.



Code	Dimensions [in]							
	A	B	C	D	E	F	G	H
30220-F-03-12.5- ...	3,937	3,709	3,098	2,146	1,181	0,616	0,959	1,772
30220-F-04-12.5- ...	4,173							
30220-F-04-16.5- ...	4,724	4,279	3,217	2,264				2,244
30220-F-05-16.5- ...	4,882							

Code	Cooling capacity [kW]																	
	Liquid						Steam						Hot gas					
	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507	R134A	R22	R407C	R404A	R410A	R507
30220-F-03-12.5- ...	37,4	40,3	37,9	26,2	37,8	25,3	4,16	5,6	5,0	4,9	6,6	4,9	18,7	23,8	25,6	21,0	30,0	21,0
30220-F-04-12.5- ...	44,4	47,8	45,0	31,1	44,8	30,0	4,93	6,6	5,9	5,8	7,8	5,8	22,2	28,2	30,3	25,0	35,5	25
30220-F-04-16.5- ...	64,5	69,5	65,5	45,2	65,2	43,7	7,2	9,7	8,6	8,5	11,4	8,5	32,3	41	44,2	36,5	51,7	36,3
30220-F-05-16.5- ...	81,6	87,8	82,7	57,1	82,4	55,2	9,1	12,2	10,9	10,7	14,4	10,7	40,8	51,8	55,8	46,1	65,3	45,8

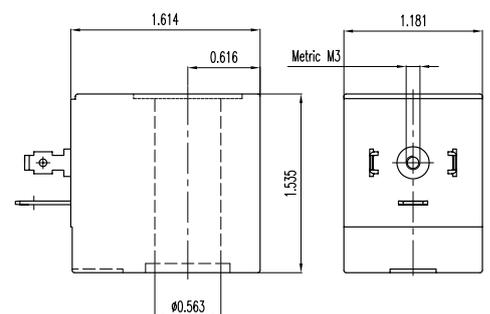
The mentioned capacities refer to the following working conditions: Evaporation temperature = 39,2°F - dew point=100,4°F - pressure drop = 2,17 psi
For hot gas: Suction temperature = 64,4°F - pressure drop = 14,5 psi

PART NUMBER 30000BH

Coils family	Code	Voltage [V]*	Voltage tolerance	Frequency [Hz]	Power supply [VA]	Approvals
30000BH	30000BHFP/B1JU	24	±10%	50/60	21 VA	cUL**
	30000BHFP/U1JU	110/120	+6% / -10%	50/60	21 VA	cUL**
	30000BHFP/J1JU	220/230	+6% / -10%	50/60	21 VA	cUL**
	30000BHFP/L1JU	240	±10%	50/60	21 VA	cUL**

* Others types of coils can be made available upon request

** Approved cUL with connector 7000/CON

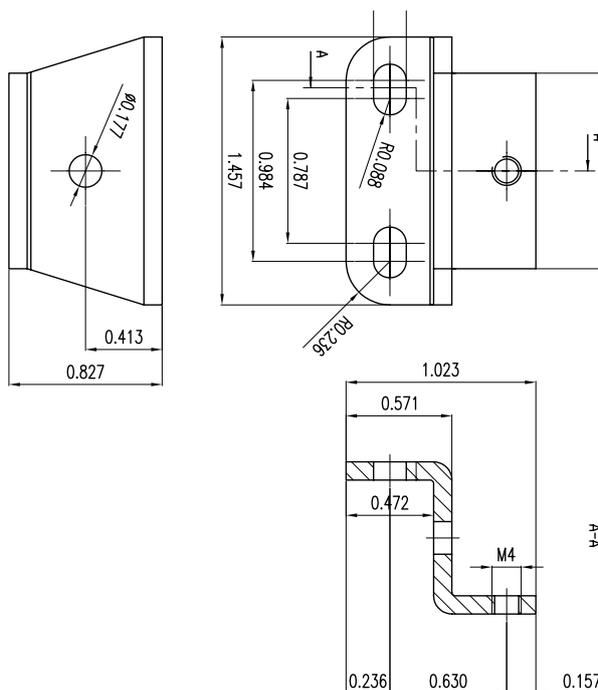


Terminal in compliance with DIN 43650/A



PART NUMBER 30000-15

White zinc-plated steel bracket with M4 screw



PART NUMBER 8851

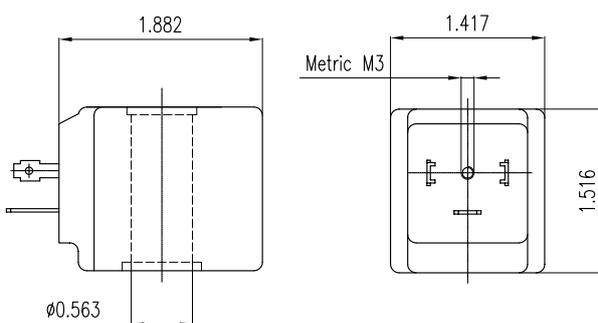
Innovative system for d.c. power supply to the coil. The valve operation is ensured also in case of a wide tolerance range for nominal voltage. It includes a direct current coil + special connector provided with 2000 mm long cables and isolation gaskets.

1,417 in coil with \varnothing 0,563 in sleeve hole



Code	Voltage [V] *	Power supply	Approvals
8851	24 Vdc	24 W	
8851/A	12 Vdc	24 W	

* Voltage tolerance $\pm 10\%$



Terminal in compliance with DIN 43650/A

PART NUMBER 7000/CON (IP 67)

Connector



Max. cable section	0,059 in ²
Clamping screw	PG9, PG11
Protection degree	IP 67 (DIN40050)
Insulation class	Group C - VDE 0110
Connector colour	Black
Resistance	< 4 m Ω
Voltage rating	250 V
Pole number	2+ Ground
Protection	Glass reinforced nylon
Contact-holder	Glass reinforced nylon
Contact rated current	10 A
Max. contact rated current	16 A
Gasket	NBR nitrile rubber
Working temperature	- 40 + 194°F



32000 SERIES

MOISTURE AND LIQUID INDICATORS FOR REFRIGERATION SYSTEMS

USE:

The liquid and humidity indicators are designed to be installed on refrigeration and air-conditioning systems for domestic and industrial use. It's possible to use them with all the refrigerant fluids of group II (Part Number 9, point 2.2 of Directive 97/23/CE, with reference to Directive 67/548/CEE) and they are defined as "pressure Equipments", as described in Directive 97/23/CE, Part Number 1, point 2.1.4, and Part Number 3, point 1.3.

Group II includes all refrigerants classified as A1 in annex E of EN 378-1: 2008 standard.

OPERATION:

The central test paper of 32000 indicators permits a sure and quick control of humidity level and the control of physical state of refrigerant fluid. The level of humidity inside the refrigerant fluid should be under the limits indicated on the following table.

CONSTRUCTION:

The body of 32000 indicator is made by hot forged brass (EN12165-CW617N).

The indicator is equipped by tempered glass and special seal, fixed by a flanging operation that guarantee a perfect sealing. The copper tube are as described in Directive EN 12735/1, while the seals are in PTFE.

INSTALLATION:

At the start-up of circuit the color of test paper can be yellow, in consequence of atmospheric humidity or humidity contamination of plant where the indicator is installed. When the humidity level of refrigerant fluid is steady, by the action of dryer filter, the color of test paper becomes green, because the equilibrium conditions are reached.

Normally, the time required to reach the stationary condition of circuit is 12 hour; if the yellow color of test paper remains, it means that is necessary a further action to eliminate the humidity presence inside the circuit.

The braze welding of indicators equipped by copper tubes should made by special alloy, with low melting point.

The flame should not be directed toward the glass or body of indicator, because it can damage the indicator in consequence of overheating.

Color	Humidity level inside the fluid [p.p.m]					
	R22	R134a	R404	R407C	R410A	R507
Green	<60	<75	<30	<30	<30	<30
"Chartreuse" Green	60	75	30	30	30	30
Yellow	>60	>75	>30	>30	>30	>30



MOISTURE/LIQUID INDICATOR FOR REFRIGERATION SYSTEMS



ORDERING CODE FOR MOISTURE AND LIQUID INDICATORS 32000 SERIES

Family	-	Connections	-	Pipe measure - thread	-	Models	
32000	-	TS	-	01	-	0	
32000	Moisture and liquid indicators	TS	ODF soldering copper pipe	01	1/4 in	0	Liquid indicator with test paper for humidity
		MM	SAE FLARE male/male connection	02	3/8 in	1	Liquid indicator without test paper for humidity
		MF	SAE FLARE male/female connection	03	1/2 in		
				04	5/8 in		
				05	3/4 in		
				06	7/8 in		
				07	1 in		
				08	1.1/8 in		
				M06	6 mm	0,236 in	
				M08	8 mm	0,315 in	
				M10	10 mm	0,394 in	
				M12	12 mm	0,472 in	
				M16	16 mm	0,630 in	
				M18	18 mm	0,709 in	
				M22	22 mm	0,866 in	

EXAMPLES 32000-TS-02-0 Indicator valve of liquid and moisture with ODF soldering pipe Ø3/8 in
32000-MF-03-1 Indicator valve of liquid with male/female SAE FLARE connections ref. 1/2

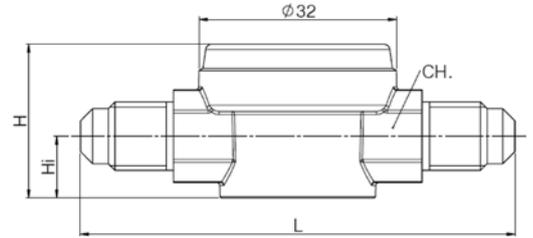




PART NUMBER 32000-MM-xxx-0
HUMIDITY AND LIQUID INDICATOR - MALE/MALE SAE FLARE

Code	Connections			PS [psi]	TS (°F)		Sizes				
	SAE FLARE	Ø [in]	Ø [mm]		Min	Max	H [in]	Hi [in]	L [in]	CH. [in]	Weight [oz]
32000-MM-01-0	1/4			652	-31	+230	0,984	0,394	2,756	0,591	4,2
32000-MM-02-0	3/8						1,181	0,512	2,953	0,827	6,0
32000-MM-03-0	1/2						1,299	0,591	3,150	0,945	8,7

Final code "O" = humidity and liquid indicator

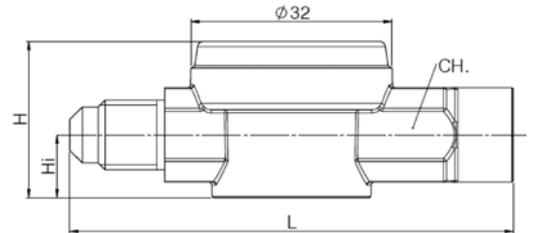


Male connections-"MM" series

PART NUMBER 32000-MF-xxx-0
HUMIDITY AND LIQUID INDICATOR - MALE/FEMALE SAE FLARE

Code	Connections			PS [psi]	TS (°F)		Sizes				
	SAE FLARE	Ø [in]	Ø [mm]		Min	Max	H [in]	Hi [in]	L [in]	CH. [in]	Weight [oz]
32000-MF-01-0	1/4			652	-31	+230	0,984	0,394	2,756	0,591	4,4
32000-MF-02-0	3/8						1,181	0,512	2,953	0,827	6,4
32000-MF-03-0	1/2						1,299	0,591	3,150	0,945	8,7

Final code "O" = humidity and liquid indicator

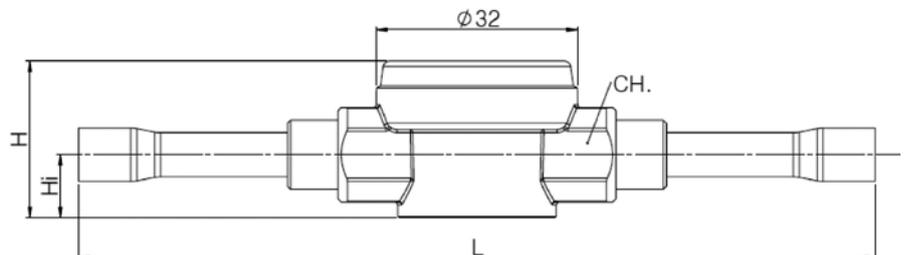


Male/Female connections-"MF" series

PART NUMBER 32000-TS-xxx-0
HUMIDITY AND LIQUID INDICATOR - MALE/FEMALE SAE FLARE

Code	Connections			PS [psi]	TS (°F)		Sizes				
	SAE FLARE	Ø [in]	Ø [mm]		Min	Max	H [in]	Hi [in]	L [in]	CH. [in]	Weight [oz]
32000-TS-M06-0		0,236	6	652	-31	+230	0,984	0,394	4,961	0,591	4,4
32000-TS-01-0		1/4					0,984	0,394	4,961	0,591	4,5
32000-TS-02-0		3/8					1,181	0,512	5,236	0,827	6,5
32000-TS-M10-0		0,394	10				1,181	0,512	5,236	0,827	6,5
32000-TS-M12-0		0,472	12				1,299	0,591	5,512	0,945	8,8
32000-TS-03-0		1/2					1,299	0,591	5,512	0,945	8,8
32000-TS-04-0		5/8					1,299	0,591	6,102	0,945	9,5
32000-TS-M16-0		0,630	16				1,299	0,591	6,102	0,945	9,5
32000-TS-M18-0		0,709	18				1,299	0,591	6,102	0,945	9,7
32000-TS-05-0		3/4					1,299	0,591	6,102	0,945	9,7

Final code "O" = humidity and liquid indicator



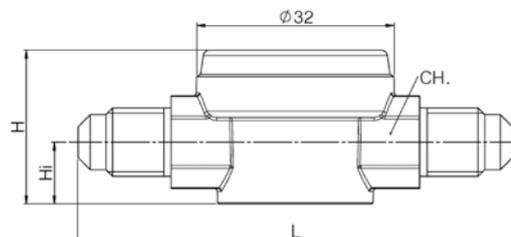
ATTACCO TUBO RAME - SERIE "TS" - Copper tube connections-"TS" series



PART NUMBER 32000-MM-xxx-1
LIQUID INDICATOR - MALE/MALE SAE FLARE

Code	Connections			PS [psi]	TS (°F)		Sizes				
	SAE FLARE	Ø [in]	Ø [mm]		Min	Max	H [in]	Hi [in]	L [in]	CH. [in]	Weight [oz]
32000-MM-01-1	1/4			652	-31	+230	0,984	0,394	2,756	0,591	4,2
32000-MM-02-1	3/8						1,181	0,512	2,953	0,827	6,0
32000-MM-03-1	1/2						1,299	0,591	3,150	0,945	8,7

Final code "1" = liquid indicator

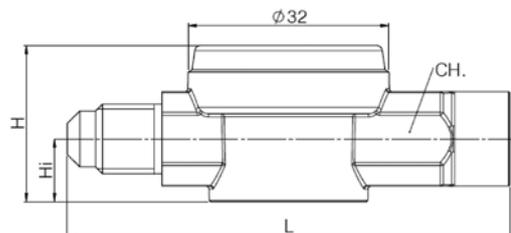


Male Connections-"MM" series

PART NUMBER 32000-MF-xxx-1
LIQUID INDICATOR - MALE/FEMALE

Code	Connections			PS [psi]	TS (°F)		Sizes				
	SAE FLARE	Ø [in]	Ø [mm]		Min	Max	H [in]	Hi [in]	L [in]	CH. [in]	Weight [oz]
32000-MF-01-1	1/4			652	-31	+230	0,984	0,394	2,756	0,591	4,4
32000-MF-02-1	3/8						1,181	0,512	2,953	0,827	6,4
32000-MF-03-1	1/2						1,299	0,591	3,150	0,945	8,7

Final code "1" = liquid indicator

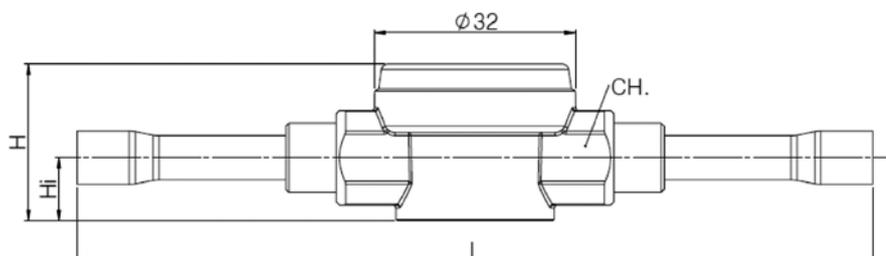


Male/Female connections-"MF" series

PART NUMBER 32000-TS-xxx-1
LIQUID INDICATOR - COPPER TUBE ODF CONNECTIONS

Code	Connections			PS [psi]	TS (°F)		Sizes				
	SAE FLARE	Ø [in]	Ø [mm]		Min	Max	H [in]	Hi [in]	L [in]	CH. [in]	Weight [oz]
32000-TS-M06-1		0,236	6	652	-31	+230	0,984	0,394	4,961	0,591	4,4
32000-TS-01-1		1/4					0,984	0,394	4,961	0,591	4,5
32000-TS-02-1		3/8					1,181	0,512	5,236	0,827	6,5
32000-TS-M10-1		0,394	10				1,181	0,512	5,236	0,827	6,5
32000-TS-M12-1		0,472	12				1,299	0,591	5,512	0,945	8,8
32000-TS-03-1		1/2					1,299	0,591	5,512	0,945	8,8
32000-TS-04-1		5/8					1,299	0,591	6,102	0,945	9,5
32000-TS-M16-1		0,630	16				1,299	0,591	6,102	0,945	9,5
32000-TS-M18-1		0,709	18				1,299	0,591	6,102	0,945	9,7
32000-TS-05-1		3/4					1,299	0,591	6,102	0,945	9,7

Final code "1" = liquid indicator



Copper tube connections-"TS" series



33000 SERIES CHECK VALVE FOR REFRIGERATION SYSTEMS

USE:

The check valves are designed to be installed on refrigeration and air-conditioning systems for domestic and industrial use. It's possible to use them with all the refrigerant fluids of group II (Part Number 9, point 2.2 of Directive 97/23/CE, with reference to Directive 67/548/CEE) and they are defined as "pressure Equipments", as described in Directive 97/23/CE, Part Number 1, point 2.1.4, and Part Number 3, point 1.3.

Group II includes all refrigerants classified as A1 in annex E of EN 378-1: 2008 standard.

OPERATION:

The check valves permit to eliminate flow reversals inside the refrigerant circuit. They are characterized by a low differential pressure.

CONSTRUCTION:

According to the model, the body of 33000 check valve is made by hot forged brass (EN12420-CW617N) or drawn machined brass (CW614N). The copper tube are as described in Directive EN 12735/1, while the seals are in PTFE.

INSTALLATION:

At the start-up of circuit is good to be sure that there are not dust or contamination inside the pipes.

The arrow direction on body valve should be in accord with the flow direction inside the circuit. All mounting positions are accepted, even if is better to be in accord with the vertical axis. The braze welding of copper tubes should made by special alloy, with low melting point. The flame should not be directed toward the seals or body of valve, because it can damage the valve in consequence of overheating.



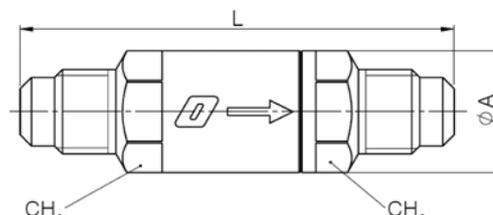


ORDERING CODE FOR CHECK VALVES 33000 SERIES

Family	-	Connections	-	Pipe measure - thread	-	Models	
33000	-	TS	-	M10	-	D	
33000	Check valve	TS	ODF soldering copper pipe	01	1/4 in	D	Straight inlet-outlet
		TM	ODM soldering copper pipe	02	3/8 in		
		MM	SAE FLARE male/male connection	03	1/2 in		
		MF	SAE FLARE male/female connection	04	5/8 in		
				05	3/4 in		
		M06	6 mm	0,236 in	A	Angle inlet-outlet	
		M08	8 mm	0,315 in			
		M10	10 mm	0,394 in			
		M12	12 mm	0,472 in			
		M16	16 mm	0,630 in			
		M18	18 mm	0,709 in			
		M22	22 mm	0,866 in			

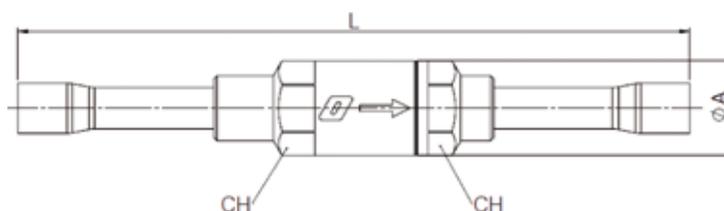
EXAMPLE 33000-MM-01-D Check valve SAE FLARE male/male connection, ref. 1/4 In - straight series

PART NUMBER 33000-MM-xxx-D												
STRAIGHT SAE FLARE MALE/MALE CHECK VALVE												
Code	Connections			Cv	Minimum opening differential pressure [psi]	PS [psi]	TS (°F)		Sizes			
	SAE FLARE	Ø [in]	Ø [mm]				Min	Max	ØA [in]	CH. [in]	L [in]	Weight [oz]
33000-MM-01-D	1/4			0,58	1,45	652	-31	+230	0,630	0,551	2,244	1,9
33000-MM-02-D	3/8			1,74					0,787	0,709	2,717	3,4
33000-MM-03-D	1/2			2,09					0,866	0,787	2,913	4,2



Male connections-"MM" series

PART NUMBER 33000-TS-xxx-D												
STRAIGHT ODF CONNECTION CHECK VALVE												
Code	Connections			Cv	Minimum opening differential pressure [psi]	PS [psi]	TS (°F)		Sizes			
	SAE FLARE	Ø [in]	Ø [mm]				Min	Max	ØA [in]	CH. [in]	L [in]	Weight [oz]
33000-TS-M06-D		0,236	6	0,58	1,45	652	-31	+230	0,630	0,551	4,449	2,1
33000-TS-01-D		1/4		0,58					0,630	0,551	4,449	2,1
33000-TS-02-D		3/8		1,74					0,787	0,709	4,724	3,0
33000-TS-M10-D		0,394	10	1,74					0,787	0,709	4,724	3,0
33000-TS-M12-D		0,472	12	2,09					0,866	0,787	5,512	4,6
33000-TS-03-D		1/2		2,09					0,866	0,787	5,512	4,8
33000-TS-04-D		5/8		3,84					1,063	0,984	6,102	6,4
33000-TS-M16-D		0,630	16	3,84					1,063	0,984	6,102	6,5
33000-TS-M18-D		0,709	18	5,81					1,299	1,181	6,102	6,7
33000-TS-05-D		3/4		5,81					1,299	1,181	6,102	6,9



Copper tube connections-"TS" series



37000 SERIES BALL VALVES FOR REFRIGERATION SYSTEMS

USE:

37000 series ball valves are designed in accordance with the requirements of EN12284:2004 and EN378-1:2012 for installation on refrigeration and air-conditioning systems for civil and industrial use to allow intermittent disconnection of sections of the refrigerating circuit.

They have the following operating features:

Temperature range from -40°F to 302°F

Maximum pressure PS=652 psi

They can be used with all refrigerants listed in Annex E of EN 378-1:2008 belonging to the class A1 (fluids classified as group II according to Part Number 9, point 2.2 of Directive 97/23/CE). Among the refrigerants allowed by the standard, including non-toxic and non-explosive ones, those that currently can be found in refrigerating systems are:

R12 - R22- R134A - R404A - R407C - R410A - R502 – R507

OPERATION:

According to the standard requirements the 37000 series ball valves are provided with a metal protection cap that can be secured with a lead-sealed wire, if necessary, in order to prevent any unauthorized operations.

To operate the valve you must remove the cap using the suitable tool. For the activation of the valve you need a second tool. The metal protection cap, fitted with a sealing gasket, is designed to operate in the same conditions as the valve and therefore can ensure a perfect seal even when the two gaskets mounted on the operating rod may be accidentally deteriorated. The operating rod is designed to prevent its removal due to the internal pressure or tampering actions.

These valves require no maintenance.

CONSTRUCTION:

- Body made of hot forged brass EN12165 - CW617N
- Operating rod and locking pin made of stainless steel AISI 303
- Ball made of chrome-plated brass (EN12165 – EN12164 CW617N or - CW614N according to size)
- Seals (O-RING) of the operating rod and cap made of chloroprene
- Ball seals made of virgin PTFE
- Protection cap made of hot forged brass EN12165 - CW617N

The perfect seal of the body under every temperature, pressure and external mechanical stress condition is ensured by the welding of the various fixed components and by two O-RINGS mounted on the operating rod.

INSTALLATION:

37000 series ball valves can be installed anywhere in the system taking into account the cooling capacities of the different models. The valve can be mounted regardless of the fluid flow direction since ball valves are bidirectional. All models of this series can be mounted in any position.



BALL VALVES FOR REFRIGERATION SYSTEMS

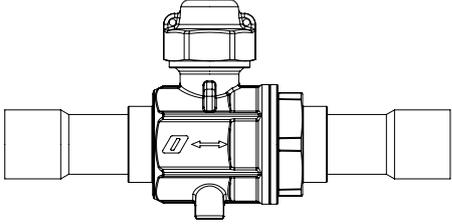
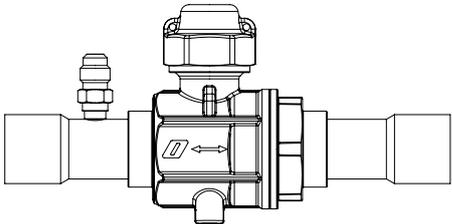


ORDERING CODE FOR BALL VALVES 37000 SERIES

Family	-	Connections	-	Welding pocket size	-	Orifice diameter	-	Models	
37000	-	TS	-	06	-	20	-	1	
37000	Ball valve for refrigeration systems according to EN 12284:2004	TS	ODF copper pipe	M6	0,236 in (6 mm)	12	0,472 in (12mm)	0	Standard
				01	1/4 in	15	0,591 in (15mm)	1	With access fitting
				02	3/8 in	20	0,787 in (20mm)		
				M10	0,394 in (10mm)	25	0,984 in (25mm)		
				M12	0,472 in (12mm)	32	1,260 in (32mm)		
				03	1/2 in				
				04	5/8 in (16mm)				
				M18	0,709 in (18mm)				
				05	3/4 in				
				06	7/8 in (22mm)				
				M28	1,102 in (28mm)				
				08	1.1/8 in				
				09	1.3/8 in (35mm)				
				10	1.5/8 in				
				M42	1,654 in (42mm)				

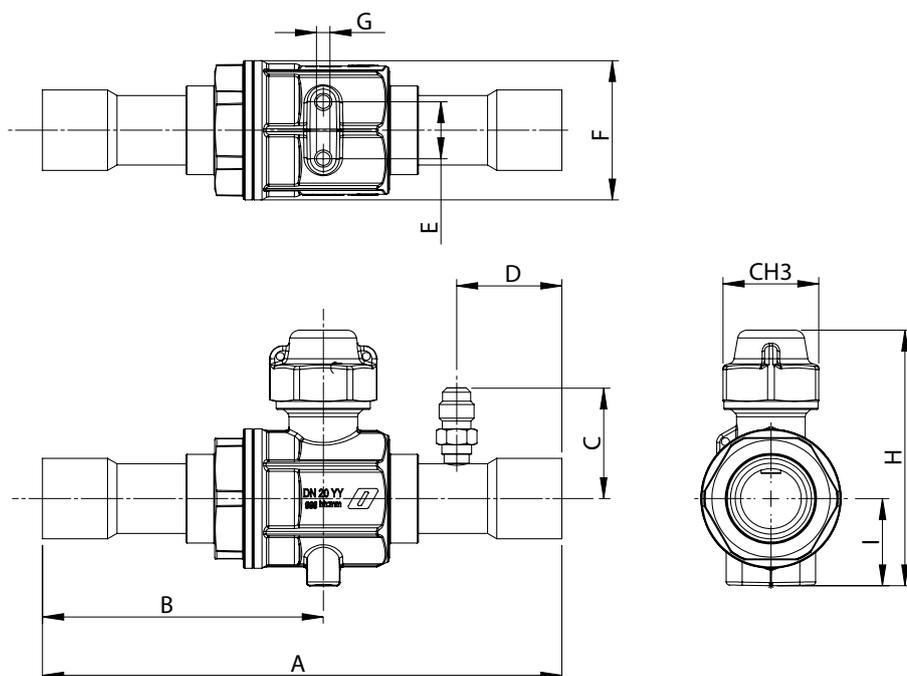


GENERAL CHARACTERISTICS 37000 SERIES

	Code	ODF		Orifice [in]	Cv	PS [psi]	TS (°F)		
		Ø [in]	Ø [mm]				Min	Max	
VALVE WITHOUT CHARGE FITTING	37000-TS-M6-12-0	0,236	6	0,472 (12mm)	1,2	652	-40	302	
	37000-TS-01-12-0	1/4			4,7				
	37000-TS-02-12-0	3/8							
	37000-TS-M10-12-0	0,394	10		8,1				
	37000-TS-M12-12-0	0,472	12						
	37000-TS-03-12-0	1/2							
	37000-TS-04-12-0	5/8	16	0,591 (15mm)	16,3	652	-40	302	
	37000-TS-04-15-0	5/8	16		22,1				
	37000-TS-M18-15-0	0,709	18						
	37000-TS-05-15-0	3/4		0,787 (20mm)	32,6				
	37000-TS-06-15-0	7/8	22						
	37000-TS-06-20-0	7/8	22						
	37000-TS-M28-20-0	1,102	28	0,984 (25mm)	58,1	652	-40	302	
	37000-TS-08-20-0	1 1/8							
	37000-TS-M28-25-0	1,102	28						
	37000-TS-08-25-0	1 1/8		1,260 (32mm)	93,0	652	-40	302	
	37000-TS-09-25-0	1 3/8							
37000-TS-09-32-0	1 3/8								
37000-TS-10-32-0	1 5/8		1,260 (32mm)	93,0	652	-40	302		
37000-TS-M42-32-0	1,658	42							
VALVE WITH CHARGE FITTING	37000-TS-02-12-1	3/8		0,472 (12mm)	4,7	652	-40	302	
	37000-TS-M10-12-1	0,394	10		8,1				
	37000-TS-M12-12-1	0,472	12						
	37000-TS-03-12-1	1/2		0,591 (15mm)	16,3	652	-40	302	
	37000-TS-04-15-1	5/8	16		22,1				
	37000-TS-M18-15-1	0,709	18						
	37000-TS-05-15-1	3/4		0,787 (20mm)	32,6	652	-40	302	
	37000-TS-06-20-1	7/8	22						
	37000-TS-M28-25-1	1,102	28						
	37000-TS-08-25-1	1 1/8		0,984 (25mm)	58,1	652	-40	302	
	37000-TS-08-25-1	1 1/8							
	37000-TS-09-32-1	1 3/8	35	1,260 (32mm)	93,0	652	-40	302	



NO CHARGE FITTING Code	CHARGE FITTING Code	ODF		Dimensions [in]											Weight [oz]
		Ø [in]	Ø [mm]	Orifice	A	B	C	D	E	F	G	H	I	CH3	
37000-TS-M6-12-0		0,236	6	0,472	4,606	2,441	-	-	0,709	1,181	Metric M5	2,244	0,787	0,984 (25mm)	9,17
37000-TS-01-12-0		1/4			4,567	2,480									
37000-TS-02-12-0	37000-TS-02-12-1	3/8			4,646	2,520	1,142	0,787							
37000-TS-M10-12-0	37000-TS-M10-12-1	0,394	10		4,764	2,559	1,181	0,906							
37000-TS-M12-12-0	37000-TS-M12-12-1	0,472	12		5,157	2,756	1,299	0,945							
37000-TS-03-12-0	37000-TS-03-12-1	1/2			5,472	3,031									
37000-TS-04-12-0	37000-TS-04-12-1	5/8	16	0,591	5,551	3,071	1,299	0,945	0,709	1,417	Metric M5	2,520	0,945	0,984 (25mm)	14,46
37000-TS-04-15-0	37000-TS-04-15-1	5/8	16		5,787	3,189									
37000-TS-M18-15-0	37000-TS-M18-15-1	0,709	18		6,969	3,780	-	-							
37000-TS-05-15-0	37000-TS-05-15-1	3/4			6,417	3,465	1,378	1,299							
37000-TS-06-15-0		7/8	22		7,559	4,055	-	-							
37000-TS-06-20-0	37000-TS-06-20-1	7/8	22		7,835	4,173									
37000-TS-M28-20-0		1,102	28	0,787	7,559	4,055	-	-	0,709	1,732	Metric M5	3,150	1,083	1,181 (30mm)	25,57
37000-TS-08-20-0		1 1/8			7,756	4,173	1,496	1,654							
37000-TS-M28-25-0	37000-TS-M28-25-1	1,102	28		9,409	5,000	-	-							
37000-TS-08-25-0	37000-TS-08-25-1	1 1/8			8,268	4,409	1,654	1,732							
37000-TS-09-25-0		1 3/8			8,268	4,409	-	-							
37000-TS-09-32-0	37000-TS-09-32-1	1 3/8			1,260	8,268	4,409	-							
37000-TS-10-32-0		1 5/8		-		-									
37000-TS-M42-32-0		1,658	42												





31000 SERIES FITTINGS FOR REFRIGERATION SYSTEMS

OPERATION

- The sealing system between the end of the male fitting and a nut of the 31000, 31001, 31002 and 31003 series needs a special flare near the end of the copper pipe.
- Flaring of copper pipes (which is forbidden by the national regulations of certain European countries) can be avoided using a sealing system between the end of a male fitting and an adapter with socket welding shank as the copper pipe end is braze welded into the shank pocket. The perfect sealing of the device is obtained by inserting a truncated copper washer (31017/3 series).

CONSTRUCTION MATERIALS

- Union fittings (male and female threaded nipples, adapter shanks, plugs) are made of EN 12164-CW614N brass
- Nuts, elbow fittings and Tee fittings are made of hot-forged EN 12165-CW617N brass
- Caps and truncated gaskets are made of Cu-ETP UNI 5649 copper

TECHNICAL CHARACTERISTICS

- The design maximum pressure of Series 31000 fittings is 652 psi. When hydrostatically tested, these products can withstand a 932 psi pressure (1.43 times the maximum pressure) according to Directive PED (97/23/CE). The burst tests made on the 31000 series fittings proved that they can resist a 1956 psi pressure (3 times the maximum pressure as according to the modified EN 378-2: 2008 standard).



FITTINGS FOR REFRIGERATION SYSTEMS



IN ORDER TO ENSURE THE PERFORMANCES DESCRIBED ABOVE, THE FOLLOWING TORQUE WRENCH SETTINGS MUST BE APPLIED:

SAE thread type	Torque wrench [N.m]	Torque wrench [lbf-ft]
1/4"	14	10,33
3/8"	25	18,44
1/2"	47	34,67
5/8"	65	47,94
3/4"	70	51,63
7/8"	120	88,51
1"	150	110,63

TYPES OF THREADED CONNECTIONS

THE TABLE BELOW SHOWS THE SIZE OF THREADS TYPE SAE J513-92 (ASME B1.1-89) USED TO CONNECT A COPPER PIPE WITH FLARED END (IN BOTH MALE AND FEMALE VERSION):

SAE thread type	Thread size
1/4"	7/16"-20 UNF
5/16"	1/2"-20 UNF
3/8"	5/8"-18 UNF
1/2"	3/4"-16 UNF
5/8"	7/8"-14 UNF
3/4"	1.1/16"-14 UNS
7/8"	1.1/4"-12 UNF
1"	1.3/8"-12 UNF

HOW TO READ SIZES IN INCHES HOW TO READ SIZES IN MILLIMETRES

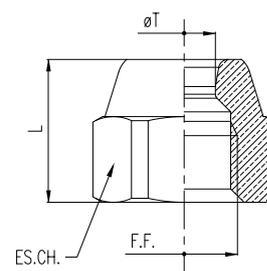
Size in inches	Final extension of the code	Sizes in millimetres	Final extension of the code
1/4"	...-01	6	...-M6
3/8"	...-02	10	...-M10
1/2"	...-03	12	...-M12
5/8"	...-04	15	...-M15
3/4"	...-05	18	...-M18
7/8"	...-06	22	...-M22
1"	...-07	28	...-M28
5/16"	...-11	42	...-M42
		64	...-M64
		80	...-M80



PART NUMBER 31000

SAE FLARE nuts for inch tubing

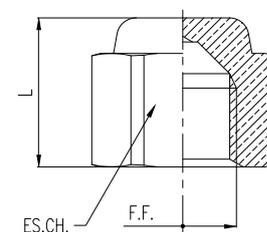
Code	Int. Code	F.F. SAE FLARE	Copper pipe		EC.CH. [in]	L [in]	ØT [in]	Weight [oz]	Pack [pieces]
			Ø [in]	Ø [mm]					
31000-01	NS4-4	1/4	1/4	6	0,669	0,590	0,255	0,7	25
31000-02	NS4-6	3/8	3/8		0,866	0,728	0,381	1,4	25
31000-03	NS4-8	1/2	1/2		0,984	0,728	0,511	1,75	25
31000-04	NS4-10	5/8	5/8	16	1,102	0,826	0,637	3,2	10
31000-05	NS4-12	3/4	3/4		1,299	1,181	0,763	3,4	10
31000-06	NS4-14	7/8	7/8	22	1,614	1,437	0,885	6	5
31000-07	NS4-16	1	1		1,614	1,437	1,007	5,4	5



PART NUMBER 31001

SAE FLARE cup nuts

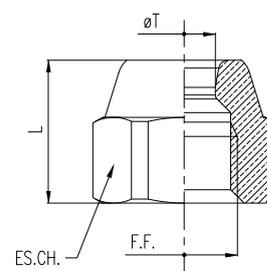
Code	Int. Code	F.F. SAE FLARE	EC.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31001-01	NS-4	1/4	0,669	0,590	0,78	25
31001-11	NS-5	5/16	0,669	0,590	0,7	25
31001-02	NS-6	3/8	0,866	0,728	1,4	25
31001-03	NS-8	1/2	0,984	0,767	1,75	25



PART NUMBER 31002

SAE FLARE reducing nuts for inch tubing

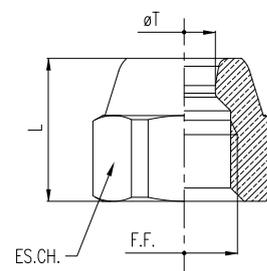
Code	Int. Code	F.F. SAE FLARE	Copper pipe		EC.CH. [in]	L [in]	ØT [in]	Weight [oz]	Pack [pieces]
			Ø [in]	Ø [mm]					
31002-02-01	NRS4-64	3/8	1/4	6s	0,866	0,728	0,255	1,35	25
31002-03-02	NRS4-86	1/2	3/8		0,984	0,767	0,381	1,87	25
31002-04-03	NRS4-108	5/8	1/2		1,102	0,826	0,511	3,1	10
31002-05-04	NRS4-1210	3/4	5/8	16	1,299	1,181	0,637	3,67	5
31002-07-06	NRS4-1614	1	7/8	22	1,614	1,437	0,885	5,65	5



PART NUMBER 31003

SAE FLARE nuts for metric tubing

Code	F.F. SAE FLARE	Copper pipe	EC.CH. [in]	L [in]	ØT [in]	Weight [oz]	Pack [pieces]
		Ø [mm]					
31003-02-M8	3/8	8	0,866	0,728	0,327	1,3	25
31003-02-M10	3/8	10	0,866	0,728	0,406	1,3	25
31003-03-M10	1/2	10	0,984	0,768	0,406	1,9	25
31003-03-M12	1/2	12	0,984	0,768	0,484	1,8	25
31003-03-M14	1/2	14	0,984	0,886	0,563	1,7	25
31003-04-M12	5/8	12	1,102	0,827	0,484	3,3	10
31003-04-M14	5/8	14	1,102	0,827	0,563	3,2	10
31003-05-M14	3/4	14	1,299	1,181	0,536	3,7	5
31003-05-M18	3/4	18	1,299	1,181	0,720	3,5	5

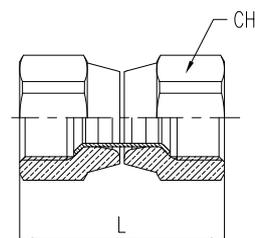




PART NUMBER 31004

SAE FLARE twin nuts

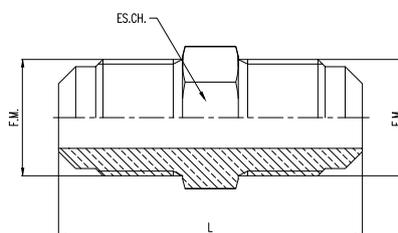
Code	Int. Code	F.F. SAE FLARE	CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31004-01	US4-4	1/4	0,669	1,260	1,4	25
31004-02	US4-6	3/8	0,866	1,575	2,8	10
31004-03	US4-8	1/2	0,984	1,811	3,9	5
31004-04	US4-10	5/8	1,181	2,008	5,3	5



PART NUMBER 31005

SAE FLARE unions

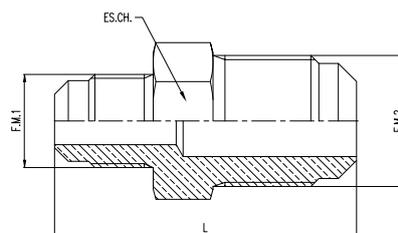
Code	Int. Code	F.M. SAE FLARE	EC.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31005-01	U2-4	1/4	0,472	1,496	0,9	25
31005-02	U2-6	3/8	0,669	1,654	1,7	25
31005-03	U2-8	1/2	0,787	1,929	2,8	10
31005-04	U2-10	5/8	0,906	2,283	4,3	5
31005-05	U2-12	3/4	1,063	2,480	5,8	5
31005-07	U2-16	1	1,417	2,835	10,7	5



PART NUMBER 31006

Reducing SAE FLARE unions

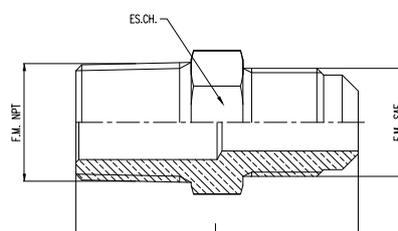
Code	Int. Code	F.M.1 SAE FLARE	F.M.2 SAE FLARE	EC.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31006-01-02	UR2-64	1/4	3/8	0,669	1,594	1,5	25
31006-01-03	UR2-84	1/4	1/2	0,787	1,732	2,1	10
31006-02-03	UR2-86	3/8	1/2	0,787	1,791	2,4	10
31006-02-04	UR2-106	3/8	5/8	0,906	1,988	3,4	5
31006-03-04	UR2-108	1/2	5/8	0,906	2,126	3,7	5
31006-04-05	UR2-1210	5/8	3/4	1,063	2,421	6,0	5



PART NUMBER 31007

SAE FLARE-NPT unions

Code	Int. Code	F.M. SAE FLARE	F.M. NPT	EC.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31007-01-01	U1-4b	1/4	1/4"	0,551	1,496	1	25
31007-02-02	U1-6c	3/8	3/8"	0,669	1,594	1,6	25
31007-03-03	U1-8d	1/2	1/2"	0,866	1,929	3	10
31007-05-05	U1-12f	3/4	3/4"	1,063	2,283	5,4	5
31007-07-07	U1-16h	1	1"	1,417	2,677	9,8	5

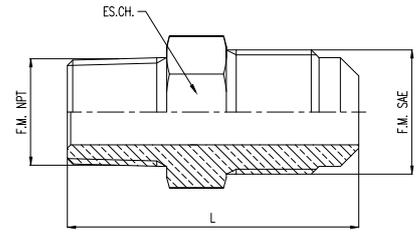




PART NUMBER 31008

SAE FLARE-NPT reducing unions

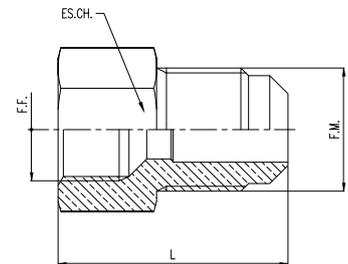
Code	Int. Code	F.M. SAE FLARE	F.M. NPT	EC.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31008-01-00	U1-4A	1/4	1/8"	0,472	1,378	0,8	25
31008-02-01	U1-6B	3/8	1/4"	0,669	1,594	1,5	25
31008-03-02	U1-8C	1/2	3/8"	0,787	1,732	2,3	10
31008-04-03	U1-10D	5/8	1/2"	0,906	2,126	3,8	5



PART NUMBER 31009

Male-female reducing unions (reduced female)

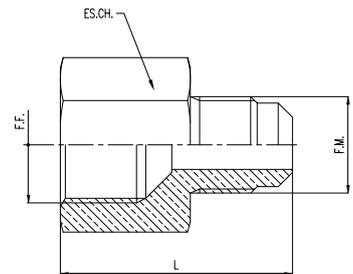
Code	Int. Code	F.M. SAE FLARE	F.F. SAE FLARE	F.F. NPT	EC.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31009-01-00	U3-4A	1/4		1/8"	0,551	1,142	0,7	25
31009-02-01	UR3-46	3/8	1/4		0,669	1,280	1,3	25
31009-03-02	UR3-68	1/2	3/8		0,866	1,378	2,3	10
31009-04-03	UR3-810	5/8	1/2		0,984	1,772	3,5	10
31009-05-03	UR3-812	3/4	1/2		1,063	1,831	4,7	5
31009-05-04	UR3-1012	3/4	5/8		1,181	1,949	5,5	5



PART NUMBER 31010

Male-female reducing unions (reduced male)

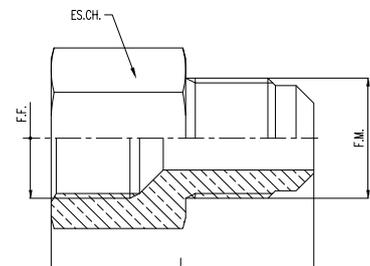
CODE	INT. CODE	F.M. SAE FLARE	F.F. SAE FLARE	EC.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31010-01-02	UR3-64	1/4	3/8	0,866	1,280	1,7	25
31010-01-03	UR3-84	1/4	1/2	0,984	1,417	2,3	10
31010-02-03	UR3-86	3/8	1/2	0,984	1,476	2,5	10
31010-03-04	UR3-108	1/2	5/8	1,181	1,713	4,5	5
31010-03-05	UR3-128	1/2	3/4	1,339	1,772	4,9	5
31010-04-05	UR3-1210	5/8	3/4	1,339	1,929	5,3	5



PART NUMBER 31013

Male-female unions

Code	F.M. SAE FLARE	F.F. SAE FLARE	EC.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31013-01-01	1/4	1/4	0,669	1,181	1,1	25
31013-02-02	3/8	3/8	0,866	1,339	1,8	10
31013-03-03	1/2	1/2	0,984	1,614	3,0	10

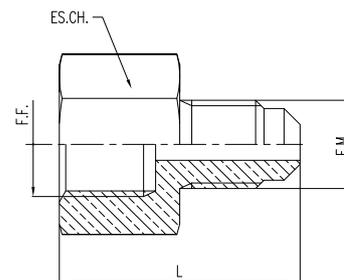




PART NUMBER 31014

Unions SAE FLARE to BSP female thread

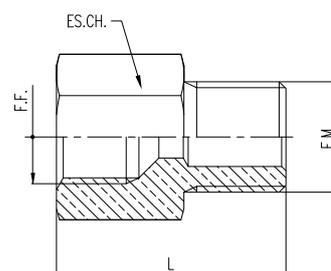
Code	F.M. SAE FLARE	F.F. cylindrical gas	EC.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31014-01-01	1/4	G 1/4"	0,787	1,181	1,5	25



PART NUMBER 31015

Unions SAE FLARE to BSP male thread

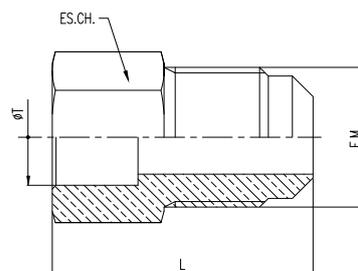
Code	F.F. SAE FLARE	F.M. BSP thread	EC.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31015-01-01	1/4	G 1/4"	0,669	1,063	0,71	25



PART NUMBER 31016

Male SAE FLARE - solder unions

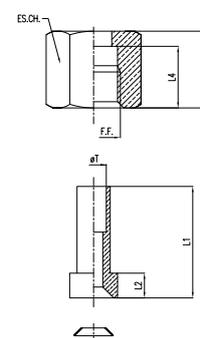
Code	Int. code	F.M. SAE FLARE	Copper pipe		EC.CH. [in]	L [in]	ØT [in]	Weight [oz]	Pack [pieces]
			Ø [inches]	Ø [mm]					
31016-01-01	US3-44	1/4	1/4	6	0,472	1,043	0,256	0,6	25
31016-01-M08		1/4	0,315	8	0,472	1,043	0,327	0,6	25
31016-02-02	USR-66	3/8	3/8		0,669	1,280	0,382	1,4	25
31016-02-M10		3/8	0,394	10	0,669	1,280	0,406	1,3	25
31016-03-03	US3-88	1/2	1/2		0,787	1,378	0,512	1,9	10
31016-03-M12		1/2	0,472	12	0,787	1,378	0,484	2,0	10
31016-04-04	US3-1010	5/8	5/8		0,984	1,772	0,638	3,2	10
31016-05-M18		3/4	0,709	18	1,063	1,791	0,720	4,3	5



PART NUMBER 31017

SAE FLARE - ODS adapters

Code	F.F. SAE FLARE	Copper pipe		L1 [in]	L2 [in]	L3 [in]	L4 [in]	CH. [in]	Weight [oz]	Pack [pieces]
		Ø [inches]	Ø [mm]							
31017-01-01	1/4	1/4		0,827	0,138	0,630	0,492	0,669	2,5	25
31017-01-M6	1/4	0,236	6	0,827	0,138	0,630	0,492	0,669	3,0	25
31017-02-02	3/8	3/8		0,925	0,157	0,728	0,579	0,866	4,2	10
31017-02-M10	3/8	0,394	10	0,925	0,157	0,728	0,579	0,866	4,6	10
31017-03-03	1/2	1/2		1,024	0,177	0,827	0,669	1,063	7,4	10
31017-03-M12	1/2	0,472	12	1,024	0,177	0,827	0,669	1,063	8,1	10
31017-04-04	5/8	5/8	16	1,083	0,197	0,886	0,709	1,181	9,7	10
31017-05-05	3/4	3/4		1,181	0,197	0,984	0,787	1,417	14,5	5
31017-05-M18	3/4	0,709	18	1,181	0,197	0,984	0,787	1,417	16,3	5



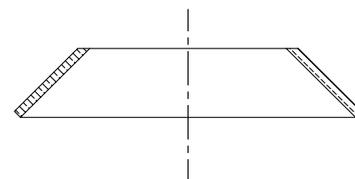


PART NUMBER 31017/3

Copper gasket

minimum lot 1000

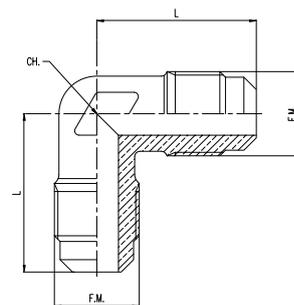
Code	SAE connection	Weight [oz]	Pack [pieces]
31017/3-01	1/4	0,018	2000
31017/3-02	3/8	0,018	2000
31017/3-03	1/2	0,035	2000
31017/3-04	5/8	0,053	1000
31017/3-05	3/4	0,106	1000



PART NUMBER 31100

SAE FLARE elbows

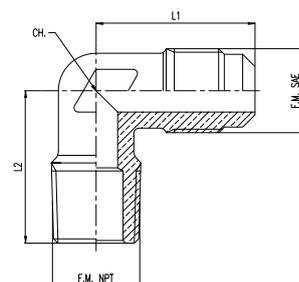
Code	Int. Code	F.M. SAE FLARE	CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31100-01	E2-4	1/4	0,394	0,965	1,2	25
31100-02	E2-6	3/8	0,551	1,161	2,5	10
31100-03	E2-8	1/2	0,630	1,280	3,9	10
31100-04	E2-10	5/8	0,787	1,417	4,1	5
31100-05	E2-12	3/4	0,984	1,673	6,8	5



PART NUMBER 31101

SAE FLARE-NPT elbows

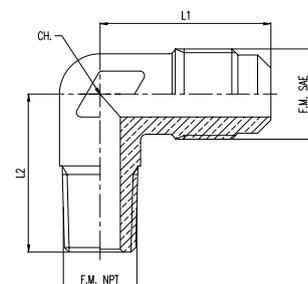
Code	Int. Code	F.M. SAE FLARE	F.M. NPT	CH. [in]	L1 [in]	L2 [in]	Weight [oz]	Pack [pieces]
31101-01	E1-4B	1/4	1/4	0,394	0,965	0,984	1,3	25
31101-02	E1-6C	3/8	3/8	0,551	1,161	1,122	2,5	10
31101-03	E1-8D	1/2	1/2	0,630	1,280	1,299	4,2	10
31101-05	E1-12F	3/4	3/4	0,984	1,673	1,555	6,5	5



PART NUMBER 31102

SAE FLARE-reduced NPT elbows

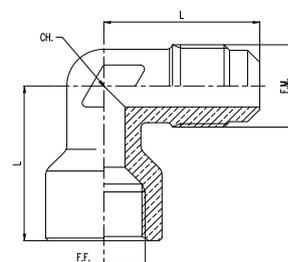
Code	Int. Code	F.M. SAE FLARE	F.M. NPT	CH. [in]	L1 [in]	L2 [in]	Weight [oz]	Pack [pieces]
31102-01-00	E1-4A	1/4	1/8	0,394	0,965	0,945	1,2	25
31102-02-01	E1-6B	3/8	1/4	0,551	1,161	1,083	2,3	10
31102-03-02	E1-8C	1/2	3/8	0,630	1,280	1,22	3,4	10
31102-04-03	E1-10D	5/8	1/2	0,787	1,417	1,378	4,0	10



PART NUMBER 31103

Male-female SAE FLARE elbows

Code	F.M. SAE FLARE	F.F. SAE FLARE	CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31103-01	1/4	1/4	0,394	0,965	1,5	25
31103-02	3/8	3/8	0,551	1,161	2,8	10
31103-03	1/2	1/2	0,630	1,280	4,6	10

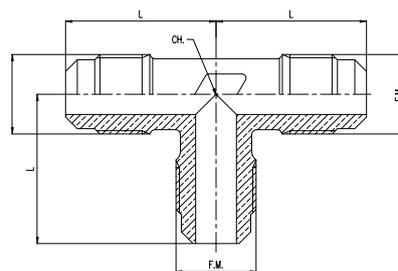




PART NUMBER 31200

SAE FLARE TEE

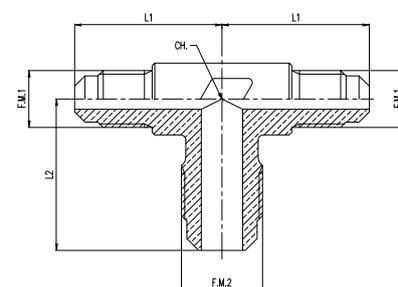
Code	Int. Code	F.M. SAE FLARE	CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31200-01	T2-4	1/4	0,394	0,965	1,8	25
31200-02	T2-6	3/8	0,551	1,161	3,5	10
31200-03	T2-8	1/2	0,630	1,280	5,3	10
31200-04	T2-10	5/8	0,787	1,417	5,4	5
31200-05	T2-12	3/4	0,984	1,634	8,3	5



PART NUMBER 31201

SAE FLARE reducing TEE (reduced side connections)

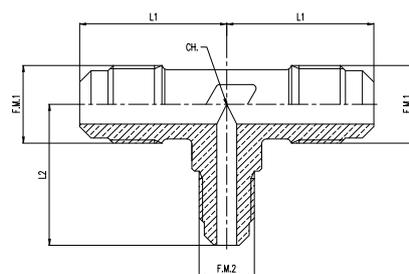
Code	Int. Code	F.M. 1 SAE FLARE	F.M. 2 SAE FLARE	CH. [in]	L1 [in]	L2 [in]	Weight [oz]	Pack [pieces]
31201-01-02	TR2-46	1/4	3/8	0,551	1,122	1,161	3,2	25
31201-02-03	TR2-68	3/8	1/2	0,630	1,240	1,280	5,3	10
31201-03-04	TR2-810	1/2	5/8	0,787	1,417	1,496	5,4	10
31201-04-05	TR2-1012	5/8	3/4	0,984	1,634	1,634	8,1	5



PART NUMBER 31202

SAE FLARE reducing TEE (reduced central connection)

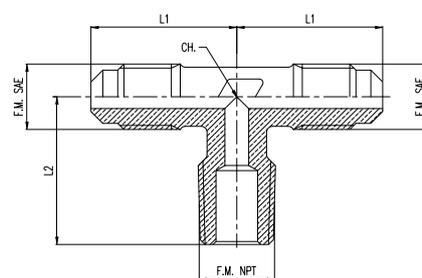
Code	Int. Code	F.M. 1 SAE FLARE	F.M. 2 SAE FLARE	CH. [in]	L1 [in]	L2 [in]	Weight [oz]	Pack [pieces]
31202-02-01	TR2-64	3/8	1/4	0,551	1,161	1,122	3,5	10
31202-03-02	TR2-86	1/2	3/8	0,630	1,280	1,240	5,7	10
31202-04-03	TR2-108	5/8	1/2	0,787	1,417	1,496	5,6	5
31202-05-04	TR2-1210	3/4	5/8	0,984	1,634	1,634	7,8	5



PART NUMBER 31203

SAE FLARE/NPT TEE (taper central connection)

Code	Int. Code	F.M. SAE FLARE	F.M. NPT	CH. [in]	L1 [in]	L2 [in]	Weight [oz]	Pack [pieces]
31203-01-00	T1-4A	1/4	1/8	0,394	0,965	0,906	1,6	25
31203-01-01	T1-4B	1/4	1/4	0,394	0,965	0,984	1,8	25
31203-02-02	T1-6B	3/8	3/8	0,551	1,161	1,122	3,5	10
31203-03-02		1/2	3/8	0,630	1,280	1,260	5,3	10
31203-03-03		1/2	1/2	0,630	1,280	1,299	5,7	10

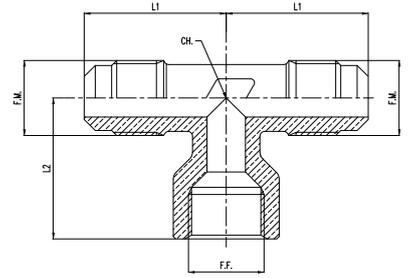




PART NUMBER 31204

Male-female SAE FLARE TEE (female central connection)

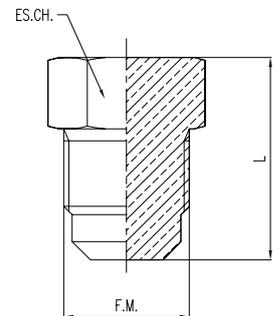
Code	Int. Code	F.M. SAE FLARE	F.F. SAE FLARE	CH. [in]	L1 [in]	L2 [in]	Weight [oz]	Pack [pieces]
31204-01	T6-4	1/4	1/4	0,394	0,965	0,965	1,9	25
31204-02		3/8	3/8	0,551	1,161	1,161	4,2	10
31204-03		1/2	1/2	0,630	1,280	1,280	6,0	10



PART NUMBER 31400

SAE FLARE plugs

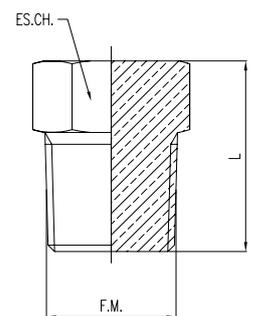
Code	Int. Code	F.M. SAE FLARE	ES.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31400-01	P2-4	1/4	0,472	0,906	0,6	25
31400-02	P2-6	3/8	0,669	1,004	1,2	25
31400-03	P2-8	1/2	0,787	1,142	1,9	10



PART NUMBER 31401

NPT plugs

Code	Int. Code	F.M. NPT	ES.CH. [in]	L [in]	Weight [oz]	Pack [pieces]
31401-00	121-B-02	1/8	0,472	0,787	0,14	50
31401-01	121-B-04	1/4	0,551	0,906	0,74	25
31401-02	121-B-06	3/8	0,669	0,945	1,17	25
31401-03	121-B-08	1/2	0,866	1,142	2,16	10
31401-05	121-B-12	3/4	1,063	1,260	5,30	5
31401-07	121-B-16	1	1,339	1,535	9,89	5

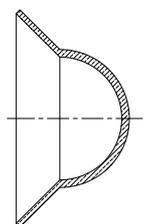


PART NUMBER 31402

Copper seal caps

Code	SAE connection	Weight [oz]	Pack [pieces]
31402-01	1/4	0,018	2000
31402-02	3/8	0,035	2000
31402-03	1/2	0,053	2000
31402-04	5/8	0,071	1000
31402-05	3/4	0,141	1000
31402-06	7/8	0,353	1000

minimum lot 1000





31500 SERIES

SERVICE VALVE ADAPTERS AND MECHANISMS FOR REFRIGERATION SYSTEMS

USE:

Service valve adapters and their mechanisms are designed for installation in cooling systems as well as domestic and industrial air-conditioning systems where refrigerants of Group II (as provided for by Part Number 9, section 2.2 of Directive 97/23/CE with reference to Directive 67/548/EEC) are used.

Thanks to these devices, the system can be quickly and simply filled and drained.

After these operations, a cap with a gasket is installed on the device to prevent refrigerant leaks.

The device can also be closed using a blind pipe union (item 31001) with application of a truncated copper gasket with shank (item 31517).

OPERATION:

The housing of the mechanism for service valve adapters is made according to ARI STANDARD 720:1997.

When the mechanism is tightened (according to the provided torque) inside the service valve adapter, the refrigerant can be filled or drained by simply acting on the needle of the mechanism.

CONSTRUCTION:

Straight service valve adapters are drawn from EN12164-CW614N brass bar, elbows and Tee service valve adapters are made of hot-forged EN12165-CW617N brass.

Mechanisms are made of EN12164-CW614N brass with neoprene gaskets.



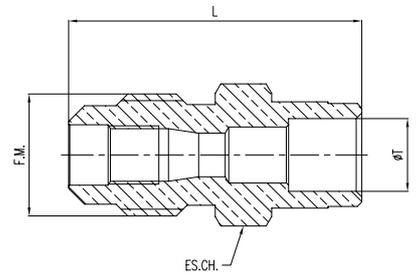
SERVICE VALVE ADAPTERS FOR REFRIGERATION SYSTEMS



PART NUMBER 31500

Straight service valve adapter body with SAE male thread and socket weld

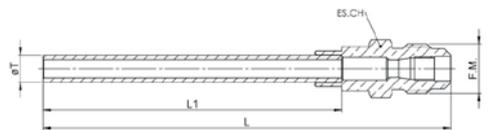
Code	F.M. SAE FLARE	ØT welding socket [in]	EC.CH. [in]	L [in]	Weight [oz]	PS [psi]
31500-01-01	1/4	0,256	0,433	1,024	0,42	652
31500-01-M6	1/4	0,242	0,433	0,787	0,35	652



PART NUMBER 31501

Straight service valve adapter body with SAE male thread and welded pipe

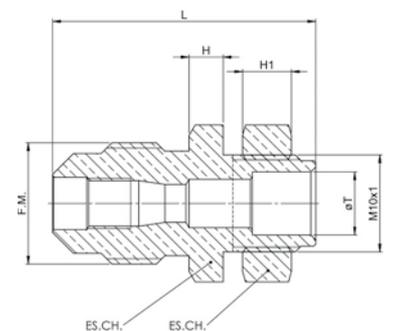
Code	F.M. SAE FLARE	ØT [in]	EC.CH. [in]	L1 [in]	L [in]	Weight [oz]	PS [psi]
31501-01-M6-L90	1/4	Ø0,236x0,039	0,433	2,598	3,543	0,5	652



PART NUMBER 31502

Straight bulkhead service valve adapter with SAE male thread and socket weld

Code	F.M. SAE FLARE	ØT [in]	EC.CH. [in]	Body			Nut		PS [psi]
				Weight [oz]	H [in]	L [in]	Weight [oz]	H1 [in]	
31502-01-01	1/4	0,256	0,551	0,49	0,138	1,024	0,14	0,2	652
31502-11-01	5/16	0,256	0,551	0,64	0,138	1,063	0,14	0,2	652

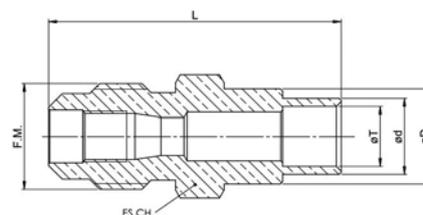




PART NUMBER 31503

Straight service valve adapter body with SAE male thread - socket weld and shank

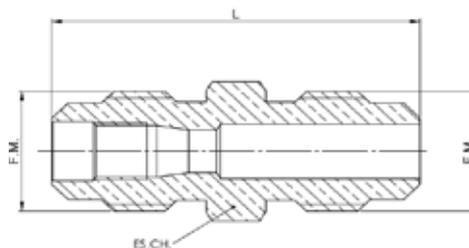
Code	F.M. SAE FLARE	ØT [in]	ØD [in]	Ød [in]	EC.CH. [in]	L [in]	Weight [oz]	PS [psi]
31503/A	1/4	0,242	0,386	0,307	0,433	1,181	0,49	652
31503/B	1/4		0,335	0,228	0,433	1,024	0,42	
31503/C	5/16		0,366	0,268	0,551	1,063	0,67	
31503/D	5/16		0,366	0,228	0,551	1,063	0,67	
31503/E	1/4	0,203	0,307	0,242	0,433	1,063	0,42	



PART NUMBER 31504

Straight service valve adapter body with two SAE male threads

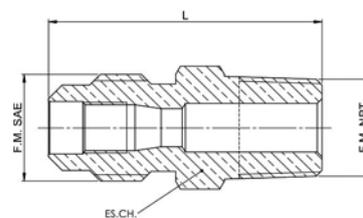
Code	F.M. SAE FLARE	EC.CH. [in]	L [in]	Weight [oz]	PS [psi]
31504-01	1/4	0,433	1,220	0,57	652



PART NUMBER 31505

Straight service valve adapter body with SAE male thread and NPT male thread

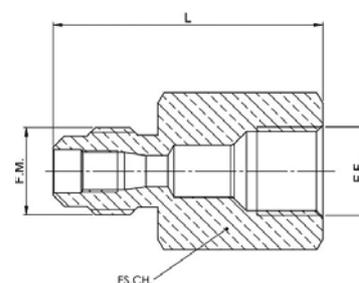
Code	F.M. SAE FLARE	F.M. NPT	EC.CH. [in]	L [in]	Weight [oz]	PS [psi]
31505-01-00	1/4	1/8	0,433	1,102	0,5	652
31505-01-01	1/4	1/4	0,551	1,319	0,9	
31505-01-02	1/4	3/8	0,669	1,398	1,2	



PART NUMBER 31506

Straight service valve adapter body with SAE male thread and SAE female thread

Code	F.M. SAE FLARE	F.F. SAE FLARE	EC.CH. [in]	L [in]	Weight [oz]	PS [psi]
31506-01-01	1/4	1/4	0,669	1,319	1,4	652

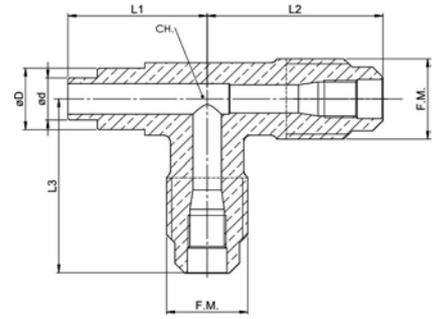




PART NUMBER 31507

"TEE" service valve adapter body with two SAE male threads and side IDS shank

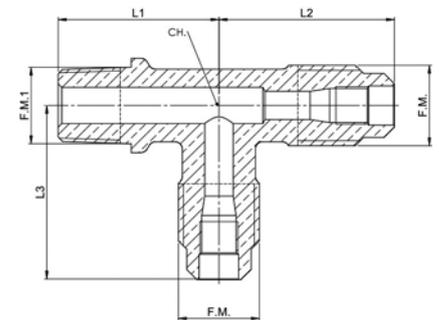
Code	F.M. SAE FLARE	ØD [in]	Ød [in]	L1 [in]	L2 [in]	L3 [in]	CH. [in]	Weight [oz]	PS [psi]
31507-01-M6	1/4	0,335	0,228	0,748	0,945	0,945	0,433	1,2	652



PART NUMBER 31508

"TEE" service adapter body with two SAE male threads and side NPT thread

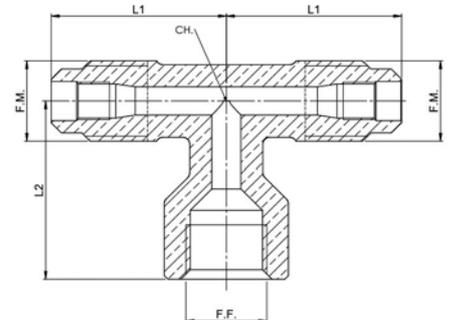
Code	F.M. SAE FLARE	F.M.1	L1 [in]	L2 [in]	L3 [in]	CH. [in]	Weight [oz]	PS [psi]
31508-01-00	1/4	1/8 NPT	0,866	0,945	0,945	0,433	1,3	652
31508-01-01	1/4	1/4 NPT	0,984	0,984	0,984	0,512	1,7	652



PART NUMBER 31509

"TEE" service valve adapter body with two SAE male threads and central SAE female thread

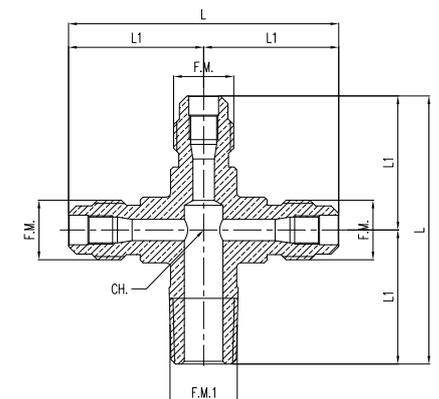
Code	F.M. SAE FLARE	F.F. SAE FLARE	L1 [in]	L2 [in]	CH. [in]	Weight [oz]	PS [psi]
31509-01-01	1/4	1/4	0,945	0,965	0,433	1,7	652



PART NUMBER 31511

Cross service valve adapter with three SAE male threads and one NPT male thread

Code	F.M. SAE FLARE	F.M.1	L [in]	L1 [in]	CH. [in]	Weight [oz]	PS [psi]
31511-01-01	1/4	1/4 NPT	1,929	0,965	0,512	2,0	652

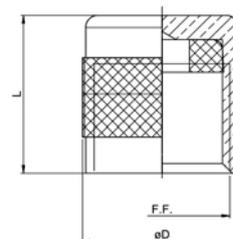




PART NUMBER 31514

Cap with SAE female thread and neoprene sealing gasket

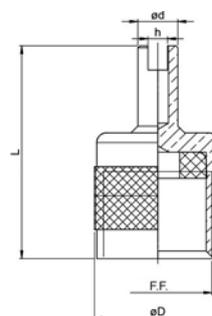
Code	F.F. SAE FLARE	ØD [in]	L [in]	Weight [oz]
31514-01	1/4	0,512	0,512	0,3
31514-11	5/16	0,590	0,551	0,4



PART NUMBER 31515

Cap with SAE female thread and neoprene sealing gasket with valve tightening wrench

Code	F.F. SAE FLARE	ØD [in]	L [in]	h [in]	Ød [in]	Weight [oz]
31515-01	1/4	0,512	0,866	0,08	0,161	0,35



PART NUMBER 31516

Valve mechanism with external spring

Code	Static pressure [psi]	Working pressure [psi]	Torque wrench [ft. lb]	Working temperature [°F]
31516	2030	870	0,37	From -40°F to +212°F



PART NUMBER 31516/A

Valve mechanism with internal spring

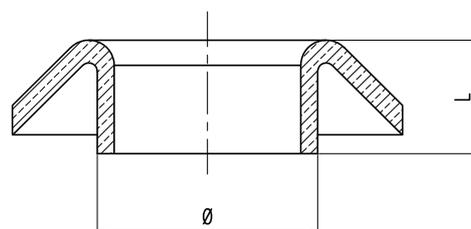
Code	Static pressure [psi]	Working pressure [psi]	Torque wrench [ft. lb]	Working temperature [°F]
31516/A	507	435	0,26	From -31°F to +212°F



PART NUMBER 31517

Truncated copper gasket with shank

Code	SAE connection	Ø [in]	L [in]	PS [psi]
31517-01	1/4	0,205	0,110	652



F L U I D C O N T R O L



P R E C I S I O N & R E L I A B I L I T Y M A D E I N I T A L Y



OLAB®



**SOLENOID VALVES
FLUID CONTROL**

DESCRIPTION

The pilot-operated solenoid valves manufactured by OLAB represented by the Series 18000, are on-off valves suitable for liquid and gaseous fluids whose viscosity is not greater than 37 CST (or 5°E).

These are pilot-controlled diaphragm solenoid valves with NPT threaded female inlet-outlet connections, CW617N brass casing and cap, stainless steel magnetic parts and NBR, EPDM Peroxide or FKM diaphragms.

The **18000** are 2 way normally closed type (2 way 2 positions), while the 18500 valves are 2 way normally open.

Despite their small weight and size (due to their peculiar profile), they are extremely robust and the fluid temperature are in compliance with gasket materials and the maximum allowable viscosity.

They are suitable for all fluids compatible with the materials which the gaskets and the internal components are made of, except for the dangerous fluids of Group 1 as according to the European Directive 97/23/EC (PED).

The range includes all sizes from 3/8" NPT to 2" NPT with orifice holes from Ø0.453 to Ø1.969 inches, while the coils are all Class H for continuous use (ED100%).

The Series 8000 is the direct action solenoid valves manufactured by OLAB.

These Series is composed by:

- **Part Number 8184** and **8201** that are 2 way normally closed valves
- **Part Number 8062** that is 2 way normally open valve
- **Part Number 8251** that is 3 way normally closed valve
- **Part Number 8201K** that is 2 way normally closed valve completely in stainless steel material
- **Part Number 8251K** that is 3 way normally closed valve completely in stainless steel material

All models are available with 1/8 NPT and 1/4 NPT female inlet/outlet thread.

Part Number 8201K and 8251K are also available with 3/8NPT and 1/2NPT threads inlet/outlet.

Gaskets are made of NBR, EPDM peroxide, FKM and other elastomers are also available on request.

The guided diaphragm pilot operated solenoid valves of the Series **20000** by OLAB are of the guided diaphragm-type with NPT threaded female inlet and outlet connections (from 3/8" NPT to 1" NPT), CW617N brass casing and cap, stainless steel magnetic parts and FKM diaphragm.

INSTRUCTIONS FOR USE

INSTRUCTIONS FOR MECHANICAL CONNECTION

Install the device so that the flow direction follows the direction on the valve body shown by an arrow or numbers that indicate inlet and outlet.

- Make sure that the connection areas upstream the device are clean.
- **During installation, make sure that no foreign materials or substances used for sealing (glue for securing threads, dopes, etc.) penetrate the device, as solid particles could affect the device operation.**
Check the boiler carefully, especially the components subjected to sand blasting or shot-peening.
The residues of these types of working often penetrate the solenoid valve thus affecting operation.
- Leave enough space around the solenoid valve to allow maintenance or inspection operations.

INSTRUCTIONS FOR ELECTRIC CONNECTION

- Make sure that rating corresponds to the operational data and check that voltage is the same as shown on the coil: a higher voltage could blow out the coil, while a lower voltage can prevent the coil from tripping.
- Place the coil as far as possible from a heat source and in a well ventilated area to help heat dissipation.
- Always connect the ground terminal to the equipment ground, though the coil plate (and its earth) is unipotential to the valve body due to contact of parts.
- Do not power the coil if not installed on the solenoid valve: overheating can make the coil blow out.
- The coil installed on the solenoid valves supplied by OLAB is positioned in such a way that the electric connection does not affect the mechanical connection; coils can also be supplied according to the customer request.
Important: the coil locking nut is tightened at the factory by a pre-set torque wrench setting, which is suitable to avoid any mechanical stress on the sleeve.

However, if the coil position needs to be changed, **please call OLAB engineering department.**

The device configuration set at the factory is the best possible for most applications: all changes can affect the product performance.

GENERAL INSTRUCTIONS FOR USE

- Solenoid valves manufactured by OLAB can operate with high temperatures due to the coil normal heating caused by current, fluid temperature and heating of the surrounding devices (boilers, electrical cards, etc.). Therefore, high temperatures are a normal condition: do not put your hands on the solenoid valve after a long operation. Instead, smoke and burning smell can be signs of abnormal overheating.
- Solenoid valves manufactured by OLAB have been designed to guarantee higher performance as regards working pressure, in compliance with the insulation class H for coils. In any case, you should not forget pressure natural decrease due to coil heating.
- Registered pressure is the maximum test pressure used by the certification agencies. The real maximum working pressure of each single model at the rated temperature must be calculated from the data sheet and depends on the inner diameter of the passing hole, the coil power, the maximum working temperature, the type of fluid being used. For further information call our engineering department.

TEST STANDARDS

The solenoid valves manufactured by OLAB have been designed according to the standards in force for electrically-controlled valves. as they undergo stricter tests than those provided for by the standards, they can be used for a large range of applications under the best conditions of safety and reliability.

This approach has been imposed not only by the will of developing an extremely competitive product, but also by the awareness that users often adopt internal test procedures linked to the standards in force in this field, which are often stricter than the prescribed directions.

Nevertheless, we suggest that customers should call OLAB engineering department to test equipment where solenoid valves have been installed according to prescriptions which do not follow the field prescriptions (en60335, en50106).

Follow the recommendation below:

- The solenoid valve electrical part (the coil) has an IP00 protection degree if not equipped with appropriate connector, and the housing is made up of plastic material and has a minimum hygroscopicity. Therefore, the absorption of water from the surrounding environment is to be taken into account when assessing the insulation power of plastics. In any case, **avoid plunging the coil into water.**
- The insulating power of all plastic materials, and so also the coil's housing, decreases as temperature increases; beyond 90°C, the dielectric strength of a good plastic material is reduced to a half. This fact must be taken into consideration when hot dielectric strength tests are carried out, as there will not be the same performance as for tests carried out at room temperature.
- If repeated several times, the dielectric strength tests cause a deterioration of the plastics insulating power. This factor must be taken into account when sequential tests are carried out and it will also be convenient to carry out all dielectric strength tests with a voltage 20% lower than the previous one.
- The field standards (EN 60730, EN 60335) prescribe that the dielectric strength tests are not carried out immediately after the hygroscopicity test. In fact, water absorbed by plastics reduces its insulating power and this factor must be taken into account if the test is carried out in wet conditions. In this case, the performance will not be the same as in dry conditions.
- During dielectric strength tests, make sure not to touch the coil housing with the test prod as this could cause a superficial current discharge between phase terminal and ground terminal, which does not witness the plastics insulating power but only the presence of an electric arc in the air or on the coil surface.

MAINTENANCE

- Before removing the device, check it is not under pressure.
- Before removing the device, turn off the power.
- In the solenoid valves suitable to be cleaned inside (with tightened sleeve), the internal parts can be removed for cleaning/ replacement.
- Components must be replaced by OLAB original spare parts.
- Do not damage the most delicate parts (cores, gaskets, tight seats) when cleaning the internal components.

INSTALLATION

Solenoid valves are particularly sensitive to the formation of limestone deposits, especially where hot water is used. This is because the inlet sections of the outlet gauged hole (DN) are larger, and dirt from the upstream devices can easily accumulate.

This fact can cause:

- A noisy solenoid valve (vibrations).
- Decrease of the internal gasket and outlet hole sealing capacity.

Solenoid valves can generally operate regardless of their position; nevertheless, the best position is the one shown in fig. 1, while fig. 2 shows wrong installations which could result in vibrations, and fig. 3 shows the "upside-down" position to be avoided as it causes dirt accumulation and formation of limestone deposits near the core contact surface.

If, during installation, you have to grip on the solenoid valve to secure or tighten it to the inlet and outlet connections, we suggest you should act **always and only** on the solenoid valve using properly dimensioned fork spanners and the locking surfaces on the forged piece.

Never touch the coil to prevent sleeve deformation!

It is also recommended not to loosen or tighten the coil locking nut as this could affect the pre-set torque wrench setting.

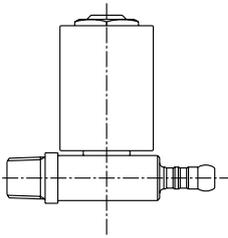


FIG. 1

BEST WORKING POSITION OF THE SOLENOID VALVE.

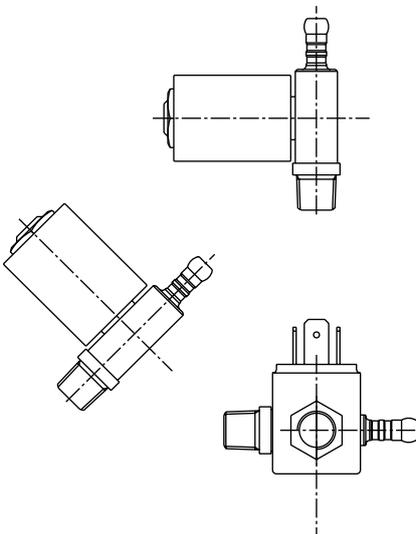


FIG. 2

WORKING POSITIONS TO BE AVOIDED BECAUSE OF VIBRATIONS.

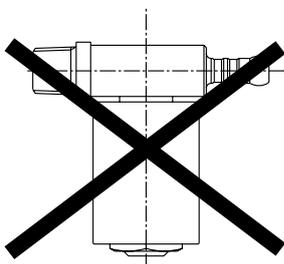


FIG. 3

WORKING POSITION TO BE AVOIDED BECAUSE OF DIRT AND LIMESTONE ACCUMULATION ON THE CORE CONTACT SURFACE.

PILOT-OPERATED SOLENOID VALVES

GENERAL FEATURES

Operating instructions

The electro-pilot of the pilot-operated solenoid valves is not directly responsible for opening the solenoid valve. The solenoid valve presents three sequential chambers (see drawing below):

- inlet chamber C_i (upstream the diaphragm)
- compensating chamber C_c (downstream the diaphragm and upstream the electro-pilot)
- outlet chamber C_u (downstream the electro-pilot).

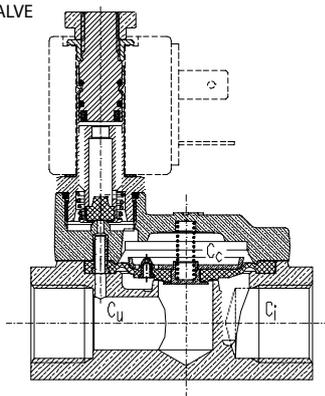
In the 2 way normally closed (N.C.) solenoid valve, C_i and C_c are communicating by means of a compensating hole when the coil is de-energized. Therefore, the diaphragm is in a condition of balanced pressure level and orifice tightness is ensured by the retaining spring load of the same diaphragm.

When the coil is energized by acting on the electro-pilot, there is an immediate communication between C_c and C_u : the sudden increase in volume of the pressurized fluid over the diaphragm ($C_c + C_u > C_i$) causes, according to the Boyle-Mariotte's law, a pressure drop.

The diaphragm is no longer in a condition of balanced pressure level (pressure under it is higher than pressure over it) and swells up in the higher pressure direction raising up and opening the orifice to let the fluid flow.

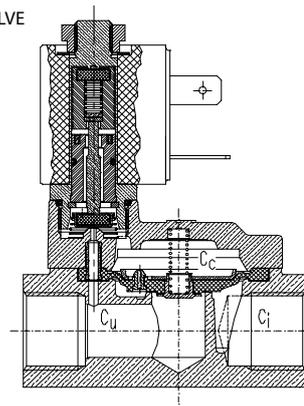
In the 2 way normally open (N.O.) solenoid valve, C_c and C_u are communicating when the coil is de-energized and pressure under the diaphragm is higher than pressure over it and as a result, the diaphragm is raised to let the fluid flow. When instead the coil is energized, the communicating passage between C_c and C_u is closed. The volume available to the pressurized fluid above the diaphragm is suddenly reduced and, always because of the Boyle-Mariotte's law, this results in a pressure increase above the diaphragm. The lack of balance so produced makes the diaphragm close on the seal.

N.C. PILOT-OPERATED SOLENOID VALVE



Internal view of a pilot operated solenoid valve

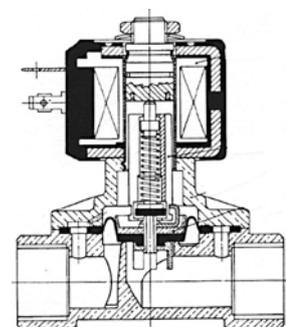
N.O. PILOT-OPERATED SOLENOID VALVE



Internal view of a pilot operated solenoid valve

In the direct action solenoid valves, the electro-pilot has direct control on the solenoid valve opening (N.O. versions) or closing (N.C. versions) when the coil is energized.

In the guided diaphragm pilot operated solenoid valves, the electro-pilot is partially responsible for opening the solenoid valve as it lifts the diaphragm by pulling it upwards. For this reason, it is characterised by the electro-pilot positioned in the middle of the cap and not laterally as in the pilot operated solenoid valves.



Internal structure of a guided diaphragm pilot operated solenoid valve

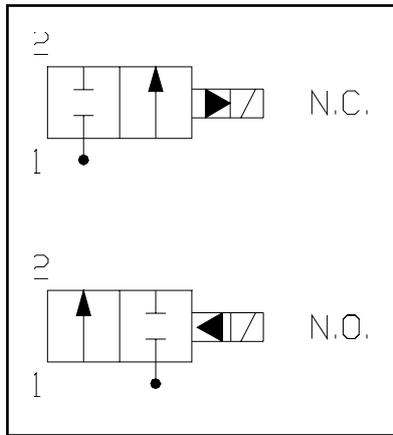
MINIMUM PRESSURE

One of the main characteristics of pilot-operated solenoid valves is their need for a minimum inlet pressure in the range of 1,45 ÷ 5,80 psi according to the versions. This is not true for direct action solenoid valves, nor for guided diaphragm pilot operated solenoid valves that do not need minimum pressure to be operated.

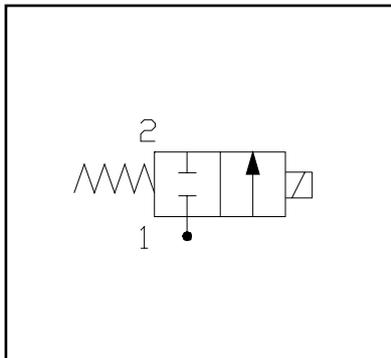
DELAY

Another peculiarity of these solenoid valves is the delay between the power supply electric impulse and the solenoid valve opening (or closing). For pilot-operated solenoid valves this delay (depending on diameters and compensating holes) can reach about a hundred milliseconds. For direct action and guided diaphragm pilot operated solenoid valves, the delay is only a few dozen milliseconds.

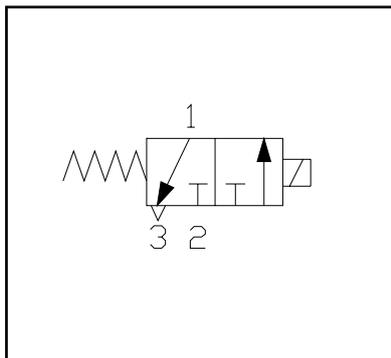
SYMBOLS ACCORDING TO CETOP STANDARD



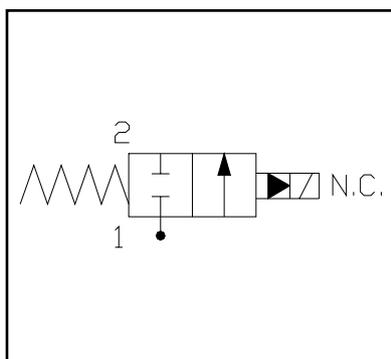
PILOT-OPERATED 2-WAY SOLENOID VALVES



DIRECT ACTION 2-WAY SOLENOID VALVES



DIRECT ACTION 3-WAY SOLENOID VALVES



GUIDED DIAPHRAGM PILOT OPERATED 2-WAY SOLENOID VALVES

18000 SERIES PILOT-OPERATED SOLENOID VALVES RANGE



ORDERING CODE FOR SOLENOID VALVES 18000 SERIES

Family		Female thread connections		Orifice diameter		Gasket Material		Coils	
18020		42		11.5		B		AE	
18020	NC with coil and connector	42	3/8" NPT	mm	in	B	NBR	AE	220/230VAC 50/60Hz 11,5VA cUL
18025	NC with coil and connector Slow closing	43	1/2" NPT	11.5	0,453	LP	PEROXIDE EPDM	AF	24VAC 50/60Hz 11,5VA cUL
18520	NO with coil and connector	44	3/4" NPT	13.5	0,531	I	FKM	AG	120VAC 50/60Hz 11,5VA cUL
18525	NO with coil and connector Slow closing	45	1" NPT	13.5	0,531			AH	240VAC 50/60Hz 11,5VA cUL
		46	1"1/4 NPT	18	0,709			H	12Vdc 10W
		47	1"1/2 NPT	26	1,024			I	24Vdc 10W
		48	2" NPT	32	1,260			AI	220/230VAC 50/60Hz 17VA cUL
		72	3/8" NPT	45	1,772			AL	24VAC 50/60Hz 17VA cUL
		73	1/2" NPT	50	1,969			AM	120VAC 50/60Hz 17VA cUL
		74	3/4" NPT					AN	240VAC 50/60Hz 17VA cUL
		75	1" NPT					AT	12Vdc 19W
		76	1"1/4 NPT					U	24Vdc 19W
		77	1"1/2 NPT					AO	220/230VAC 50/60Hz 29VA
		78	2" NPT					Z	24VAC 50/60Hz 29VA
								AP	120VAC 50/60Hz 29VA
								AR	240VAC 50/60Hz 29VA
								AS	12Vdc 30W
								Y	24Vdc 30W

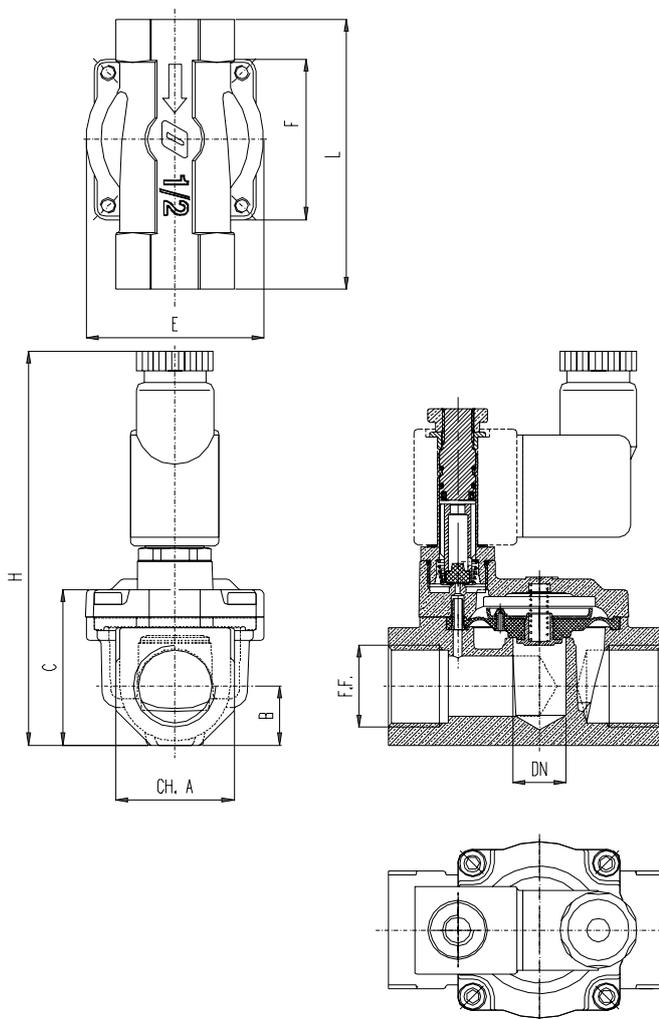
NOTE N.O. and N.C. solenoid valves up to 1" NPT have coils of the series 6000BH installed
 N.O. 1"1/4 NPT solenoid valves and N.C. up to 2" NPT have coils of the series 8000BH installed
 N.O. 1"1/2 NPT and 2" NPT valves have coils of the series 10000BH installed

EXAMPLES 18020-44-18-LP-AE Normally closed solenoid valve, 3/4" NPT inlet/outlet female connections, Ø0,709 inches orifice, peroxidic EPDM gaskets, with 220/230V 50/60Hz 11,5VA cUL coil
 18525-42-11.5-I-AF Normally open solenoid valve, 3/8" NPT inlet/outlet female connections, Ø0,453 inches orifice, FKM gaskets, with 24V 50/60Hz 11,5VA cUL coil

18020 SOLENOID VALVES PILOT OPERATED - 2 WAY NORMALLY CLOSED (N.C.)

SIZE, PERFORMANCE AND PRICE.

Main applications: thermo-hydraulic plants, autoclaves, machine-tools cooling plants, cleaning systems, watering plants, fire-extinguishing plants, hygienic and sanitary plants, high-pressure water jet machines.



SOLENOID VALVES 18020 (WITH COIL AND CONNECTOR)

Code	Reference		Cv	Opening differential pressure [psi]		Dimensions						
	F.F.	DN (orifice diameter) [in]		Min	Max	CH.A [in]	B [in]	C [in]	E [in]	F [in]	L [in]	H [in]
18020-42-11.5-xx-xx 18020-72-11.5-xx-xx	3/8" NPT	0,453	1,98	1,45	217	0,945	0,472	1,280	1,650	1,512	2,244	3,091
18020-43-13.5-xx-xx 18020-73-13.5-xx-xx	1/2" NPT	0,531	4,42	1,45	217	1,181	0,591	1,563	1,772	1,614	2,717	3,374
18020-44-13.5-xx-xx 18020-74-13.5-xx-xx	3/4" NPT	0,531	4,42	2,90	217	1,417	0,709	1,831	2,142	1,984	3,110	3,650
18020-44-18-xx-xx 18020-74-18-xx-xx		0,709	5,81								2,913	
18020-45-26-xx-xx 18020-75-26-xx-xx	1" NPT	1,024	12,79	2,90	174	1,772	0,886	2,354	2,795	2,654	3,661	4,114
18020-46-32-xx-xx 18020-76-32-xx-xx	1 1/4" NPT	1,260	19,77	5,80	174	2,165	1,083	2,894	3,409	3,126	4,370	5,118
18020-47-45-xx-xx 18020-77-45-xx-xx	1 1/2" NPT	1,772	31,40	5,80	145	2,441	1,220	3,346	4,331	3,937	5,433	5,445
18020-48-50-xx-xx 18020-78-50-xx-xx	2" NPT	1,969	41,86	5,80	145	2,953	1,476	3,890	4,331	3,937	5,709	5,984

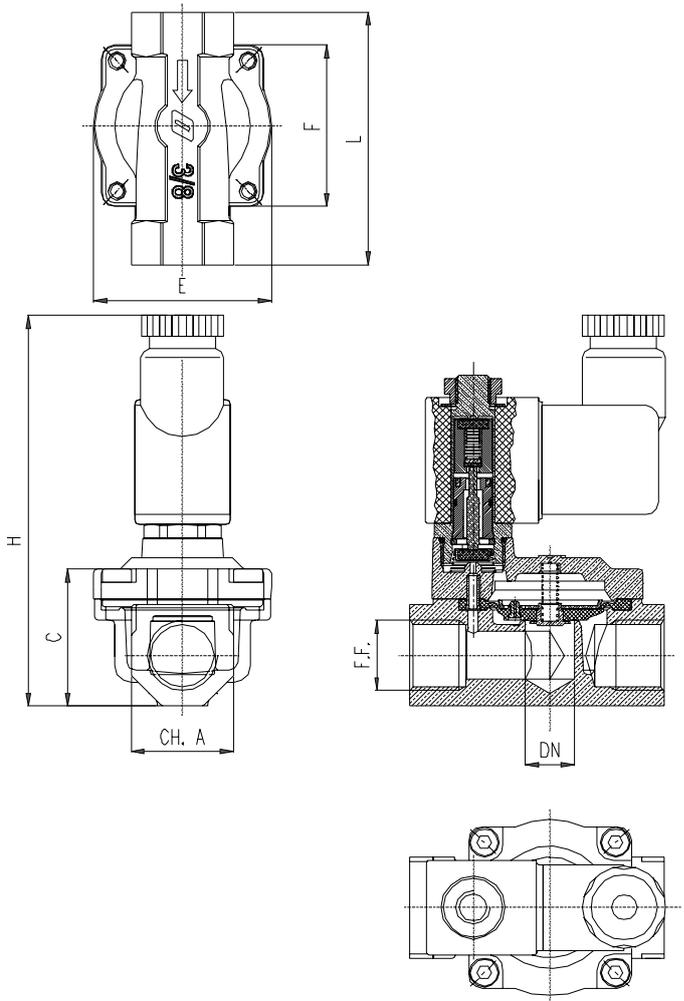
NOTE: Operating temperatures

NBR from -4°F to 194°F
EPDM from -22°F to 293°F
FKM from 5°F to 320°F

18520 SOLENOID VALVES PILOT OPERATED - 2 WAY NORMALLY OPEN (N.O.)

SIZE, PERFORMANCE AND PRICE.

Main applications: thermo-hydraulic plants, autoclaves, machine-tools cooling plants, cleaning systems, watering plants, fire-extinguishing plants, hygienic and sanitary plants, high-pressure water jet machines.



SOLENOID VALVES 18520 (WITH COIL AND CONNECTOR)												
Code	Reference		Cv	Opening differential pressure [psi]		Dimensions						
	F.F.	DN (orifice diameter) [in]		Min	Max	CH.A [in]	B [in]	C [in]	E [in]	F [in]	L [in]	H [in]
18520-42-11.5-xx-xx 18520-72-11.5-xx-xx	3/8" NPT	0,453	1,98	1,45	217	0,945	0,472	1,280	1,650	1,512	2,244	3,091
18520-43-13.5-xx-xx 18520-73-13.5-xx-xx	1/2" NPT	0,531	4,42	1,45	217	1,181	0,591	1,563	1,772	1,614	2,717	3,374
18520-44-13.5-xx-xx 18520-74-13.5-xx-xx	3/4" NPT	0,531	4,42	2,90	217	1,417	0,709	1,831	2,142	1,984	3,110	3,650
18520-44-18-xx-xx 18520-74-18-xx-xx		0,709	5,81								2,913	
18520-45-26-xx-xx 18520-75-26-xx-xx	1" NPT	1,024	12,79	2,90	174	1,772	0,886	2,354	2,795	2,654	3,661	4,114
18520-46-32-xx-xx 18520-76-32-xx-xx	1 1/4" NPT	1,260	19,77	5,80	174	2,165	1,083	2,894	3,409	3,126	4,370	5,118
18520-47-45-xx-xx 18520-77-45-xx-xx	1 1/2" NPT	1,772	31,40	5,80	145	2,441	1,220	3,346	4,331	3,937	5,433	5,445
18520-48-50-xx-xx 18520-78-50-xx-xx	2" NPT	1,969	41,86	5,80	145	2,953	1,476	3,890	4,331	3,937	5,709	5,984

NOTE: Operating temperatures
 NBR from -4°F to 194°F
 EPDM from -22°F to 293°F
 FKM from 5°F to 320°F

COILS FOR 18020 AND 18520 SERIES

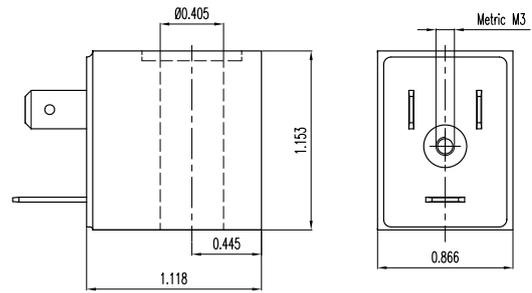
PART NUMBER 6000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
6000BH	6000BH/B1GU	24	50/60	11,5 VA	cUL**
	6000BH/G1GU	120	50/60	11,5 VA	cUL**
	6000BH/J1GU	220/230	50/60	11,5 VA	cUL**
	6000BH/L1GU	240	50/60	11,5 VA	cUL**
	6000BH/A0DN	12	DC	10W	
	6000BH/B0DN	24	DC	10W	

* Voltage tolerance: $\pm 10\%$ for AC coils / $\pm 5\%$ for DC coils
Other voltages are available on request

** Approved cUL with connector 6000/CON

Used for: SV series 18000 from 3/8" NPT to 1" NPT
SV series 18500 from 3/8" NPT to 1" NPT



Terminal in compliance with DIN 43650/B

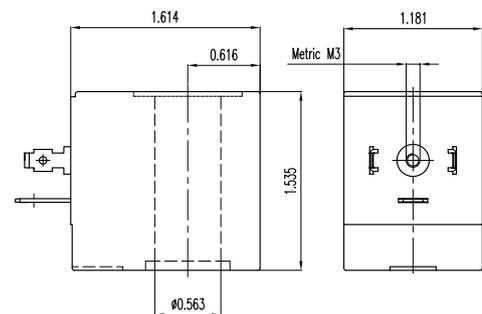
PART NUMBER 8000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
8000BH	8000BH/B1IU	24	50/60	17 VA	cUL**
	8000BH/G1IU	120	50/60	17 VA	cUL**
	8000BH/J1IU	220/230	50/60	17 VA	cUL**
	8000BH/L1IU	240	50/60	17 VA	cUL**
	8000BH/A0LN	12	DC	19 W	
	8000BH/B0LN	24	DC	19 W	

* Voltage tolerance: $\pm 10\%$ for AC coils / $\pm 5\%$ for DC coils. (for Part Number 8062 tolerance $\pm 5\%$ both AC and DC coils) - Other voltages are available on request

** Approved cUL with connector 7000/CON

Used for: SV series 18000 from 1" 1/4 NPT to 2" NPT
SV series 18500 from 1" 1/4 NPT



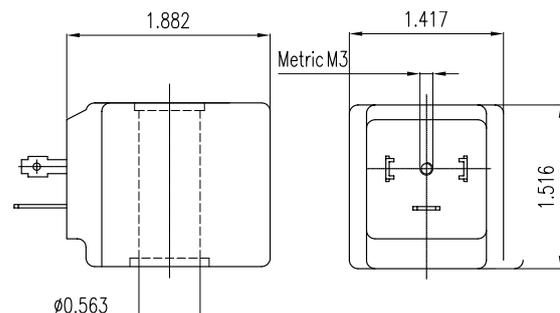
Terminal in compliance with DIN 43650/A

PART NUMBER 10000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
10000BH	10000BH/B1NN	24	50/60	29 VA	
	10000BH/G1NN	120	50/60	29 VA	
	10000BH/J1NN	220/230	50/60	29 VA	
	10000BH/L1NN	240	50/60	29 VA	
	10000BH/A0AAN	12	DC	30 W	
	10000BH/B0AAN	24	DC	30 W	

* Voltage tolerance: $\pm 10\%$ for AC coils / $\pm 5\%$ for DC coils -
Other voltages are available on request

Used for: SV series 18500 from 1" 1/2 NPT to 2" NPT



Terminal in compliance with DIN 43650/A

20020 SERIES

GUIDED DIAPHRAGM PILOT OPERATED SOLENOID VALVE 2 WAY NORMALLY CLOSED (N.C.)

GUIDED DIAPHRAGM - 2 WAY - N.C. - WITH COIL AND CONNECTOR

SIZE, PERFORMANCE AND PRICE.

Main applications: thermo-hydraulic plants, dish-washers, high-pressure water jet machines, suction lifting plants with fluids such as water, light oils, inert gas and low-viscosity fluids in general (up to 2°E or up to 12 CST).

ORDERING CODE FOR SOLENOID VALVES 20020 SERIES

Family	-	Female thread connections	-	Orifice diameter	-	Gasket Material	-	Coils
20020	-	42	-	11.5	-	I	-	Q

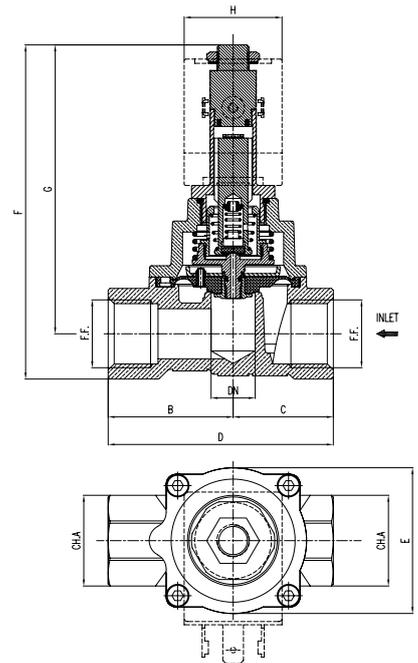
20020	NC with coil and connector	42	3/8" NPT	YELLOW BRASS	mm	in	3/8" NPT	REFERENCE
		43	1/2" NPT		11.5	0,453		
		44	3/4" NPT		13.5	0,531	1/2" NPT	
		45	1" NPT		18	0,709	3/4" NPT	
		72	3/8" NPT	BRASS WITH TM4 TREATMENT	26	1,024	1" NPT	
		73	1/2" NPT					
		74	3/4" NPT					
		75	1" NPT					

I	FKM
LP	PEROXIDE EPDM
B	NBR

Q	220/230VAC 50/60Hz 17VA cUL	8000BH SERIES COILS
R	24VAC 50/60Hz 17VA cUL	
S	120VAC 50/60Hz 17VA cUL	
T	240VAC 50/60Hz 17VA cUL	
O	12Vdc 19W	
E	24Vdc 19W	



+



SOLENOID VALVES 20020 SERIES															
Code	Reference		Opening differential pressure [psi]			Temperature range [°F]		Dimensions							
	F.F.	DN (orifice diameter) [in]	Min	Max		Min	Max	CH.A [in]	B [in]	C [in]	D [in]	E [in]	F [in]	G [in]	H [in]
20020-02-11.5-I-x	3/8" NPT	0,453	0	123	73	5	320	1,102	1,409	1,110	2,520	1,772	4,063	3,512	1,181
20020-03-13.5-I-x	1/2" NPT	0,531	0	123	73	5	320	1,102	1,508	1,209	2,717	1,772	4,063	3,512	1,181
20020-04-18-I-x	3/4" NPT	0,709	0	87	44	5	320	1,654	1,949	1,713	3,661	2,795	4,701	3,874	1,181
20020-05-26-I-x	1" NPT	1,024	0	87	44	5	320	1,654	1,949	1,713	3,661	2,795	4,701	3,874	1,181

NOTE: Operating temperatures
NBR from -4°F to 194°F
EPDM from -22°F to 293°F
FKM from 5°F to 320°F

■ Sealing with standard gasket: FKM
On demand, sealing available with NBR - EPDM gaskets.
500 pcs minimum quantity

COILS FOR 20020 SERIES

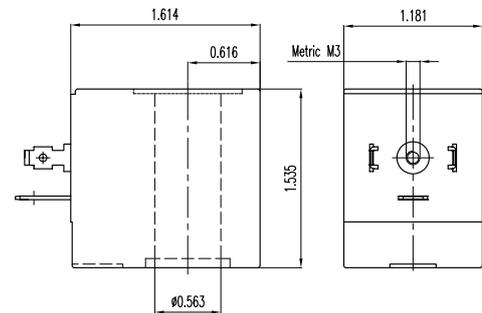
PART NUMBER 8000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
8000BH	8000BH/B1IU	24	50/60	17 VA	cUL**
	8000BH/G1IU	120	50/60	17 VA	cUL**
	8000BH/J1IU	220/230	50/60	17 VA	cUL**
	8000BH/L1IU	240	50/60	17 VA	cUL**
	8000BH/A0LN	12	DC	19 W	
	8000BH/B0LN	24	DC	19 W	

* Voltage tolerance: $\pm 10\%$ for AC coils / $\pm 5\%$ for DC coils. (for Part Number 8062 tolerance $\pm 5\%$ both AC and DC coils) - Other voltages are available on request

** Approved cUL with connector 7000/CON

Used for: SV series 18000 from 1" 1/4 NPT to 2" NPT
SV series 18500 from 1" 1/4 NPT



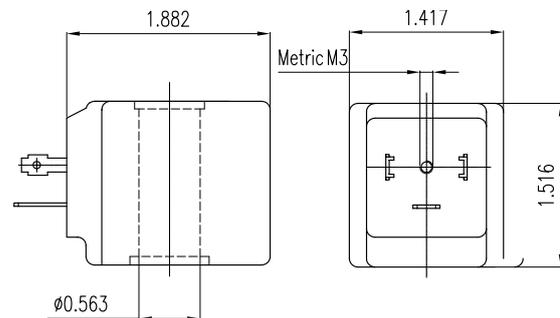
Terminal in compliance with DIN 43650/A

PART NUMBER 10000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
10000BH	10000BH/B1NN	24	50/60	29 VA	
	10000BH/G1NN	120	50/60	29 VA	
	10000BH/J1NN	220/230	50/60	29 VA	
	10000BH/L1NN	240	50/60	29 VA	
	10000BH/A0AAN	12	DC	30 W	
	10000BH/B0AAN	24	DC	30 W	

* Voltage tolerance: $\pm 10\%$ for AC coils / $\pm 5\%$ for DC coils - Other voltages are available on request

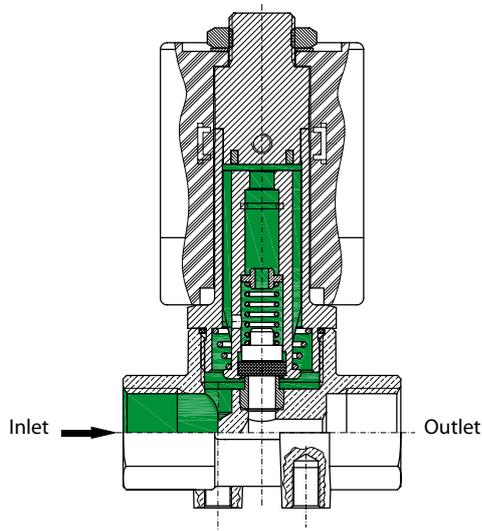
Used for: SV series 18500 from 1" 1/2 NPT to 2" NPT



Terminal in compliance with DIN 43650/A

DIRECT ACTION SOLENOID VALVES

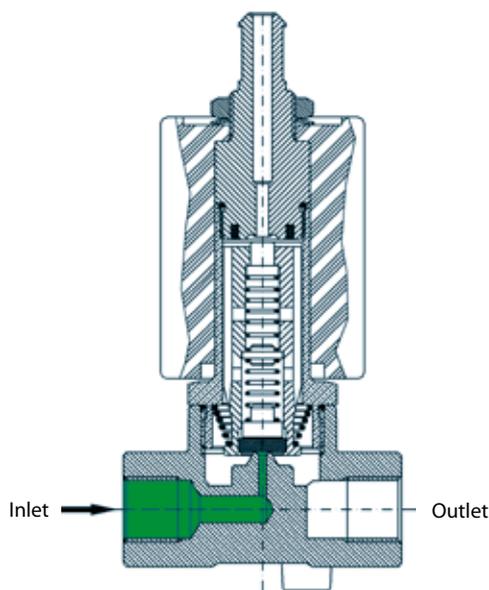
CLOSED POSITION



■ Volume under pressure

NORMALLY CLOSED 2-WAY

During the quiescent state the coil winding is not energized, the core spring, because of fluid pressure, pushes the sealing gasket onto the solenoid valve body seat (orifice) and keeps it closed.



■ Volume under pressure

NORMALLY CLOSED 3-WAY

During the quiescent state the coil winding is not energized, the plunger tapered retaining spring, due to fluid pressure, pushes the sealing gasket onto the solenoid valve body seat (orifice) and keeps it closed. The exhaust is connected with the outlet, and they present a balanced pressure level.

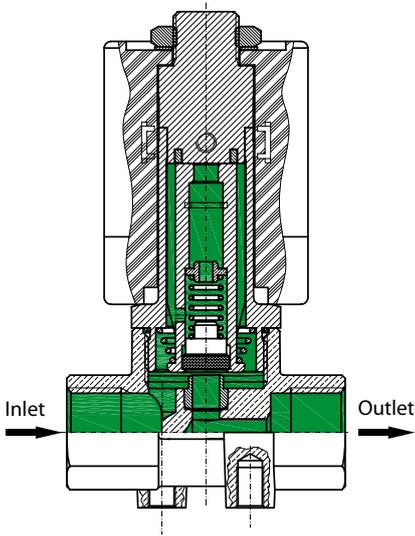
FIELDS OF APPLICATION

Solenoid valves manufactured by OLAB are generally used for the following fluids:

- water
- steam
- air
- gas
- oils

Other applications can be agreed upon the customer request. In the aim of optimising the performance of OLAB solenoid valves according to their field of application, special technical solutions have been adopted to guarantee operation even under the heaviest working conditions. The operational tests allow OLAB to simulate as truthfully as possible the real final conditions of use. The constant contact with our customers has allowed OLAB to develop very special test sessions for custom-oriented products.

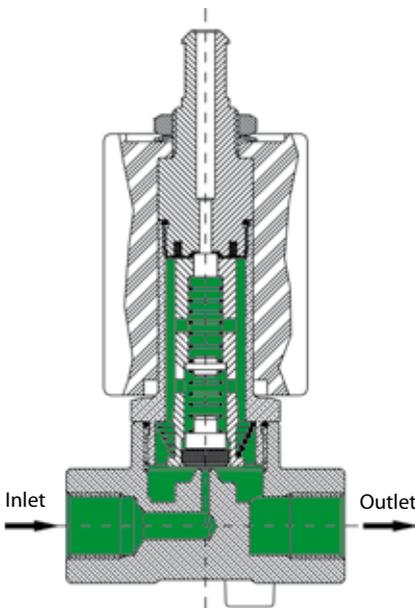
OPEN POSITION



■ Volume under pressure

NORMALLY CLOSED 2-WAY

When the coil winding is energized, the plunger is attracted by the fixed core, the orifice (DN) is opened and fluid passes through. The maximum pressure difference allowed (M.P.O.D.) decreases as the seat diameter increases.



■ Volume under pressure

NORMALLY CLOSED 3-WAY

When the coil winding is energized, the plunger is attracted by the fixed core, the main orifice (DN) is opened and exhaust is simultaneously closed, and the fluid is free to pass directly from inlet to outlet

8000 SERIES SOLENOID VALVES - DIRECT ACTION - 2 WAY

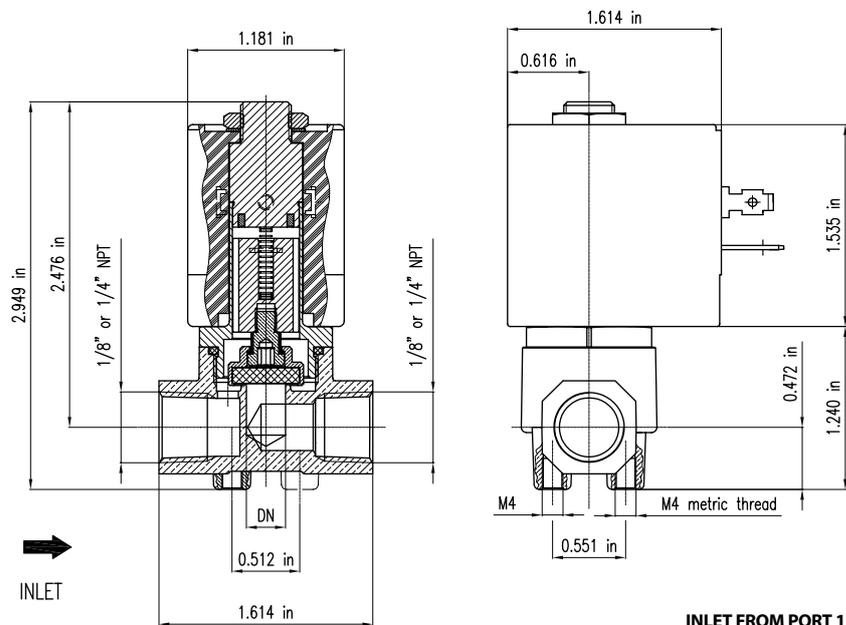
PART NUMBER 8184

Solenoid valve - 2 way - suitable to be cleaned inside - 1/8" or 1/4" NPT Female inlet and outlet - Stainless steel sleeve M4 fixing supports, until Ø0,295 inches orifice

ORDERING CODE FOR SOLENOID VALVES 8184 SERIES

Family	-	Female thread	-	DN (Orifice diameter)	-	Orifice gasket material	-	Coils	-	Other	
8184	-	40	-	60	-	B	-	I	-	3	
8184 2 way NC solenoid valve	40	1/8" NPT	YELLOW BRASS	60	Ø0,236 in	B	NBR	I	COILS 8000BH SERIES	3 With connector and single package	
	41	1/4" NPT		75	Ø0,295 in	L	EPDM Peroxide	L			220/230VAC 50/60Hz 17VA cUL 24VAC 50/60Hz 17VA cUL
	70	1/8" NPT	BRASS WITH TM4 TREATMENT			I	FKM food grade	M			120VAC 50/60Hz 17VA cUL
	71	1/4" NPT						N			240VAC 50/60Hz 17VA cUL
								H	12Vdc 19W		
								G	24Vdc 19W		

EXAMPLE 8184-40-60-B-I-3 Normally closed 2-way solenoid valve, 1/8" NPT female threads, orifice diameter Ø0,236 in, NBR gasket and coil 220/230V 50/60Hz 17VA. With connector and single package



Orifice diameter (DN)		P min (psi)	P max (psi)
(mm)	(in)		
7,5	0,295	0	36
6,0	0,236	0	58

Gaskets: Standard FKM (other on request)

Operating temperatures
 NBR from -4°F to 194°F
 EPDM from -22°F to 293°F
 FKM from 5°F to 320°F

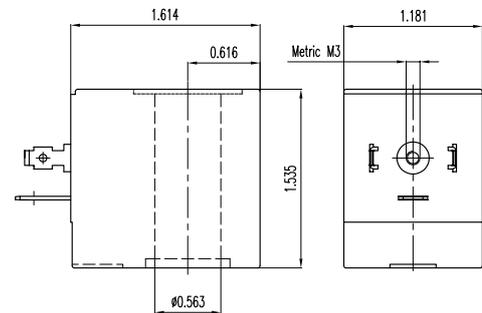
COILS FOR PART NUMBER 8184

PART NUMBER 8000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
8000BH	8000BH/B1IU	24	50/60	17 VA	cUL**
	8000BH/G1IU	120	50/60	17 VA	cUL**
	8000BH/J1IU	220/230	50/60	17 VA	cUL**
	8000BH/L1IU	240	50/60	17 VA	cUL**
	8000BH/A0LN	12	DC	19 W	
	8000BH/B0LN	24	DC	19 W	

* Voltage tolerance: $\pm 10\%$ for AC coils / $\pm 5\%$ for DC coils. (for Part Number 8062 tolerance $\pm 5\%$ both AC and DC coils) - Other voltages are available on request

** Approved cUL with connector 7000/CON



Terminal in compliance with DIN 43650/A

8000 SERIES SOLENOID VALVES - DIRECT ACTION - 2 WAY NORMALLY OPEN (N.O.) - STAINLESS STEEL INSERT

PART NUMBER 8062

Solenoid valve 2 way normally open - 1/8" or 1/4" NPT female inlet and outlet - stainless steel insert

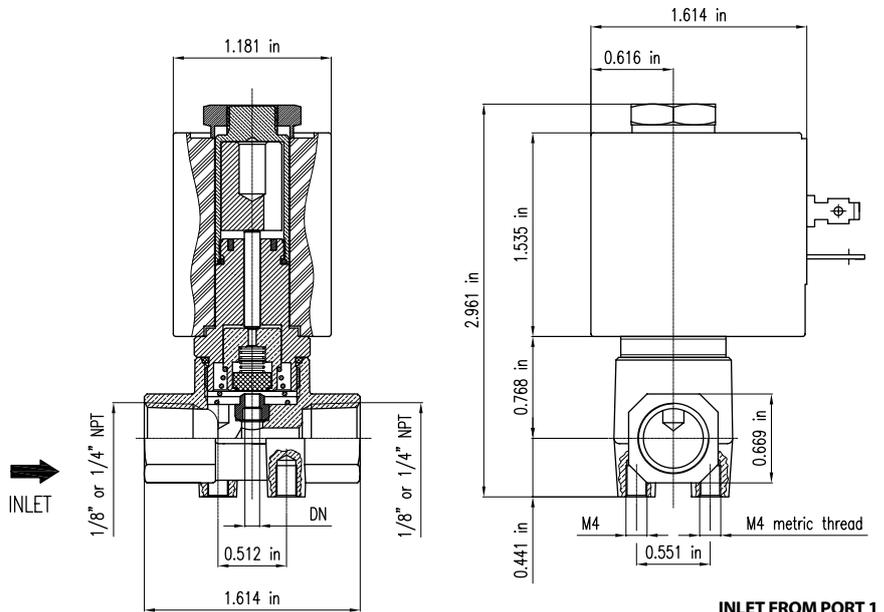
ORDERING CODE FOR SOLENOID VALVES 8062 SERIES

Family	-	Female thread	-	DN (Orifice diameter)	-	Orifice gasket material	-	Coils	-	Other
8062	-	40	-	15	-	B	-	I	-	3

8062	2 way NO solenoid valve	40	1/8" NPT	YELLOW BRASS	15	Ø0,059 in	B	NBR	COILS 8000BH SERIES	3	With connector and single package		
		41	1/4" NPT		20	Ø0,079 in	L	EPDM Peroxide					
		70	1/8" NPT	BRASS WITH TM4 TREATMENT	25	Ø0,098 in	I	FKM food grade				I	220/230VAC 50/60Hz 17VA cUL
		71	1/4" NPT		30	Ø0,118 in						M	120VAC 50/60Hz 17VA cUL
					35	Ø0,138 in						N	240VAC 50/60Hz 17VA cUL
		40	Ø0,157 in	H	12Vdc 19W								
					G	24Vdc 19W							

Other orifice on request

EXAMPLE 8062-40-15-B-I-3 Normally open 2-way solenoid valve, 1/8" NPT female threads, orifice diameter Ø0,059 in, NBR gasket and coil 220/230V 50/60Hz 17VA. With connector and single package



Orifice diameter [in]	PERFORMANCES OF THE 8062 SERIES		CV
	Differential working pressure [psi]		
	min.	max.	
Ø0,059	0	217	0,08
Ø0,079	0	130	0,13
Ø0,098	0	87	0,16
Ø0,118	0	58	0,21
Ø0,138	0	36	0,28
Ø0,157	0	20	0,33

Gaskets: Standard FKM (other on request)
 Operating temperatures NBR from -4°F to 194°F
 EPDM from -22°F to 293°F
 FKM from 5°F to 320°F

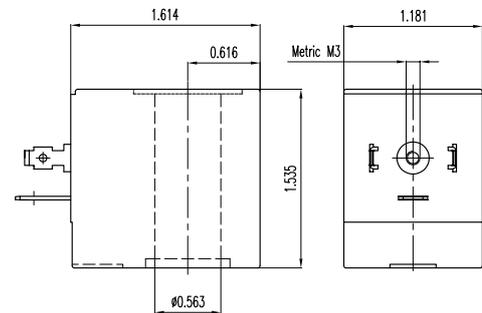
COILS FOR PART NUMBER 8062

PART NUMBER 8000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
8000BH	8000BH/B1IU	24	50/60	17 VA	cUL**
	8000BH/G1IU	120	50/60	17 VA	cUL**
	8000BH/J1IU	220/230	50/60	17 VA	cUL**
	8000BH/L1IU	240	50/60	17 VA	cUL**
	8000BH/A0LN	12	DC	19 W	
	8000BH/B0LN	24	DC	19 W	

* Voltage tolerance: $\pm 10\%$ for AC coils / $\pm 5\%$ for DC coils. (for Part Number 8062 tolerance $\pm 5\%$ both AC and DC coils) - Other voltages are available on request

** Approved cUL with connector 7000/CON



Terminal in compliance with DIN 43650/A

8200 SERIES

SOLENOID VALVES - DIRECT ACTION - 2 WAY NORMALLY CLOSED (N.C.) - STAINLESS STEEL SLEEVE AND INSERT

PART NUMBER 8201

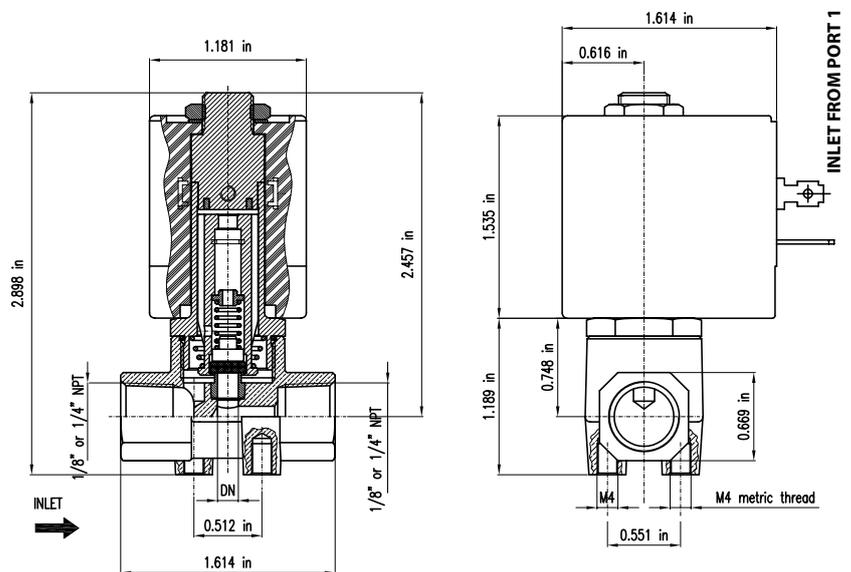
Solenoid valve 2 way normally closed - 1/8" or 1/4" NPT female inlet and outlet - stainless steel sleeve and insert

ORDERING CODE FOR SOLENOID VALVES 8201 SERIES

Family	-	Female thread	-	DN (Orifice diameter)	-	Orifice gasket material	-	Coils	-	Other
8201	-	40	-	15	-	B	-	I	-	3
8201	2 way NC solenoid valve	40	1/8" NPT	YELLOW BRASS	15	Ø0,059 in	B	COILS 8000BH SERIES	I	3 With connector and single package
		41	1/4" NPT		20	Ø0,079 in	L		220/230VAC 50/60Hz 17VA cUL	
		70	1/8" NPT	BRASS WITH TM4 TREATMENT	25	Ø0,098 in	I		24VAC 50/60Hz 17VA cUL	
		71	1/4" NPT		30	Ø0,118 in	M		120VAC 50/60Hz 17VA cUL	
					35	Ø0,138 in	N		240VAC 50/60Hz 17VA cUL	
40	Ø0,157 in	ID	FKM food grade 85Sh.A	H	12Vdc 19W					
								G	24Vdc 19W	

Other orifice on request

EXAMPLE 8201-40-15-B-I-3 Normally closed 2-way solenoid valve, 1/8" NPT female threads, orifice diameter Ø0,059 in, NBR gasket and coil 220/230V 50/60Hz 17VA. With connector and single package



Orifice diameter [in]	PERFORMANCES OF THE 8201 SERIES		CV
	Differential working pressure [psi]		
	min.	max.	
Ø0,059	0	362	0,08
Ø0,079	0	319	0,13
Ø0,098	0	217	0,16
Ø0,118	0	145	0,21
Ø0,138	0	108	0,28
Ø0,157	0	87	0,33

Gaskets: NBR, EPDM, FKM
Operating temperatures

NBR from -4°F to 194°F
EPDM from -22°F to 293°F
FKM from 5°F to 320°F

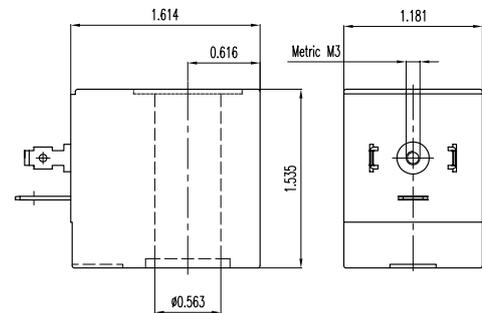
COILS FOR PART NUMBER 8201

PART NUMBER 8000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
8000BH	8000BH/B1IU	24	50/60	17 VA	cUL**
	8000BH/G1IU	120	50/60	17 VA	cUL**
	8000BH/J1IU	220/230	50/60	17 VA	cUL**
	8000BH/L1IU	240	50/60	17 VA	cUL**
	8000BH/A0LN	12	DC	19 W	
	8000BH/B0LN	24	DC	19 W	

* Voltage tolerance: $\pm 10\%$ for AC coils / $\pm 5\%$ for DC coils. (for Part Number 8062 tolerance $\pm 5\%$ both AC and DC coils) - Other voltages are available on request

** Approved cUL with connector 7000/CON



Terminal in compliance with DIN 43650/A

8250 SERIES SOLENOID VALVES - DIRECT ACTION - 3 WAY NORMALLY CLOSED (N.C.) - STAINLESS STEEL SLEEVE AND INSERT

PART NUMBER 8251

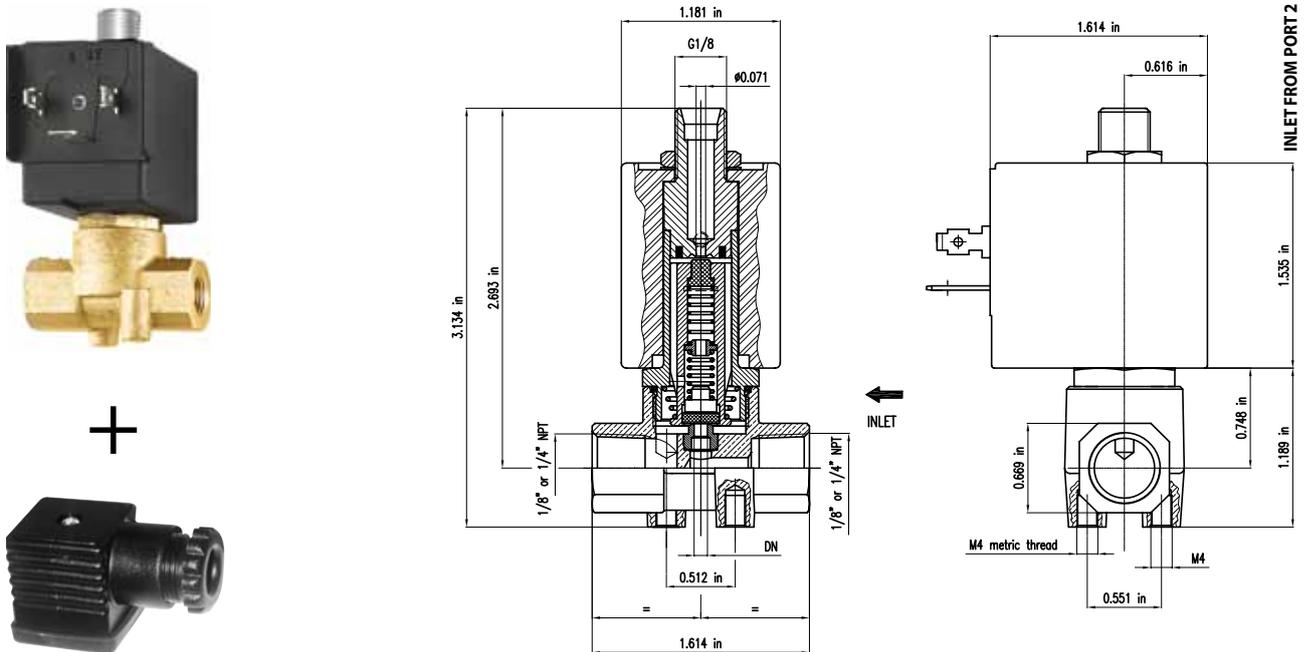
Solenoid valve 3 way normally closed - 1/8" or 1/4" NPT female inlet and outlet - Stainless steel sleeve and insert - Third way G1/8"

ORDERING CODE FOR SOLENOID VALVES 8251 SERIES

Family	-	Female thread	-	Third way orifice + spring	DN (Orifice diameter)	-	Orifice gasket material	-	Coils	-	Other
8251	-	40	-	A	15	-	B	-	I	-	3
8251 3 way NC solenoid valve	40	1/8" NPT	YELLOW BRASS	A Ø0,071 inches (third way orifice) + spring code 8000/108	15	Ø0,059 in	B	NBR	COILS 8000BH SERIES I 220/230VAC 50/60Hz 17VA cUL L 24VAC 50/60Hz 17VA cUL M 120VAC 50/60Hz 17VA cUL N 240VAC 50/60Hz 17VA cUL H 12Vdc 19W G 24Vdc 19W	3 With connector and single package	
	41	1/4" NPT			20	Ø0,079 in	L	EPDM Peroxide			
	70	1/8" NPT	BRASS WITH TM4 TREATMENT		25	Ø0,098 in	I	FKM food grade			
	71	1/4" NPT			30	Ø0,118 in	ID	FKM food grade 85Sh.A			

Other orifice on request

EXAMPLE 8251-40-A15-B-I-3 Normally closed 3-way solenoid valve, 1/8" NPT female threads, third way orifice Ø0,071 in, orifice diameter Ø0,059 in, NBR gasket and coil 220/230V 50/60Hz 17VA. With connector and single package



PERFORMANCES OF THE 8251 SERIES			
Orifice diameter [in]	Differential working pressure [psi]		CV
	min.	max.	
Ø0,059	0	200	0,08
Ø0,079	0	130	0,13
Ø0,098	0	72	0,16
Ø0,118	0	50	0,20

Gaskets: NBR, EPDM, FKM
 Operating temperatures
 NBR from -4°F to 194°F
 EPDM from -22°F to 293°F
 FKM from 5°F to 320°F

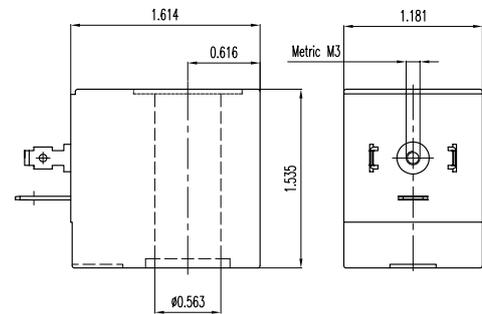
COILS FOR PART NUMBER 8251

PART NUMBER 8000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
8000BH	8000BH/B1IU	24	50/60	17 VA	cUL**
	8000BH/G1IU	120	50/60	17 VA	cUL**
	8000BH/J1IU	220/230	50/60	17 VA	cUL**
	8000BH/L1IU	240	50/60	17 VA	cUL**
	8000BH/A0LN	12	DC	19 W	
	8000BH/B0LN	24	DC	19 W	

* Voltage tolerance: $\pm 10\%$ for AC coils / $\pm 5\%$ for DC coils. (for Part Number 8062 tolerance $\pm 5\%$ both AC and DC coils) - Other voltages are available on request

** Approved cUL with connector 7000/CON



Terminal in compliance with DIN 43650/A

8201K SERIES

SOLENOID VALVES - DIRECT ACTION - 2 WAY NORMALLY CLOSED (N.C.) - COMPLETELY IN STAINLESS STEEL

The solenoid valves of the 8201K Series are the ideal solution when the environmental conditions are severe or aggressive fluids are used and stainless steel is required.

The 8201K Series is typically used for the following applications:

- Industry
- Acid/aggressive fluids
- Oenology
- Production of olive oil and drinks
- Equipment for treatment of fluids
- Oxygen (gaskets without grease)



The material specifications are the following:

- Valve body made of AISI 316L stainless steel
- AISI 304 stainless steel sleeve
- AISI 430F cores
- AISI 302 springs
- Sealing gaskets*:
 - NBR from -4°F to 194°F
 - EPDM from -22°F to 293°F
 - FKM from 5°F to 320°F
- 30mm class H coils (356 °F)

* Check if the gasket is compatible with the fluid used



The valve body threaded inlet and outlet are 1/8" NPT, 1/4" NPT, 3/8" NPT or 1/2" NPT female.

Orifice diameters available are:

Ø0.059 in - Ø0.078 in - Ø0.098 in - Ø0.118 in - Ø0.137 in - Ø0.157 in
(other diameters on request)

ORDERING CODE FOR SOLENOID VALVES 8201K SERIES

Family	Female thread	-	DN (Orifice diameter)	-	Orifice gasket material	-	Coils	-	Other
8201K	40	-	15	-	I	-	I	-	3
8201K 2 way NC stainless steel solenoid valve with NPT female inlet-outlet threads	40	1/8" NPT	15	Ø0,059 in	B	NBR	I	220/230VAC 50/60Hz 17VA cUL	3 With connector and single package
	41	1/4" NPT	20	Ø0,079 in	L	EPDM Peroxide	L	24VAC 50/60Hz 17VA cUL	
	42	3/8" NPT	25	Ø0,098 in	I	FKM food grade	M	120VAC 50/60Hz 17VA cUL	
	43	1/2" NPT	30	Ø0,118 in	ID	FKM food grade 85Sh.A	N	240VAC 50/60Hz 17VA cUL	
			35	Ø0,138 in			H	12Vdc 19W	COILS 8000BH SERIES
			40	Ø0,157 in			G	24Vdc 19W	

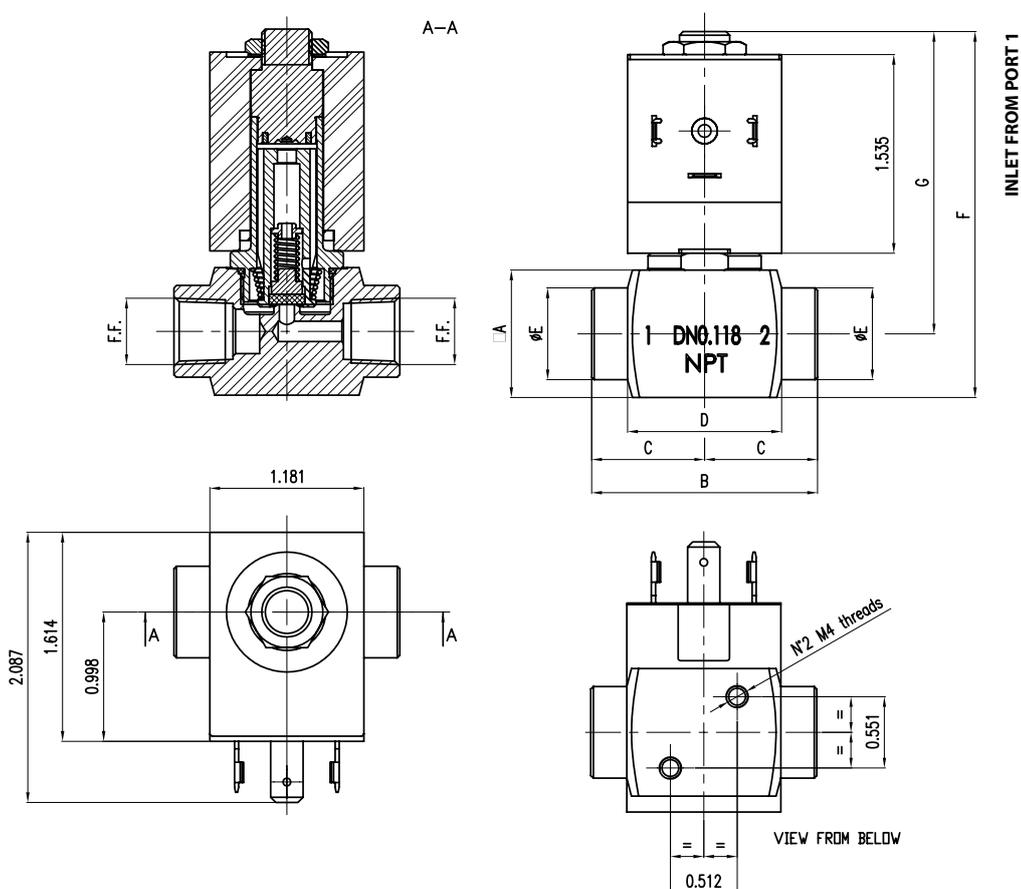
Other orifice diameter on request

EXAMPLE 8201K40-15-I-I-3

Normally closed 2-way solenoid valve, 1/8" NPT female threads, orifice diameter Ø0,059 in, FKM food grade gasket and coil 220/230V 50/60Hz 17VA. With connector and single package

PERFORMANCES OF THE 8201K SERIES			
Orifice diameter [in]	Differential working pressure [psi]		CV
	min.	max.	
Ø0,059	0	362	0,08
Ø0,079	0	319	0,13
Ø0,098	0	217	0,16
Ø0,118	0	145	0,21
Ø0,138	0	108	0,28
Ø0,157	0	87	0,33

TABLE OF DIMENSIONS OF THE 8201K SERIES								
Code	F.F.	Dimensions						
		A [in]	B [in]	C [in]	D [in]	ØE [in]	F [in]	G [in]
8201K40-xx-xx-x-x	1/8" NPT	0,984	1,654	0,827	1,142	0,591	2,823	2,331
8201K41-xx-xx-x-x	1/4" NPT	0,984	1,654	0,827	1,102	0,709	2,823	2,331
8201K42-xx-xx-x-x	3/8" NPT	0,984	1,772	0,886	1,102	0,906	2,823	2,331
8201K43-xx-xx-x-x	1/2" NPT	1,181	1,929	0,965	1,220	1,083	3,020	2,429



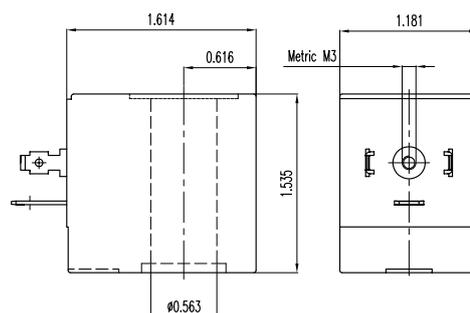
COILS FOR PART NUMBER 8201K

PART NUMBER 8000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
8000BH	8000BH/B1IU	24	50/60	17 VA	cUL**
	8000BH/G1IU	120	50/60	17 VA	cUL**
	8000BH/J1IU	220/230	50/60	17 VA	cUL**
	8000BH/L1IU	240	50/60	17 VA	cUL**
	8000BH/A0LN	12	DC	19 W	
	8000BH/B0LN	24	DC	19 W	

* Voltage tolerance: ±10% for AC coils / ±5% for DC coils. (for Part Number 8062 tolerance ±5% both AC and DC coils) - Other voltages are available on request

** Approved cUL with connector 7000/CON



Terminal in compliance with DIN 43650/A

8251K SERIES

SOLENOID VALVES - DIRECT ACTION - 3 WAY NORMALLY CLOSED (N.C.) - COMPLETELY IN STAINLESS STEEL

The solenoid valves of the 8251K Series are the ideal solution when the environmental conditions are severe or aggressive fluids are used and stainless steel is required.

The 8251K Series is typically used for the following applications:

- Industry
- Acid/aggressive fluids
- Oenology
- Production of olive oil and drinks
- Equipment for treatment of fluids
- Oxygen (gaskets without grease)



The material specifications are the following:

- Valve body made of AISI 316L stainless steel
- AISI 304 stainless steel sleeve
- AISI 430F cores
- AISI 302 springs
- Sealing gaskets*:
 - NBR from -4°F to 194°F
 - EPDM from -22°F to 293°F
 - FKM from 5°F to 320°F
- 30mm class H coils (356 °F)

* Check if the gasket is compatible with the fluid used



The valve body threaded inlet and outlet are 1/8" NPT, 1/4" NPT, 3/8" NPT or 1/2" NPT female.

Orifice diameters available are:

Ø0.059 in - Ø0.078 in - Ø0.098 in - Ø0.118 in - Ø0.137 in - Ø0.157 in
(other diameters on request)

Third way is G 1/8 threaded with Ø0,071 inches hole.

ORDERING CODE FOR SOLENOID VALVES 8251K SERIES

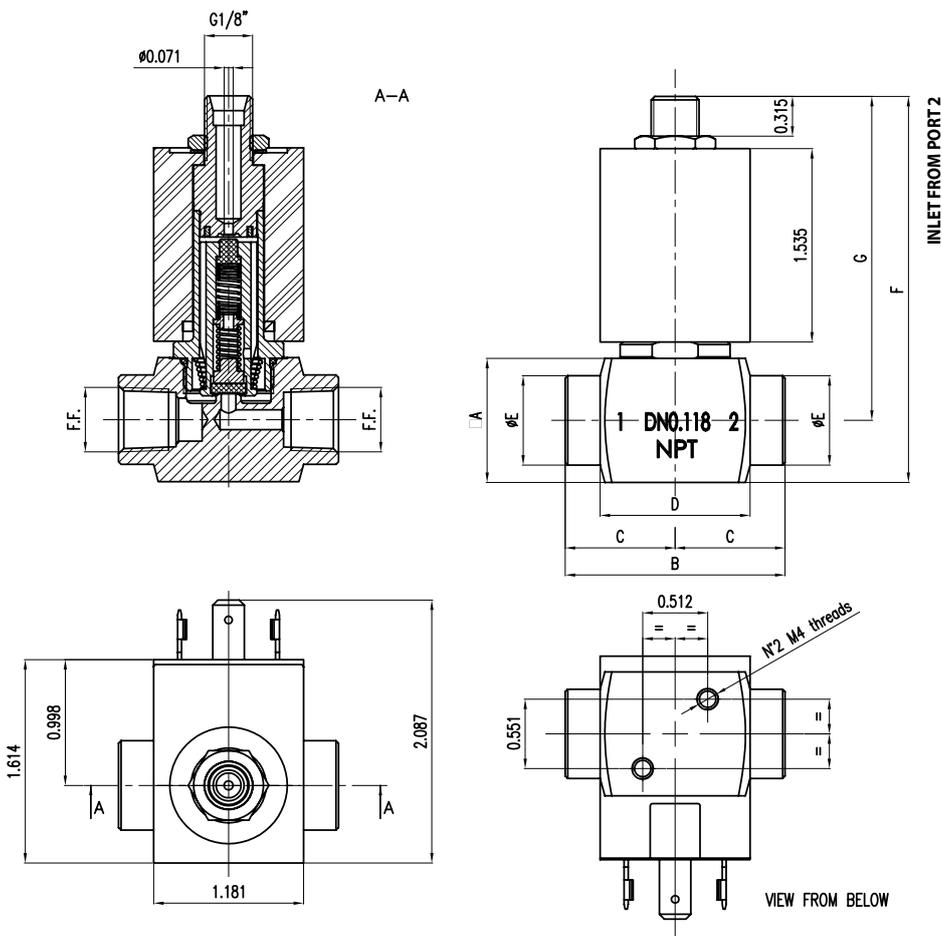
Family	Female thread	-	Third way orifice + spring	-	DN (Orifice diameter)	-	Orifice gasket material	-	Coils	-	Other
8251K	40	-	A	-	15	-	B	-	I	-	3
8251K 3 Way NC stainless steel solenoid valve with NPT female inlet-outlet threads - third way male g1/8	40	1/8" NPT	A Ø0,071 inches (third way orifice) + spring code 8000/108	15	Ø0,059 in	B	NBR	I	220/230VAC 50/60Hz 17VA cUL	COILS 8000BH SERIES	3 With connector and single package
	41	1/4" NPT		L	EPDM Peroxide	L	24VAC 50/60Hz 17VA cUL				
	42	3/8" NPT		I	FKM food grade	M	120VAC 50/60Hz 17VA cUL				
	43	1/2" NPT		ID	FKM food grade 85Sh.A	N	240VAC 50/60Hz 17VA cUL				
						H	12Vdc 19W				
						G	24Vdc 19W				

Other orifice on request

EXAMPLE 8251K40-A15-I-I-3 Normally closed 3-way solenoid valve, 1/8" NPT female threads, third way Ø0,071 in, orifice diameter Ø0,059 in, FKM food grade gasket and coil 220/230V 50/60Hz 17VA. With connector and single package

PERFORMANCES OF THE 8251K SERIES			
Orifice diameter [in]	Differential working pressure [psi]		CV
	min.	max.	
Ø0,059	0	200	0,08
Ø0,079	0	130	0,13
Ø0,098	0	72	0,16
Ø0,118	0	50	0,20

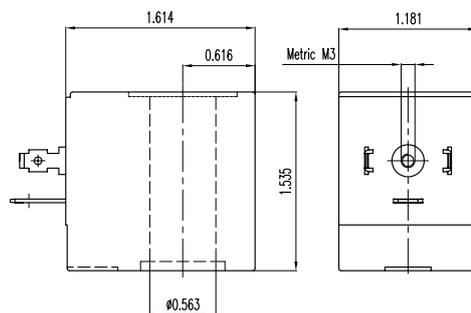
TABLE OF DIMENSIONS OF THE 8251K SERIES								
Code	F.F.	Dimensions						
		A [in]	B [in]	C [in]	D [in]	ØE [in]	F [in]	G [in]
8251K40-Axx-xx-x-x	1/8" NPT	0,984	1,654	0,827	1,142	0,591	3,063	2,571
8251K41-Axx-xx-x-x	1/4" NPT	0,984	1,654	0,827	1,102	0,709	3,063	2,571
8251K42-Axx-xx-x-x	3/8" NPT	0,984	1,772	0,886	1,102	0,906	3,063	2,571
8251K43-Axx-xx-x-x	1/2" NPT	1,181	1,929	0,965	1,220	1,083	3,260	2,670



COILS FOR PART NUMBER 8251K

PART NUMBER 8000BH

Coils family	Code	Voltage [V] *	Frequency [Hz]	Power supply	Approvals
8000BH	8000BH/B1IU	24	50/60	17 VA	cUL**
	8000BH/G1IU	120	50/60	17 VA	cUL**
	8000BH/J1IU	220/230	50/60	17 VA	cUL**
	8000BH/L1IU	240	50/60	17 VA	cUL**
	8000BH/A0LN	12	DC	19 W	
	8000BH/B0LN	24	DC	19 W	



Terminal in compliance with DIN 43650/A

* Voltage tolerance: ±10% for AC coils / ±5% for DC coils. (for Part Number 8062 tolerance ±5% both AC and DC coils) - Other voltages are available on request
 ** Approved cUL with connector 7000/CON



PART NUMBER 6000/CON (IP 67)

Connector



Max. cable section	0,059 in ²
Clamping screw	PG9
Protection degree	IP 67 (DIN40050)
Insulation class	Group C VDE 0110
Connector colour	Black
Resistance	< 4 mΩ
Voltage rating	250 V
Pole number	2+ Ground
Protection	Glass reinforced nylon
Contact-holder	Glass reinforced nylon
Contact rated current	10 A
Max. contact rated current	16 A
Gasket	NBR nitrile rubber
Working temperature	- 40 + 194°F

PART NUMBER 7000/CON (IP 67)

Connector



Max. cable section	0,059 in ²
Clamping screw	PG9, PG11
Protection degree	IP 67 (DIN40050)
Insulation class	Group C - VDE 0110
Connector colour	Black
Resistance	< 4 mΩ
Voltage rating	250 V
Pole number	2+ Ground
Protection	Glass reinforced nylon
Contact-holder	Glass reinforced nylon
Contact rated current	10 A
Max. contact rated current	16 A
Gasket	NBR nitrile rubber
Working temperature	- 40 + 194°F

INNOVATION & SOLUTION

TM4 BRASS COATING FOR FOOD SECTOR



Olab improves the quality of your life.

The new TM4 treatment makes it possible to produce a coating specifically designed for direct contact with food.



PERFECT DOWN TO THE LAST DETAIL



CSI
CERTIFICAZIONE E SISTEMI





GOOD HEALTH IS THE RESULT OF CERTAIN BASIC FACTORS

Olab has been producing solenoid valves and fittings for small household appliances for several decades. Over this time research and development have aimed at solving problems felt to be most critical by customers. Part of this research has led to the development of a series of surface treatments complying with the strictest international standards in the food sector. These treatments, mentioned below, have been applied to our products:

- TM1 (in compliance with the requirements of the American NSF/ANSI ST51 Standard (food equipment materials);
- TM2 (in compliance with the requirements of the NSF/ANSI ST51 American Standard (food equipment materials), NSF/ANSI STD 61 (drinking water system components section 8-ph5 hot commercial 82°C), in compliance with the 1935:2004 European Regulation;
- TM3 (in compliance with the 1935:2004 European regulation, only under special conditions)

Our research and development in the field of surface treatments never stopped. Along with the surface treatments mentioned above (proven by several certifications obtained) a new revolutionary treatment has been developed which inhibits the migration of heavy metals at the same time keeping the organoleptic characteristics of fluids unvaried. Almost a year of intensive research resulted in the new TM4 treatment which makes metal surfaces (brass or steel) "impermeable" because of the electrolytic deposition of a double layer of non-toxic agents, which also inhibits the emission of noxious elements.

REFERENCE STANDARDS CONCERNING THE TESTS CARRIED OUT

Ministerial Decree no. 34 of 21-03 -73 (O.S. O.G. No. 104 of 20-04-73) and the following application decrees, MD 174/2004 EC Reg. no 1935/2004. EC Directive 98/83/EC and Decree Law. 21-02-01:

1. EMISSION OF HEAVY METALS

A Plasma optical spectrometric (ICP) analysis concerning emissions was carried out on the emission liquid obtained from the contact between the tested sample and the simulation liquid. The following results were obtained:

Simulation liquids	Contact condition	Test result
Distilled water	30 minutes at 100°C – repeated contact	Positive
Distilled water	48 hours at 100°C	Positive
Distilled water	10 days at 100°C	Positive

2. SENSORY AND TASTE ANALYSIS

The taste analysis is an evaluation of the difference between the taste of fresh water and water which has come in contact with the sample. A variable score ranging from 0 (no perceivable taste difference) to 4 (significant difference in taste) is given. The final result is expressed by an arithmetical average of the score obtained.

Contact condition	Test result
30 minutes at 100°C – repeated contact	Positive
48 hours at 100°C	Positive
10 days at 100°C	Positive

TM4 IMPROVES THE QUALITY OF YOUR LIFE

On the basis of the tests carried out at a CSI accredited laboratory, the TM4 treatment is completely suitable for contact with water for human consumption and complies with the reference standards such as Ministerial Decree no. 34 of 21-03-73 (O.S. of O.G. no. 104 of 20-04-73) and with the successive application decrees such as Ministerial Decree 174/2004, EC Reg. no. 1935/2004, EC-Directive 98/83/EC and Decree Law 21-02-01.

CSI APPROVED



CSI
CERTIFICAZIONE E TESTING





OLLAB®

