

Oil Management System Series OM3, OM4 and OM5 - TraxOil

Technical Bulletin

The Emerson TraxOil oil management is a self-contained and reliable electronically controlled system with an integrated solenoid valve, which feeds missing oil directly into the compressor sump. The sight glass function remains fully available, status and level information is indicated by LED's. The integrated alarm function with compressor shut down completes the overall proven solution for compressor protection.

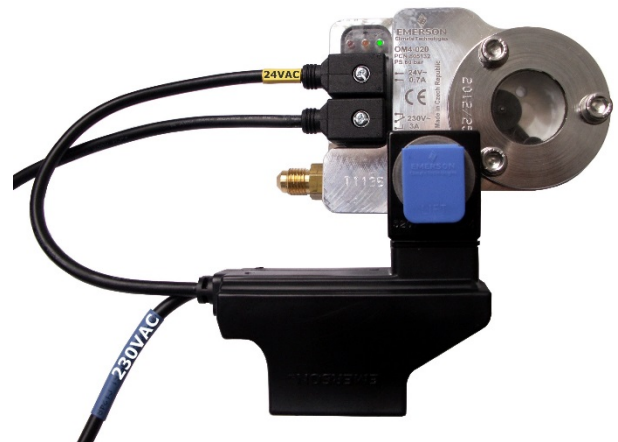
While OM3 is the well-proven solution for HFC & HFO blended refrigerants, OM4 can also be used for subcritical CO₂ systems. OM5 TraxOil has been specially developed for transcritical CO₂ applications; the new adapters are equipped with special types of O-rings to guarantee safe long-term and reliable operation.

Features

- OM3 for selected HFC & HFO/HFO blended refrigerants
 - max. working pressure PS: 46 bar
- OM4 for R744 (CO₂) subcritical and selected HFC and HFO/HFO blends refrigerants
 - max. working pressure PS: 60 bar
- OM5 for R744 (CO₂) transcritical
 - Max. working pressure PS: 130 bar
 - Inlet: 130 bar;
 - Outlet to compressor: 100 bar
 - CO₂ optimized gasket material
 - Adapters with CO₂ optimized gasket material
 - High wattage ASC3-W coil to achieve high pressure differential MOPD of 100 bar
- Self-contained unit with oil level sensor and integral solenoid to manage oil level supply
- 3 Zone Level Control by using precise Hall-Sensor measurement, not prone to errors by foaming or light like optical sensors
- Alarm, status and level indication by LED's
- Supply 24 VAC or 230 VAC
- SPDT output contact for compressor shut down or alarming, rating 230 VAC / 3 A
- Easy installation by sight-glass replacement and front side mounting without nuts
- Adapters suitable for various types of compressors
- Recommended by leading compressor manufacturers
- **CE** marking under LVD and EMC Directive,



OM5 + ASC3-W24VAC



OM4 + ASC 230VAC + OM-230V

Oil flow rates

	Type	Differential pressure							
		3 bar	5 bar	10 bar	20 bar	30 bar	50 bar	80 bar	100 bar
Oil flow rate (g/min)	OM3/4	340	550	1080	1320	1000	-	-	-
	OM5	-	-	-	2000	2600	3000	4100	4700

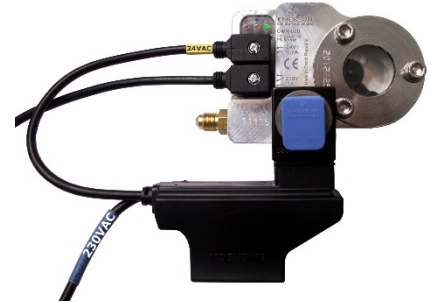
Note: Differential pressure at 50 Hz and nominal supply voltage i.e. 24 VAC or 230 VAC. At 22°C oil temperature, oil type HM46.

Oil Management System Series OM3, OM4 and OM5 - TraxOil

Product Selection OM3 and OM4 (select one item of each group)

1. Base Units (supplied without adapter and coil)

Type	Part No.	Max. working pressure PS	Time delay alarm
OM3-020	805133	46 bar	20 sec
OM3-120	805134		120 sec
OM4-020	805135	60 bar	20 sec
OM4-120	805136		120 sec



2. Adapter

OM0-CUA	805037	Flange adapter 3- / 4-hole
OM0-CCC	805041	Flange adapter 3-hole
OM0-CBB	805038	Screw adapter 1-1/8"-18 UNEF
OM0-CCA	805039	Screw adapter 3/4"-14 NPTF
OM0-CCB	805040	Screw adapter 1-1/8"-12 UNF
OM0-CCD	805042	Rotalock adapter 1-3/4"-12UNF
OM0-CCE	805043	Rotalock adapter 1-1/4"-12UNF

3. Cables Alarm Relay

OM3-N30	805141	Connection to Relay 3 m
OM3-N60	805142	Connection to Relay 6 m
OM3-N100	805146	Connection to Relay 10 m

Supply voltage 24V

Supply voltage 230V

4. Solenoid Coil

Type	Part No.	Frequency
ASC 24 VAC	801062	50 Hz, 17 VA

4. Solenoid Coil

Type	Part No.	Frequency
ASC 230 VAC	801064	50 Hz, 17 VA

5. Cable Assembly Power Supply and Solenoid

OM3-P30	805151	24 V, 3 m
OM3-P60	805152	24 V, 6 m
OM3-P100	805153	24 V, 10 m

5. Cable Assembly with 230V module

OM-230V-3	805163	230 V, 3 m
OM-230V-6	805164	230 V, 6 m

Oil Management Kits including Adapter and 24V Coil: Cross Reference

Kits incl. Adapter	Part No.	Base Unit	Part No.	Adapter	Part No.	Coil	Part No.
OM3-CUA	805301	OM3-020	805133	OM0-CUA	805037	ASC 24 VAC	801062
OM3-CBB	805303			OM0-CBB	805038		
OM3-CCA	805304			OM0-CCA	805039		
OM3-CCB	805305			OM0-CCB	805040		
OM3-CCC	805306			OM0-CCC	805041		
OM3-CCD	805302			OM0-CCD	805042		
OM3-CCE	805300			OM0-CCE	805043		
OM4-CUA	805307	OM4-020	805135	OM0-CUA	805037	ASC 24 VAC	801062
OM4-CBB	805309			OM0-CBB	805038		
OM4-CCA	805310			OM0-CCA	805039		
OM4-CCB	805311			OM0-CCB	805040		
OM4-CCC	805312			OM0-CCC	805041		
OM4-CCD	805308			OM0-CCD	805042		
OM4-CCE	805313			OM0-CCE	805043		

Oil Management System Series OM3, OM4 and OM5 - TraxOil

Product Selection OM5 (select one item of each group)

1. Base Units (supplied without adapter and coil)

Type	Part No.	Max. working pressure PS	Time delay alarm
OM5-020	805230	130 bar	20 sec
OM5-120	805231		120 sec

2. Adapter

OM0-CUA CO2	805337	Flange adapter 3- / 4-hole
OM0-CCC CO2	805341	Flange adapter 3-hole
OM0-CUD CO2	805049	Flange adapter 6- / 6-hole
OM0-CBB CO2	805338	Screw adapter 1-1/8"-18 UNF
OM0-CCA CO2	805339	Screw adapter 3/4"-14 NPTF
OM0-CCB CO2	805340	Screw adapter 1-1/8"-12 UNF
OM0-CCD CO2	805342	Rotalock adapter 1-3/4"-12UNF
OM0-CCE CO2	805343	Rotalock adapter 1-1/4"-12UNF



3. Cables Alarm Relay

OM3-N30	805141	Connection to Relay 3 m
OM3-N60	805142	Connection to Relay 6 m
OM3-N100	805146	Connection to Relay 10 m

Supply Voltage 24V

4. Solenoid Coil

Type	Part No.	Frequency
ASC3-W24VAC	801074	50 Hz, 38 VA

5. Cable Assembly Power Supply and Solenoid

OM3-P30	805151	24 V, 3 m
OM3-P60	805152	24 V, 6 m
OM3-P100	805153	24 V, 10 m

Supply Voltage 230V

4. Solenoid Coil

Type	Part No.	Frequency
ASC3-W230VAC	801075	50 Hz, 38 VA

5. Cable assembly with 230V module

OM-230V-3	805163	230 V, 3 m
OM-230V-6	805164	230 V, 6 m

Accessories and Spare Parts

Type	Part No.	Description	Weight
ECT-623	804421	Transformer 230 VAC / 24 VAC, 60 VA (supply of 3 pieces Base unit)	1.20 kg
ASC3-K01	801080	Retainer Kit ASC3 incl. O-rings	0.10 kg
ODP-33A	800366	Differential Oil Check Valve 3.5 bar, PS: 46 bar (Inlet 5/8"-UNF female, outlet 5/8"-UNF male)	0.14 kg
OM3-K01	805036	Repair Kit OM3/OM4 (consists of sight glass with O-ring and screws, oil adapter with strainer, O-ring back side)	0.26 kg
OM5-K01	805067	Repair Kit OM5 for CO ₂ (consists of sight glass with O-ring and screws, oil adapter with strainer, O-ring back side)	0.26 kg
OM-HFC-K01	805081	Sealing Kit OM3/OM4 (consists of all O-rings for OM3/OM4 and for all types of adapters)	
OM-HFC-K02	805083	Enclosing tube for OM3/OM4 (including O-ring), only for replacement of new version with hexagonal nut!	
OM-CO2-K01	805079	Sealing Kit CO ₂ for OM5 (consists of all O-rings for OM5 and for all types of adapters)	
OM-CO2-K02	805082	Enclosing tube for OM5 (including O-ring), only for replacement of new version with hexagonal nut!	

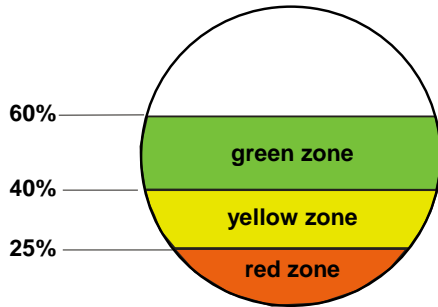
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Function

OM3/OM4/OM5 TraxOil use a Hall-Sensor to measure the oil level. A magnetic float changes its position according to the oil level, not prone to errors by foaming or light. The hall sensor converts these magnetic field changes into an equivalent signal, which is used by the electronic controller to open or close an integrated solenoid valve which feeds missing oil directly into the compressor sump. If the oil level drops into the red zone

OM3/OM4/OM5 TraxOil generates an alarm signal and the alarm contact (SPDT) changes into alarm state. The latter may be used to shut down the compressor. In the Alarm status the TraxOil is still feeding oil into the compressor. If the oil level comes back to normal, the Alarm will be reset.

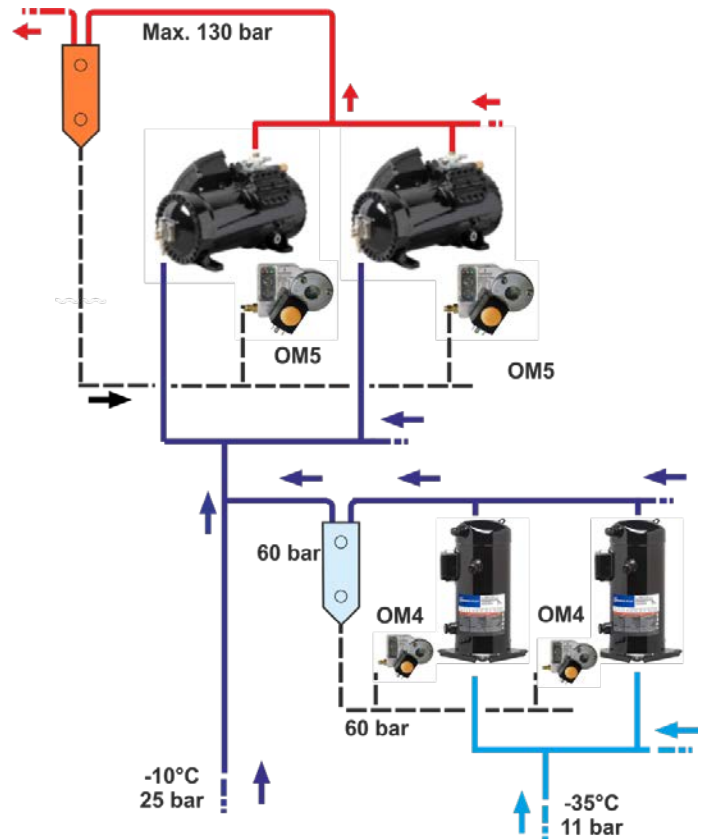
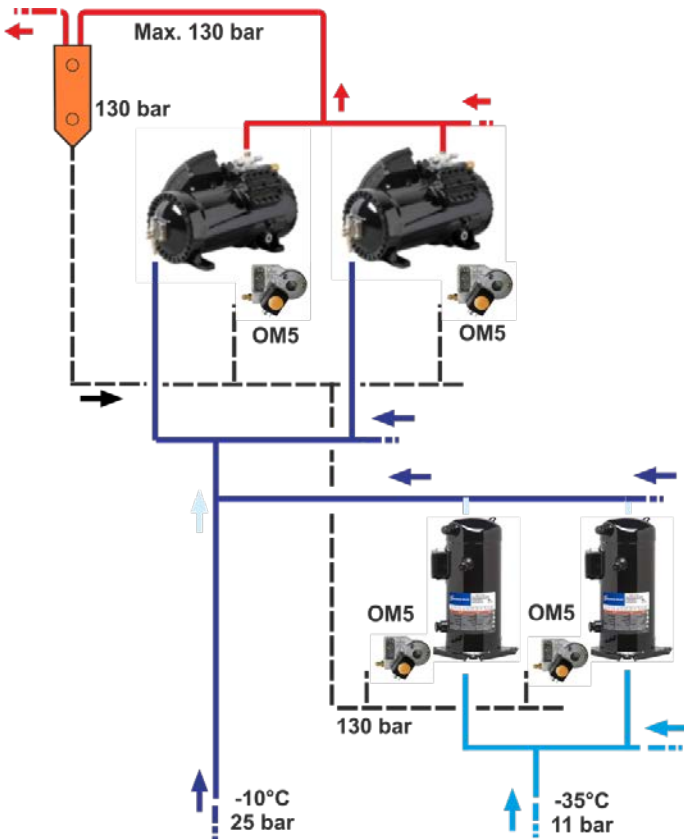
Sight-Glass Level Control Zones:



LEDs	Status	Function	Alarm
●	Oil Level in green zone (60 - 40%)		
● ●	Oil Level in green zone (60 - 40%)	Injection, delay 10 s	
●	Oil Level in yellow zone (40 - 25%)	Injection	
● ●	Oil Level in red zone (25 - 0%)	Injection	Yes, delay 20 s or 120 s

Typical transcritical/subcritical CO₂ Application with OM5

Typical transcritical/subcritical CO₂ application with OM4/OM5

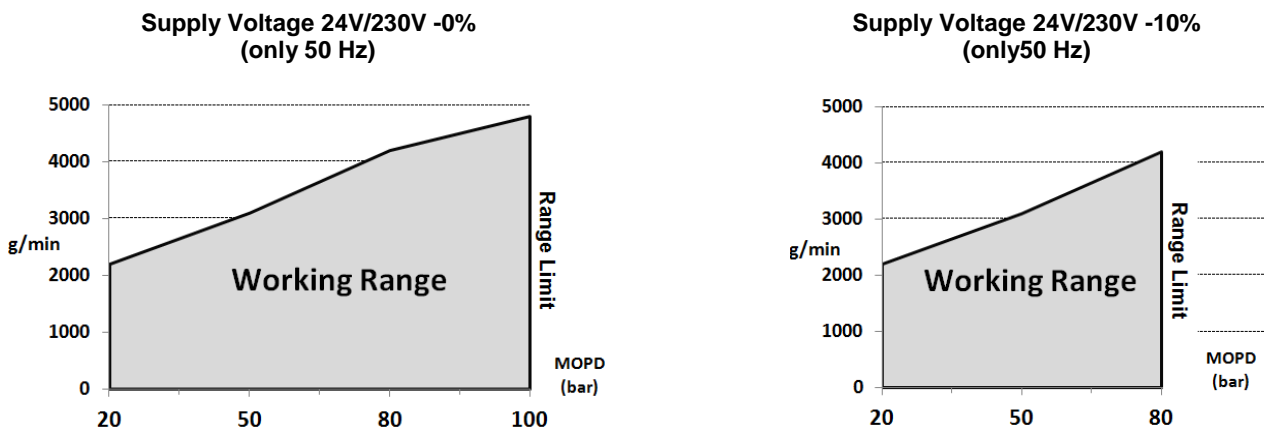


Oil Management System Series OM3, OM4 and OM5 - TraxOil

Technical Data

Markings	CE under: - Low Voltage Directive 14/35/EU - EMC Directive 14/30/EU	Medium compatibility	OM3/OM4: R410A, R134a, R22, R404A, R507, R407C, R407A, R407F, R1234ze, R448A, R449A, R450A, R513A, R452A OM4/OM5: CO ₂ All: mineral, synthetic and ester lubricants
Applied Standards	EN 12284, EN 378, EN 61010, EN 50081-1, EN 50082-1	Vibration resistance (EN60068-2-6)	max. 4g, 10...250 Hz
Max. working pressure PS	OM3: 46 bar OM4: 60 bar OM5: HP side (inlet):130 bar LP side (outlet): 100 bar	Materials Body and Adapter Screws Sight Glass	aluminum (EN AW 6060) galvanized steel nickel-plated steel (ISO 2081)
Max. Test pressure PT	OM3: 51 bar OM4: 66 bar OM5: 143 bar	Flow rate	OM3/OM4 see table first page OM5: see table first page and Fig. 1
Supply voltage / total power - with ASC-24VAC coil - with ASC-230VAC coil and OM-230V-x module	OM3/OM4: 24 VAC±10%, 50 Hz, 17 VA 230 VAC±10%, 50 Hz, 17 VA	Level control	40% to 60% of sight glass height
- with ASC3-W24VAC coil - with ASC3-W230VAC coil and OM-230V-x module	only OM5: 24 VAC ±10%, 50 Hz, 38 VA 230 VAC±10%, 50 Hz, 38 VA	Alarm contact	max. 3 A, 230 VAC, SPDT dry contact
Solenoid valve MOPD	OM3/OM4: 30 bar OM5:100 bar see Fig. 1	Time Delay Alarm	20 sec.: OM3/4/5-020, all OM3/4 Kits 120 sec.: OM3/4/5-120
Ambient/Storage temperature	-15...+50°C	Time Delay Filling	10 sec.
Medium temperature Oil Inlet	+5...+80°C	Protection class	IP65 (IEC529/EN 60529)
Oil/refrigerant mixture compressor side	-20...+80°C	Weight 24V System 230V System	750 ... 920 g incl. adapter 1100 ... 1270 g incl. adapter
		Oil connection	7/16"-20 UNF male, with strainer and O-ring (replaceable, see acc. Accessories)
		Enclosing tube	Replaceable for cleaning, hexagon wrench size 18, see spare parts

Fig. 1: OM5: Performance related to supply voltage: Flow Rate and Differential Pressure between inlet and outlet
(Oil type Reniso C85E, oil temperature 54°C)



Oil Management System Series OM3, OM4 and OM5 - TraxOil

Adapter Selection Guideline for OM3/4/5 (Oil flow rate data: page 1)

(intended only for connectivity of adapter to compressor series; detailed data see Selection Tool "Controls Navigator")

		Compressor Series with OM3	Compressor series with OM4	Compressor series with OM5	
		for applications up to 46 bar	OM4 can be incorporated in compressors designed for CO ₂ transcritical in conjunction with oil receivers/reservoirs up to 60 bar	for transcritical CO ₂ applications	
Flange adapter	OM0-CUA 3- / 4-hole Part No. 805037	Bitzer	4VC, 4TC, 4PC, 4NC, 4J, 4H, 4G, 6J,6H, 6G, 6F, 8GC, 8FC	4- VHC-10K, THC-12K, PHC-15K, NHC-20K, VSL-15K, TSL-20K, PSL-25K, NSL-30K	-
		Bock	HA, HG (except HG/HA-34/22, see -CBB), HGX4/5/6/7-4 R134a, O-Series	HGX4 CO2	-
		Copeland	4M & 6M (except transcritical 4MTL models), D2, D3, D4, D6, D9, 4CC, 6CC, ZBH	-	-
		Dorin	all KP, K sizes (except types mentioned under -CBB) H2000-9000CC/CS, HI1201CC, HI1501CC, 41VS-90VS SCC 250/300/350/380/500/750/ SCC-1500/1900/2000/2500/ -B, SCS 340/351/362/373/385/3K8/-D	CDS35, 501B, 701B, 751B, 901B, 1201B CDS41, 1501B, 2001B, 2401B, 2501B	-
		Frascold	Series A, B, D, F, S, V, W, Z	A-SK, D-SK, Q-SK, S-SK	-
	OM0-CCC 3-hole Part No. 805041	Copeland	D8D, D8S_ (except D8SJ and D8SK, installation only on one sight glass)	-	-
	OM0-CUD CO2 6-/ 6-hole Part No. 805049	Dorin	-	-	CDxx M, H, B CD2S-200, -400
Thread adapter	OM0-CBB 1-1/8"-18 UNEF Part No. 805038	Bitzer	2KC, 2JC, 2HC, 2GC, 2FC, 2EC, 2DC, 2CC, 4FC, 4EC, 4DC, 4CC, 2- KHC-05K/ JHC-07K/ HHC-2K/ GHC-2K/ FHC-3K/ EHC-3K/ DHC-3K/ CHC-4K, MHC-05K, 4- CHC-9K/ DHC-7K/ EHC-6K/ FHC-5K	2- NSL, MSL, KSL, JSL, HSL, GSL, FSL, ESL, DSL, CSL 2- MHC, KHC, JHC, HHC, GHC, FHC, EHC, DHC, CHC 4- FSL, ESL, DSL, CSL, VSL, TSL, PS, NSL, 4- FHC, EHC, DHC, CHC	-
		Bock	HA12/22/34, HG12/22/34, HGX12P, HGX22P, HGX34P for R134a/R410A, HG12P-34P, HG22/34E	HGX12 / 22 / 34e..CO2	-
		Dorin	all H400-650EP, H1-1003CC/CS, HI1-HI751CC, K100CC/CS, K150CC/CS, K180CC/CS, K200CC, K230CS, K235CC, K240SB, K40CC, K50CS, K75CC/CS-	CDS11, 101B, 151B, 181B, 301B, 351B, 381B	-
		L'Unite Herm.	TAH, TAG	-	-
		Maneurop	LT, MT, SM, SZ	-	-
	OM0-CBB CO2 1-1/8"-18 UNEF Part No. 805338	Bitzer	-	-	4 - CTC, DTC, FTC, HTC, JTC, KTC, MTC, PTC
		Bock	-	-	HAX2...CO2 T, HGX34 / 46...CO2 T
		Copeland	-	-	4MSL, 4MTL
	OM0-CCA 3/4"-14 NPTF Part No. 805039	Bitzer	ZL, ZM	-	-
		Copeland	ZB15 to ZB48 - until 06/2014 ZBD21 to ZBD45 - until 06/2014 ZB56, 75, 92, 11 - until 05/2012 ZF06 to ZF25 - until 06/2014 ZF24 to ZF48 * - until 05/2012 ZS21 to ZS45 - until 06/2014 ZS56 to ZS11 - until 05/2012	ZO34 to ZO104 - until 06/2014 ZOD34 to ZOD104 - until 06/2014*	-
	OM0-CCB 1-1/8"-12 UNF Part No. 805040	Copeland	DK, DL	-	-

Note: *) Digital/EVI versions of standard models have the same sight glass/ will use the same adapter as the standard model.

Oil Management System Series OM3, OM4 and OM5 - TraxOil

Adapter Selection Guideline for OM3/4/5 (Oil flow rate data: page 1)

(intended only for connectivity of adapter to compressor series; detailed data see Selection Tool “Controls Navigator”)

		Compressor Series with OM3	Compressor series with OM4	Compressor series with OM5
		for applications up to 46 bar	OM4 can be incorporated in compressors designed for CO ₂ transcritical in conjunction with oil receivers/reservoirs up to 60 bar	for transcritical CO ₂ applications
Rotalock adapter	OM0-CCD 1-3/4"-12 UNF Part No. 805042	Copeland ZB220, ZF24 to ZF48, ZH100/125/150 ZR90, 11, 12, 16, 19, 250 to ZR380	ZS56 to ZS11 ZP180, ZP235 to ZP485	-
		Bitzer GSD80182, 80235, 80295 to 80485	-	-
	OM0-CCE 1-1/4"-12UNF Part No. 805043	Copeland ZB15 to ZB48 - after 06/2014 ZB50, 58, 66, 76, 95, 114 ZBD21 to ZBD45 - after 06/2014 ZF06 to ZF25 - after 06/2014* ZF(D)18 - after 06/2014, ZF48 ZH40/45/50/64/75 ZP90/103/104/120/122/137/154/182 ZR94/108/125/144/160/190 ZS21 to ZS45 - after 06/2014	ZO21, ZO34 to ZO104 - after 06/2014 ZOD34 to ZOD104 – after 06/2014*	-
		Bitzer GSD60182 to 60235	-	-

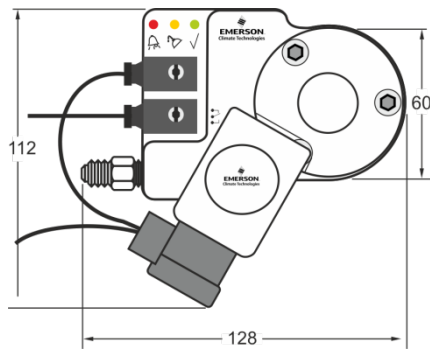
Note: *) Digital/EVI versions of standard models have the same sight glass/ will use the same adapter as the standard model.

Other adapter types on request! Our applications engineering advice and the information contained in this guideline are based on experience and are made to the best of our knowledge and belief, they must be regarded however as non-binding advice without guarantee. Further information see Selection Tool “Controls Navigator”!

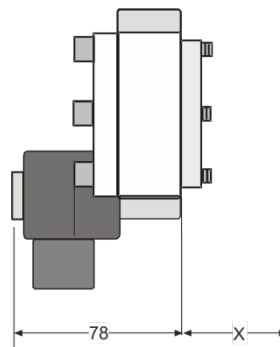
Dimensions (mm)

Base Unit with adapter

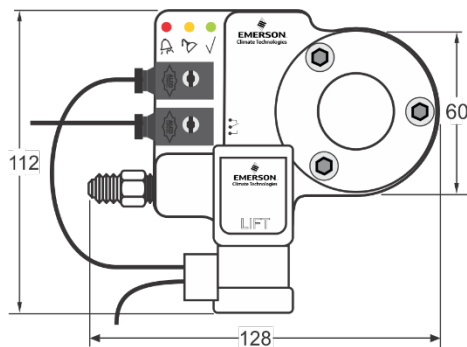
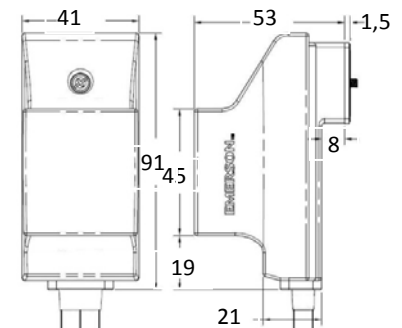
OM-230V-x Module:



OM5 + ASC3



X: see table “Overview Adapters”



OM3/4 + ASC

Oil Management System Series OM3, OM4 and OM5 - TraxOil

Overview Adapters

Connection type		Connection size / Dimensions (mm)	Base Unit	Refrigerants	Material
Thread	OM0-CCA Part-No.805039	3/4"-14 NPTF 	OM3 / OM4	Selected HFC & HFO/ HFO blends CO ₂	Aluminum
	OM0-CCA CO2 Part-No.805339		OM5	CO ₂	Steel & Aluminum
	OM0-CBB Part-No.805038	1-1/8"-18 UNF 	OM3 / OM4	Selected HFC & HFO/ HFO blends CO ₂	Aluminum
	OM0-CBB CO2 Part-No.805338		OM5	CO ₂	Steel & Aluminum
	OM0-CCB Part-No.805040	1-1/8"-12 UNF 	OM3 / OM4	Selected HFC & HFO/ HFO blends CO ₂	Aluminum
	OM0-CCB CO2 Part-No.805340		OM5	CO ₂	Steel & Aluminum
Rotalock	OM0-CCD Part-No.805042	1-3/4"-12 UNF 	OM3 / OM4	Selected HFC & HFO/ HFO blends CO ₂	Aluminum
	OM0-CCD CO2 Part-No.805342		OM5	CO ₂	Steel & Aluminum
	OM0-CCE Part-No.805043	1-1/4"-12 UNF 	OM3 / OM4	Selected HFC & HFO/ HFO blends CO ₂	Aluminum
	OM0-CCE CO2 Part-No.805343		OM5	CO ₂	Steel & Aluminum

Oil Management System Series OM3, OM4 and OM5 - TraxOil

Overview Adapters

Connection type		Connection size / Dimensions (mm)	Base Unit	Refrigerants	Material
Flange ¹	OM0-CUA Part-No.805037	3- / 4-holes 	OM3 / OM4	Selected HFC & HFO/ HFO blends CO ₂	Aluminum
	OM0-CUA CO2 Part-No.805337		OM5	CO ₂	Aluminum
	OM0-CCC Part-No. 805041	3 holes 	OM3 / OM4	Selected HFC & HFO/ HFO blends CO ₂	Aluminum
	OM0-CCC CO2 Part-No. 805341		OM5	CO ₂	Aluminum
	OM0-CUD CO2 Part-No.805049	6-/6 holes 	OM5	CO ₂	Aluminum

Note: ¹) M6 screws for fastening are not part of delivery.

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