

OM3, OM4 and OM5 TraxOil Oil Management

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.

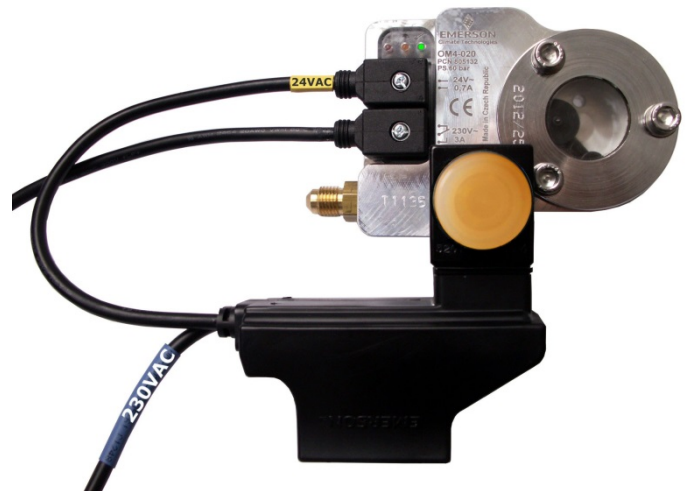
While OM3 is the well-proven solution for HFC refrigerants, OM4 can also be used for subcritical CO₂ systems. OM5 TraxOil has been specially developed for transcritical CO₂ applications; the new adapters are equipped with special types of O-rings to guarantee safe long-term and reliable operation.

Features

- OM3 for HFC refrigerants
 - max. working pressure PS 46 bar
- OM4 for liquid R744 (CO₂) subcritical and HFCs
 - max. working pressure PS 60 bar
- OM5 for liquid R744 (CO₂) transcritical
 - max. working pressure PS 130 bar
 - max. operating pressure differential 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 24VAC or 230VAC
- SPDT output contact for compressor shut down or alarming, rating 230VAC / 3A
- 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 Low Voltage and EMC Directive, **ERAC**



OM5 + ASC3 Coil 24V



OM4 + ASC3 Coil 230V + OM-230V

OM3, OM4 and OM5 TraxOil Oil Management

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	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 Flanges

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 ±10%

4. Solenoid Coil

Type	Part No.	
ASC3 24 VAC	801079	50/60 Hz, 17

5. Cable Assembly Power Supply and Solenoid

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

Supply voltage 230V ±10%

4. Solenoid Coil

Type	Part No.	
ASC3 230 VAC	801077	50/60 Hz, 17

5. Cable Assembly with 230V module

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

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

Kits inc. Adapter	Part No.
OM3-CUA	805030
OM3-CBB	805032
OM3-CCA	805033
OM3-CCB	805034
OM3-CCC	805035
OM3-CCD	805031
OM3-CCE	805029



Base Unit	Part No.	Adapter	Part No.	Coil	Part No.
OM3-020	805133	OM0-CUA	805037	ASC3 24 VAC	801079
		OM0-CBB	805038		
		OM0-CCA	805039		
		OM0-CCB	805040		
		OM0-CCC	805041		
		OM0-CCD	805042		
		OM0-CCE	805043		

OM4-CUA	805060
OM4-CBB	805062
OM4-CCA	805063
OM4-CCB	805064
OM4-CCC	805065
OM4-CCD	805061
OM4-CCE	805066



Base Unit	Part No.	Adapter	Part No.	Coil	Part No.
OM4-020	805135	OM0-CUA	805037	ASC3 24 VAC	801079
		OM0-CBB	805038		
		OM0-CCA	805039		
		OM0-CCB	805040		
		OM0-CCC	805041		
		OM0-CCD	805042		
		OM0-CCE	805043		

OM3, OM4 and OM5 TraxOil Oil Management

Product Selection OM5 (select one item of each group)

1. Base Units (supplied without adapter and coil)

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

2. Adapter flanges

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 UNEF
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 ±10%

4. Solenoid Coil

Type	Part No.	
ASC3-W24VAC	801074	50/60 Hz, 38 VA

5. Cable Assembly Power Supply and Solenoid

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

Supply Voltage 230V ±10%

4. Solenoid Coil

Type	Part No.	
ASC3-W230VAC	801075	50/60 Hz, 38 VA

5. Cable assembly with 230V module

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

Accessories and Spare Parts

Type	Part No.	Description	Weight
ECT-623	804421	Transformer 230 VAC / 24VAC, 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!	

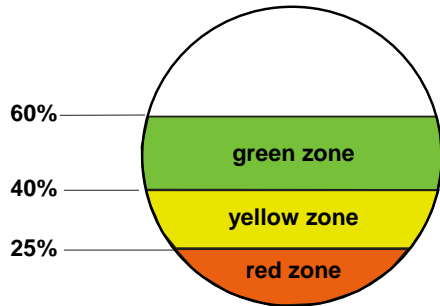
OM3, OM4 and OM5 TraxOil Oil Management

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

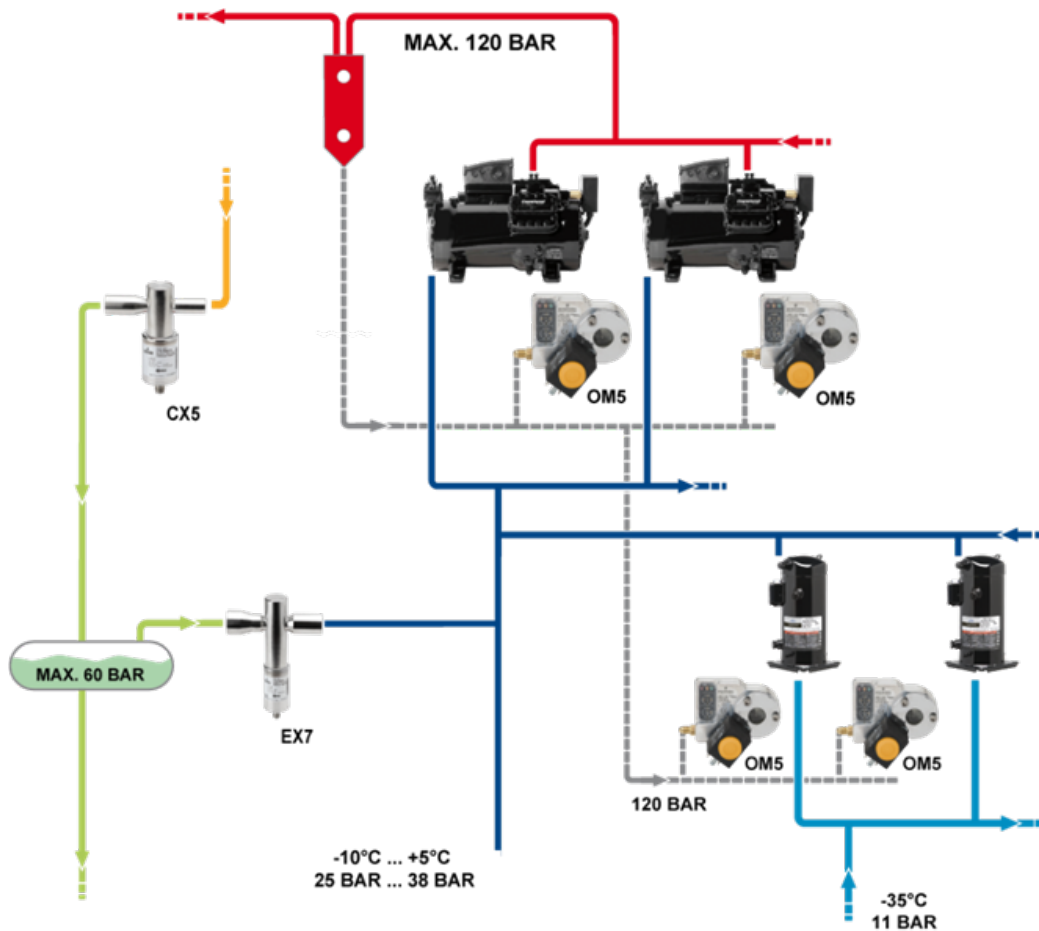
OM3/OM4/OM5 TraxOil generates an alarm signal and the alarm contact (SPDT) changes into alarm state. The latter may be used to shut down the compressor. In the Alarm status the TraxOil is still feeding oil into the compressor. If the oil level comes back to normal, the Alarm will be reset.

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 10s	
●	Oil Level in yellow zone (40 - 25%)	Injection	
● ●	Oil Level in red zone (25 - 0%)	Injection	Yes, delay 20s or 120s

Typical transcritical CO₂ Application with OM5



OM3, OM4 and OM5 TraxOil Oil Management

Adapter Selection Guideline OM3 and OM4

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

		Compressor Series with OM3 (HFC refrigerants only)	Compressor series with OM4 OM4 can be incorporated in compressors designed for CO ₂ transcritical in conjunction with oil receivers/reservoirs up to 60 bar
OM0-CUA Part No. 805037 Flange adapter 3- / 4-hole	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 250/300/350/380/500/750/1500/1900/2000/2500/ -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-CBB Part No. 805038 Screw adapter 1-1/8"-18 UNEF	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, PSL,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-CCA Part No. 805039 Screw adapter 3/4"-14 NPTF	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 Part No. 805040 Screw adapter 1-1/8"-12 UNF	Copeland	DK, DL	
OM0-CCC Part No. 805041 Flange adapter 3-hole	Copeland	D8D, D8S_ (except D8SJ and D8SK, installation only on one sight glass)	
OM0-CCD Part No. 805042 Rotalock adapter 1-3/4"-12 UNF	Copeland	ZB220 ZF24 to ZF48 ZH100/125/150 ZR90, 11, 12, 16, 19, 250 to ZR380, ZS56 to ZS11	ZP180, ZP235 to ZP485
OM0-CCE Part No. 805043 Rotalock adapter 1-1/4"-12UNF	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 GSD80182, 80235, 80295 to 80485	

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

OM3, OM4 and OM5 TraxOil Oil Management

Adapter Selection Guideline OM5

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

		Compressor series with OM5
OM0-CUA CO2 Part No. 805337 Flange adapter 3- / 4-hole		
OM0-CBB CO2 Part No. 805338 Screw adapter 1-1/8"-18 UNEF	Bitzer	4 - CTC, DTC, FTC, HTC, JTC, KTC, MTC, PTC
	Bock	HAX2...CO2 T, HGX34 / 46...CO2 T
	Copeland	4MSL, 4MTL
OM0-CCA CO2 Part No. 805339 Screw adapter 3/4"-14 NPTF		
OM0-CCB CO2 Part No. 805340 Screw adapter 1-1/8"-12 UNF		
OM0-CCC CO2 Part No. 805341 Flange adapter 3-hole		
OM0-CCD OC2 Part No. 805342 Rotalock adapter 1-3/4"-12 UNF		
OM0-CCE CO2 Part No. 805343 Rotalock adapter 1-1/4"-12UNF		
OM0-CUD CO2 Part No. 805049 Flange adapter 6-/ 6-hole	Dorin	CDxx M, H, B CD2S-200, -400

*) 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"!

Technical Data



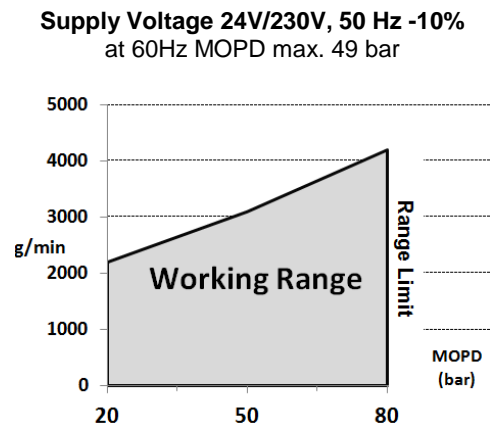
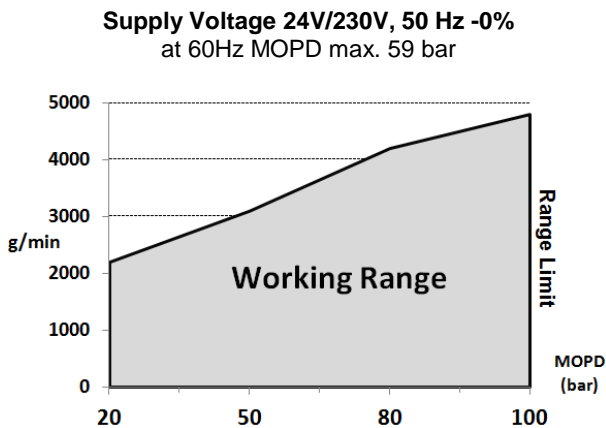
Markings:	 under: - Low Voltage Directive 2006/95/EC - EMC Directive 89/336/EC 	Materials: Body and Adapter Screws Sight Glass	aluminum (EN AW 6060) galvanized steel nickel-plated steel (ISO 2081)
Applied Standards:	EN 12284, EN 378, EN 61010, EN 50081-1, EN 50082-1	Flow rate	OM3/OM4 at $\Delta P = 3$ bar: 340g/min. (22°C oil temperature, oil type HM46) OM5: see Fig. 1
Max. working pressure PS:	OM3: 46 bar OM4: 60 bar OM5: HP side (inlet): 130 bar LP side (outlet): 100 bar	Orientation of base unit:	Horizontal, +/- 1°
Max. Test pressure PT:	OM3: 51 bar OM4: 66 bar OM5: 143 bar (390 bar burst press)	Level control:	40% to 60% of sight glass height
Supply voltage / total power:	OM3/OM4: • with ASC3-24VAC coil 24VAC, 50/60 Hz, $\pm 10\%$, 17VA • with ASC3-230VAC coil and OM-230V-x module 230VAC, 50/60 Hz, $\pm 10\%$, 17VA OM5: • with ASC3-W24VAC coil 24VAC, 50/60 Hz, $\pm 10\%$, 38VA • with ASC3-W230VAC coil and OM-230V-x module 230VAC, 50/60 Hz, $\pm 10\%$, 38VA	Alarm contact:	max. 3A, 230VAC SPDT dry contact
Solenoid valve MOPD	OM3/OM4: 30 bar OM5: 100 bar (50Hz) see Fig. 1 59 bar (60Hz)	Time Delay Alarm:	20 sec.: OM3/4/5-020, all OM3/4 Kits 120 sec.: OM3/4/5-120
Vibration resistance (EN60068-2-6)	max. 4g, 10...250Hz	Time Delay Filling:	10 sec.
Medium temperature Ambient/Storage temperature	-20...+80°C -20...+50°C	Protection class	IP 65 (IEC529/EN 60529)
Medium compatibility	OM3: HFC, HCFC OM4: CO ₂ , HFC OM5: CO ₂ only; All: mineral, synthetic and ester lubricants	Weight: 24V System 230V System	750 ... 920g incl. adapter 1100 ... 1270g incl. adapter
		Oil connection	7/16"-20 UNF male, with strainer and O-ring (replaceable, see acc.)
		Enclosing tube	Replaceable for cleaning, hexagon wrench size 18, see spare parts

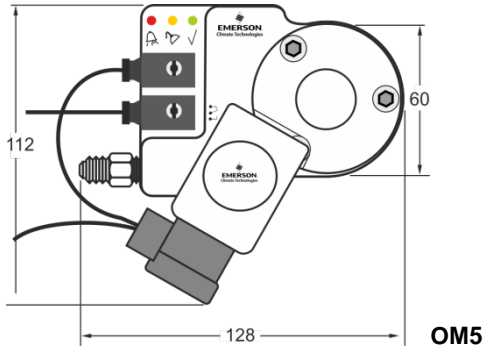
Fig. 1: OM5: Performance related to supply voltage: Flow Rate and Differential Pressure between inlet and outlet
(Oil type Reniso C85E, oil temperature 54°C)



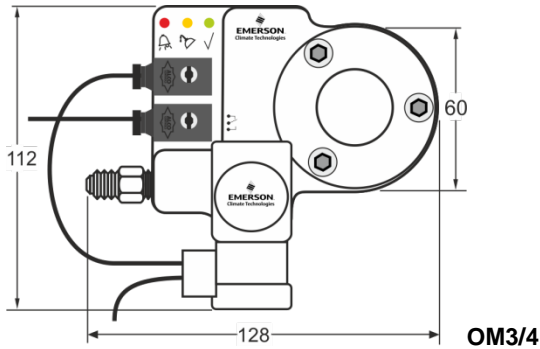
OM3, OM4 and OM5 TraxOil Oil Management

Dimensions [mm]

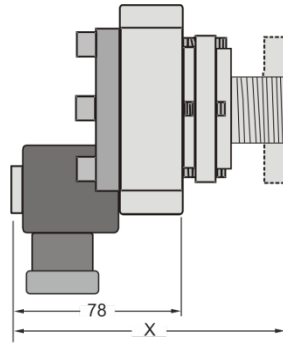
Base Unit with adapter and ASC3 coil (24V) :



OM5

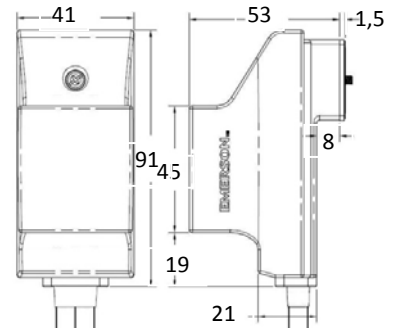


OM3/4



X:
 OM3/4/5 incl. -CUA, -CCB,
 -CCC, -CCD: 118 mm
 OM0 -CCE: 114 mm
 OM0-CBB: 112 mm
 OM0-CCA: 108 mm

OM-230V-x Module:



Adapters	Side view	Front view (facing compressor)
OM0-CUA Flange adaptor 3- / 4-hole 3 holes \varnothing 6.9 mm, Circle diameter 47.6 mm; 4 holes \varnothing 6.9 mm, Circle diameter 50mm Weight: 0.16kg		
OM0-CBB Screw adaptor 1-1/8"-18 UNF Additional flange ring for adaptor / base unit connection (included) Weight: 0.11kg		
OM0-CCA Screw adaptor 3/4"-14 NPTF Additional flange ring for adaptor / base unit connection (included) Weight: 0.11kg		
OM0-CCB Screw adaptor 1-1/8"-12 UNF Additional flange ring for adaptor / base unit connection (included) Weight: 0.12kg		

Adapters	Side view	Front view (facing compressor)
OM0-CCC Flange adaptor 3-hole Three holes \varnothing 6.7 mm, Circle diameter 47.6 mm Weight: 0.16kg		
OM0-CUD Flange adaptor 6-/ 6-hole 12 holes \varnothing 6.9 mm, circle diameter 47.6 mm; Weight: 0.12kg		
OM0-CCD Rotalock adaptor 1-3/4"-12 UNF one piece adaptor consists of OM0-CCA and Rotalock adaptor 1-3/4"-12 UNF Weight: 0.18kg		
OM0-CCE Rotalock Adaptor 1-1/4"-12 UNF Weight: 0.16kg		