



CATALOGUE 2020

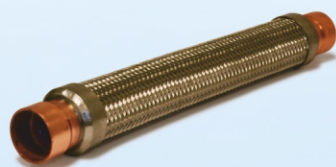
series 28 bar • series 45 bar (R410A)



Pressure vessels



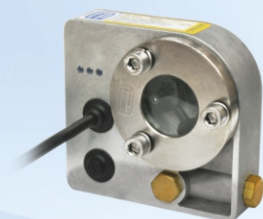
Linear components



Vibroeliminators



Oil control system



Electronic components



Filters

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COMPANY HISTORY

The history of the plant began in 2000, with a small factory for the production of refrigeration receivers . Today the product range consists of 150 models component of the cooling systems. The factory area is 5000 square meters, the factory has more than 70 people. The quality of products recognized by FP customers around the world and confirmed by the world leader in certification – TUV Rheinland.

RANGE OF PRODUCTS

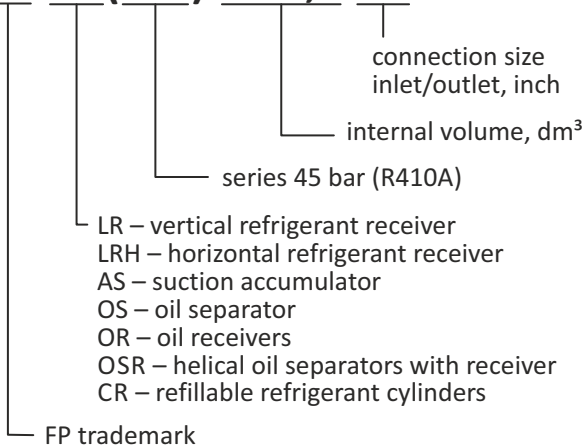
- Electronic oil level regulator FeedWay®;
- Liquid receivers, suction accumulator;
- Oil separators, oil receivers, oil filters;
- Helical oil separators with receiver;
- Sight glasses, moisture indicators;
- Safety valves;
- Vibroeliminators;
- Differential check valves;
- Rotalock valves;
- Filter-driers with replaceable core;
- Electronic expansion valves Evajet®;
- Welded vibroeliminators ;
- Receivers station;
- Refillable refrigerant cylinders.

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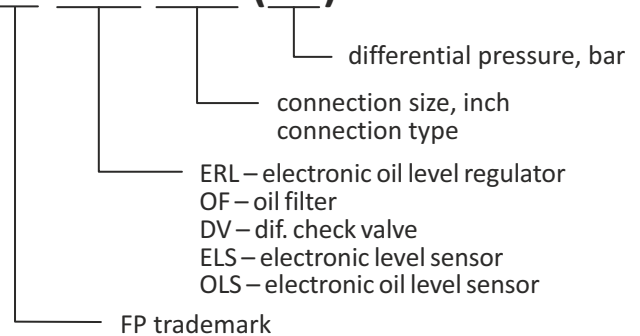
PRESSURE VESSELS

FP-XX(MP)-XXX,X-XX



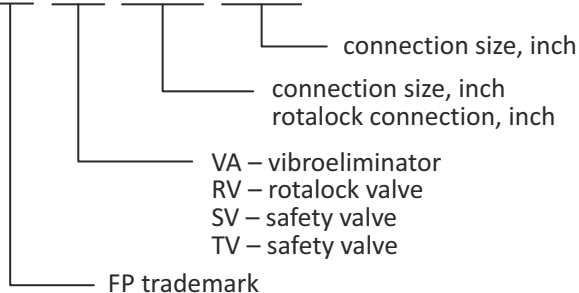
COMPONENTS OF THE OIL RETURN LINE

FP-XXX-XXX-(XX)

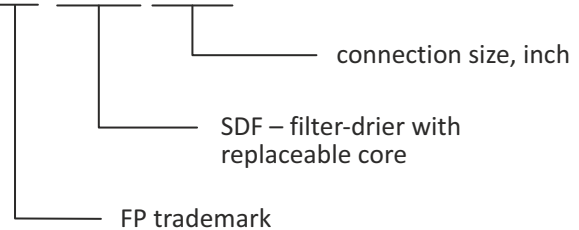


LINEAR COMPONENTS

FP-XX-XXX-XXX

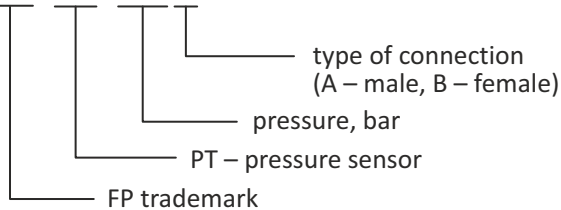


FP-SDF-XXX

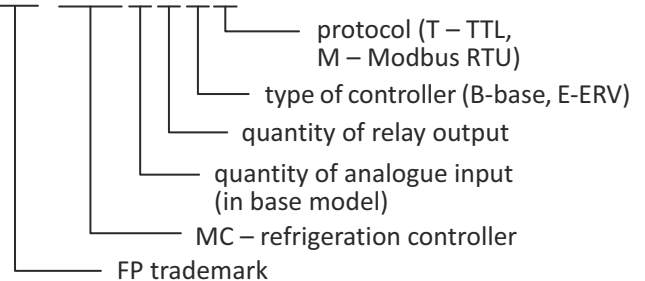


EVAPORATOR MANAGEMENT SYSTEM

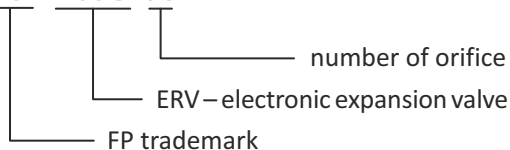
FP-PT-XXX



FP-MCXXXX










FP-ERV-X



REFRIGERANT RECEIVERS

Receiver is a container for liquid refrigerant storing. Receivers are designed to collect liquid after the condenser for smooth refrigerant supply to the evaporator and creating refrigerant reserve in a system. According to construction and technical characteristics all FP receivers can be apply to work with all refrigerant kinds, under admissible working pressure, except NH₃. The delivery set of the refrigerant receivers 3 includes inspection glasses and a nut to the port of the safety valve (without a plug).

Vertical refrigerant receivers										
Type	Model	∅ D, mm	H, mm	A, mm	In/Out	SG ^[1] , M24 pcs	SVP ^[2] , 1¼"	Volume, dm ³	Notes	
	28bar SERIES 45bar SERIES FP-LR(MP)-1,0	102	121	27	3/8" ODS (Cu)	–	–	1.0	Draw. 1 Table 1	
	FP-LR(MP)-1,6	133	139	37	3/8" ODS (Cu)	–	–	1.6		
	Cu-St WELD SERIES 28bar SERIES 45bar SERIES FP-LR(MP)-2,5	159	170	–	1/2" ODS (Cu) / 1" UN	–	–	2.5	Draw. 2 Table 1	
	FP-LR(MP)-4,0	159	245	–	1/2" ODS (Cu) / 1" UN	–	–	4.0		
	FP-LR(MP)-6,3	159	370	–	1/2" ODS (Cu) / 1" UN	–	–	6.3		
	FP-LR(MP)-8,0	159	470	–	1/2" ODS (Cu) / 1" UN	–	+	8.0		
	28bar SERIES 45bar SERIES FP-LR(MP)-10,0	190	410	130	1" UN	–	+	10.0	Draw. 3	
	FP-LR(MP)-12,5	190	515	130	1" UN	–	+	12.5		
	FP-LR(MP)-16,0	190	620	130	1" UN	–	+	16.0		
	28bar SERIES 45bar SERIES FP-LR(MP)-20,0	240	551	160	1 1/4" UN	–	+	20.0	Draw. 4 Draw. 5 Draw. 6	
	FP-LR(MP)-24,8	240	638	160	1 1/4" UN	–	+	24.8		
	FP-LR(MP)-25,0	240	638	160	1 1/4" UN	1	+	25.0		
	FP-LR(MP)-32,5	240	847	160	1 1/4" UN	1	+	32.5		
	FP-LR(MP)-40,0	240	964	160	1 1/4" UN	2	+	40.0		
	FP-LR(MP)-50,0	325	731	170	1 3/4" UN	2	+	50.0		
	FP-LR(MP)-63,0	325	876	170	1 3/4" UN	2	+	63.0		
	FP-LR(MP)-80,0	325	1111	170	1 3/4" UN	2	+	80.0		
	FP-LR(MP)-100,0	325	1301	170	1 3/4" UN	3	+	100.0		
	FP-LR(MP)-120,0	325	1551	170	1 3/4" UN	3	+	120.0		
	FP-LR(MP)-160,0	450	1140	220	2 1/4" UN	3	+	160.0		
	FP-LR(MP)-200,0	450	1430	220	2 1/4" UN	3	+	200.0		
	FP-LR(MP)-250,0	450	1590	220	2 1/4" UN	3	+	250.0		
	FP-LR-300,0	450	2050	250	89 mm ODS(St)	4	+	300.0		
FP-LR-350,0	450	2350	250	89 mm ODS(St)	4	+	350.0			





Horizontal refrigerant receiver												
Type	Model	∅ D, mm	L, mm	L1, mm	A, mm	A1, mm	H, mm	In/Out	SG ^[1] , 1¼ pcs	SVP ^[2] , 1¼"	Volume, dm ³	Notes
	28bar SERIES 45bar SERIES FP-LRH(MP)-16,0	159	938	850	258	198	219	1" UN	–	+	16.0	Draw. 7
	FP-LRH(MP)-25,0	190	982	850	340	280	250	1 1/4" UN	1	+	25.0	
	FP-LRH(MP)-40,0	240	976	850	365	305	296	1 1/4" UN	1	+	40.0	
	FP-LRH(MP)-70,0	325	1011	850	365	305	385	1 3/4" UN	1	+	70.0	
	28bar SERIES 45bar SERIES FP-LRH(MP)-100,0	325	1310	750	500	420	375	1 3/4" UN	2	+	100.0	Draw. 8
	FP-LRH(MP)-120,0	325	1560	1000	500	420	375	1 3/4" UN	2	+	120.0	
	FP-LRH(MP)-160,0	450	1165	510	600	520	520	2 1/4" UN	2	+	160.0	
	FP-LRH(MP)-200,0	450	1455	800	600	520	520	2 1/4" UN	2	+	200.0	
	FP-LRH(MP)-250,0	450	1615	960	600	520	520	2 1/4" UN	2	+	250.0	
	FP-LRH-300,0	450	2025	1060	600	520	575	89 mm ODS	3	+	300.0	
	FP-LRH-350,0	450	2325	1400	600	520	575	89 mm ODS	3	+	350.0	Draw. 9

NOTES: SG^[1], M24 – Sight glass, M24;
SVP^[2], 1¼" – Safety valve port, 1¼";
Cu – Copper connections;
St – Steel connections.

FP-LR – series 28 bar;
FP-LR(MP) – series 45 bar;
FP-LRH – series 28 bar;
FP-LRH(MP) – series 45 bar.





SUCTION ACCUMULATORS

Suction line accumulators main purpose – deliver refrigerant to a compressor only as a gas. All units with flooded evaporators need this item, as well as system with overheated evaporators to prevent liquid refrigerant accumulation in suction line. Apart from liquid separation suction accumulators provides oil return to compressor.

Suction accumulators										
Type	Model	∅ D, mm	H, mm	A, mm	In/Out	Volume, dm ³	Notes			
		FP-AS-2,0-012	102	326	55	1/2" ODS(Cu)	2.0	Draw. 11 Table 1 Table 2 Table 3		
		FP-AS-2,0-058	102	326	55	5/8" ODS(Cu)	2.0			
		FP-AS-3,5-078	102	526	55	7/8" ODS(Cu)	3.5			
		FP-AS-3,5-118	102	526	55	1 1/8" ODS(Cu)	3.5			
		FP-AS-5,0-118	133	443	70	1 1/8" ODS(Cu)	5.0			
		FP-AS-5,0-138	133	443	70	1 3/8" ODS(Cu)	5.0			
		FP-AS-7,0-138	159	440	90	1 3/8" ODS(Cu)	7.0			
		FP-AS-7,0-158	159	440	90	1 5/8" ODS(Cu)	7.0			
		FP-AS-9,0-158	159	560	90	1 5/8" ODS(Cu)	9.0			
		FP-AS(MP)-12,0-218	190	546	320	2 1/8" ODS(Cu)	12.0	Draw. 12		
		FP-AS(MP)-12,0-258	190	546	320	2 5/8" ODS(Cu)	12.0			
		FP-AS(MP)-25,0-218	240	680	455	2 1/8" ODS(Cu)	25.0	Draw. 13, 17 Table 1 Table 2 Table 3		
		FP-AS(MP)-25,0-258	240	680	455	2 5/8" ODS(Cu)	25.0			
		FP-AS(MP)-45,0-258	325	655	411	2 5/8" ODS(Cu)	45.0			
		FP-AS(MP)-45,0-318	325	655	411	3 1/8" ODS(Cu)	45.0	Draw. 13, 17 Draw. 10 Table 2 Table 3		
		FP-AS-12,0-218ST	190	545	320	2 1/8" ODS(St)	12.0			
		FP-AS-25,0-218ST	240	660	455	2 1/8" ODS(St)	25.0			
		FP-AS-25,0-258ST	240	660	455	2 1/8" ODS(St)	25.0			
		FP-AS-45,0-318ST	325	645	411	3 1/8" ODS(St)	45.0			

OIL SEPARATORS

Oil separators are used to separate oil dissolved in refrigerant in order to return it to compressor's crankcase. Effectiveness of FP oil separators is more than 90% which increases system's productivity by preventing excessive oil circulation. Cyclone oil separators are designed for systems with screwed oil-filled compressors, have "welded" connection or flanged connection. It is equipped with heating system sleeves, inspection glasses and a nut on the safety valve port.


Oil separators										
Type	Model	∅ D, mm	H, mm	A, mm	B, mm	In/Out	ORP ^[2] , inch	Volume, dm ³	Notes	
		FP-OS-2,0-012	102	326	55	–	1/2" ODS(Cu)	3/8 SAE	2.0	Draw. 14 Table 1 Chart 1
		FP-OS-2,0-058	102	326	55	–	5/8" ODS(Cu)	3/8 SAE	2.0	
		FP-OS-3,5-078	102	526	55	–	7/8" ODS(Cu)	3/8 SAE	3.5	
		FP-OS-3,5-118	102	526	55	–	1 1/8" ODS(Cu)	3/8 SAE	3.5	
		FP-OS-5,0-118	133	443	70	–	1 1/8" ODS(Cu)	3/8 SAE	5.0	
		FP-OS-5,0-138	133	443	70	–	1 3/8" ODS(Cu)	3/8 SAE	5.0	
		FP-OS-7,0-138	159	440	90	–	1 3/8" ODS(Cu)	3/8 SAE	7.0	
		FP-OS-7,0-158	159	440	90	–	1 5/8" ODS(Cu)	3/8 SAE	7.0	
		FP-OS(MP)-12-218	190	546	145	320	2 1/8" ODS(Cu)	3/8 SAE	12.0	Draw. 15
		FP-OS(MP)-25-218	240	680	166	455	2 1/8" ODS(Cu)	3/8 SAE	25.0	Draw. 16, 17 Table 1 Chart 1
		FP-OS(MP)-25-258	240	680	166	455	2 5/8" ODS(Cu)	3/8 SAE	25.0	
		FP-OS(MP)-45-258	325	655	166	411	2 5/8" ODS(Cu)	3/8 SAE	45.0	

NOTES: SVP^[1], 1¼" – Safety valve port, 1¼";
 ПБМ^[2] – Oil return port;

Cu – Copper connections;
 St – Steel connections.


OIL RECEIVERS

The range of oil receivers consists of models from 5.0 to 25.0 liters and is designed for storage of temporary unclaimed at the moment oil. Identical for all models connection size is a big advantage in designing a refrigeration system and in oil receiver installation. In order to control the level of oil there are two ports for sight glasses and one port 3/8" SAE with thread 5/8 UNF for connection of differential valve.

Oil receivers									
Type	Model	Ø D, mm	H, mm	A, mm	In/Out UN inch	SG ^[1] , M24, pcs	DVP ^[2] , 3/8", SAE	Volume, dm ³	Notes
 <div style="display: inline-block; vertical-align: middle; margin-left: 5px;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">28bar SERIES</div> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">45bar SERIES</div> </div>	FP-OR-5,0(MP)	102	664	486	1	2	+	5.0	Draw. 18 Draw. 19 Chart 2
	FP-OR-8,0(MP)	133	664	494	1	2	+	8.0	
	FP-OR-12,0(MP)	159	669	502	1	2	+	12.0	
	FP-OR-16,0(MP)	190	658	–	1	2	+	16.0	
	FP-OR-25,0(MP)	240	658	–	1	2	+	25,0	


OIL FILTERS

Oil filters FP-OF are designed to protect components of oil circuit from dirt and other contaminants. They can be used with any types of refrigerants and oils.

Oil filters						
Type	Model	Connection A, inch	L, mm	L ₁ , mm	D, mm	Notes
 <div style="display: inline-block; vertical-align: middle; margin-left: 5px;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Cu-St WELD</div> </div>	FP-OF-038	5/8"-18 UNF (3/8 SAE)	102	46	75	Draw. 20 Table 1
	FP-OF-038S	3/8" ODS(Cu)	104	46	75	

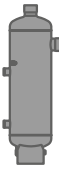
DIFFERENTIAL CHECK VALVE

Differential check valve FP-DV designed for maintaining of the difference in pressure in oil receiver for low pressure systems. The valve is installed on oil returning line between oil receiver and suction line. Differential valve FP-DV can be used with any type of refrigerants (except from ammonia) and refrigeration oils.

Differential check valves				
Type	Model	Connection, inch	Pressure difference, bar	Notes
 <div style="display: inline-block; vertical-align: middle; margin-left: 5px;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">45bar SERIES</div> </div>	FP-DV-038-35	5/8"-18UNF (3/8 SAE)	3.5	Draw. 38

HELICAL OIL SEPARATORS WITH RECEIVER

The main purpose of helical oil separators with receiver is the effective separation of oil from the refrigerant, its storage and return to the compressor. These oil separators are designed for high pressure oil return systems of multi-compressor refrigeration units.


Helical oil separators with receiver										
Type	Model	Ø D, mm	H, mm	h1, mm	IN/OUT ODS	A, mm	B, mm	Volume, dm ³	Oil receiver volume, dm ³	Notes
 <div style="display: inline-block; vertical-align: middle; margin-left: 5px;"> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">Cu-St WELD</div> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">28bar SERIES</div> </div>	FP-OSR-6-034(18mm)	133	601	495	18 mm	60	100	6.0	4.0	Draw. 21 Table 4
	FP-OSR-8-078	159	615	481	7/8"	60	100	8.0	5.5	
	FP-OSR-8-118	159	620	481	1 1/8"	60	100	8.0	5.5	
		159	767	621	1 3/8"	60	100	12.0	9,0	
		159	768	616	1 5/8"	60	100	12.0	9.0	
		190	726	546	2 1/8"	90	110	16.0	12.0	

NOTES: SG^[1], M24 – Sight glass, M24;
DVP^[2], 3/8" – Diff. valve port, 3/8" SAE.

ORP^[3] – Oil return port.


OIL SEPARATORS FOR SCREW COMPRESSORS


The main purpose of cyclone oil separators is the effective removal of oil from high-pressure gas and its return to the compressor, either directly or bypassing. This function helps maintain the oil level in the compressor crankcase and improves system performance by preventing excessive oil circulation.

Oil separators for screw compressors										
Type	Model	Ø D, mm	H, mm	A, mm	B, mm	In/Out ODS	ORP ^[2]	SVP ^[1] , 1¼" UN	Volume, dm ³	Notes
	FP-OS-40-218	325	650	178	411	2 1/8" ODS(St)	1 1/4 UN"	+	40.0	Draw. 17 Draw. 22 Chart 1
	FP-OS-80-318	325	1170	178	853	3 1/8" ODS(St)	1 3/4 UN"	+	80.0	
	FP-OS-200-418	450	1480	266	1121	4 1/8" ODS(St)	2 1/4 UN"	+	200.0	

HEATING KIT FOR CYCLONE OIL SEPARATOR


The devices are designed to heat oil in cyclone oil separators. Supplied as a ready-made heating kit for OS-40, OS-80, OS-200.



Heaters					
Type	Model	Length, mm	Voltage, V	Power, W	Notes
	FP-THE-250-150W	250	~230	150	Draw. 23
	FP-THE-120-150W	120	~230	150	Table 6

Thermostats					
Type	Model	Temperature, °C	Voltage, V	Load, A	Notes
	FP-TS-90	6...90	~230	10 (2.5)	Draw. 24 Table 6

ELECTRONIC REFRIGERANTS / OIL LEVEL SENSORS

Electronic refrigerant / oil level sensor FP-ELS/ELS2/OLS2 is designed for use as electronic meter of high and low levels (interface) of working media in vessels and apparatus under pressure. Level sensor install to the visual monitoring devices (sight glasses).

Electronic refrigerant / oil level sensor							
Type	Model	Parameter	ELS	ELS2	OLS2	Notes	
	FP-ELS	Working pressure PS	4,5 MPa			Draw. 25 Draw. 26	
		FP-ELS2	Test pressure PT	5,0 MPa			
	FP-OLS2	Power supply	230 V; 50/60 Hz; 0,04 A				
		Protection class	IP54	IP67	IP67		
	Alarm relay delay	120 sec					
	Alarm relay	max 3 A; 230 V; 50/60 Hz					
	Length of cables of power supply / alarm relay	3 m. 2 cables with connectors	3 m.	2 m.			
	Power supply / alarm relay connection	DIN43650C	1 integrated cable	1 integrated cable			
	Alarm level	40%	40%	25%			
	Recommended working media	refrigerants	refrigerants	oil			

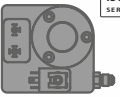
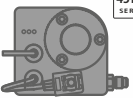

Electronic refrigerant / oil level sensor with adapters			
Type	Model	Manufacturer – Type of compressor	Notes
	FP-ELS/ELS2/OLS2 + FA Screw adapter M24, flange and 2 O-rings included	Refrigerant receivers series FP-LR, FP-LRH, FP-OR and FP-OS after 01.2019. The list of adapters for mounting FP-OLS2 on compressor, see page 6.	Draw.28
	FP-ELS/ELS2/OLS2 + CES/CE Rotalock adapter 1-1/4"-12UNF (free flange)	Refrigerant receivers series FP-LR, FP-LRH, FP-OR and FP-OS before 01.2019. The list of adapters for mounting FP-OLS2 on compressor, see page 6.	Draw.29

FEEDWAY. ELECTRONIC OIL LEVEL REGULATOR

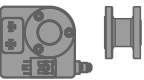
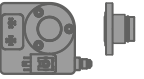

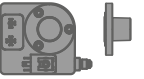
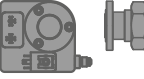
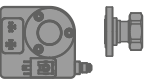
Electronic oil level regulator Feedway designed for installation into oil distribution circuit of compressor stations to control and maintain level of oil in compressor's crankcase and to give alarm signal and disconnect compressor in case of accident or low level of oil in crankcase.

Operation of electronic oil level control is based on electro-mechanics and uses hall-effect sensor as a sensitive element which allows to eliminate false alarms and to effectively control the level of oil in crankcase of compressor.

Feedway. Electronic oil level regulators


Type	Model	Parameter	ERL3	ERL4	Notes
 45bar SERIES	FP-ERL3	Max. operating pressure	4,5 MPa		Draw. 27 Draw. 30
		Test pressure	5,0 MPa		
		Power supply	230 V; 50/60 Hz; 0.04 A		
		Range of filling	40%...60% from sight glass height		
		Protection class	IP54	IP67	
		Time fill delay	10 sec		
 45bar SERIES 	FP-ERL4	Alarm relay delay	120 sec		
		Alarm relay	max 3 A; 230 V; 50/60 Hz		
		Length of cables of power supply / alarm relay	3 m. 2 cables with connectors	3 m. 1 integrated cable	
		Oil connection	Thread 7/16"-20UNF external (1/4"SAE)		
		Valve coil electrical connection	DIN43650B	—	
		Power supply / alarm relay connection	DIN43650C	—	

Electronic oil level regulator with adapters

Type	Model	Manufacturer – Type of compressor	Notes
	FP-ERL3/4 + UA Flange adapter 3 holes Ø 6,7 mm, D 47,6 mm 4 holes Ø 6,7 mm, D 50,0 mm	Copeland: D2; D3; D4; D6; D8D; D9; 4CC; 6CC; 6G Bitzer: 4VC; 4CC; 4TC; 4NC; 4PC; 4J; 4H; 4G; 6J; 6F; 6G; 6H; 8GC; 8FC Dorin: all K; KP dimensions (except FP-ERL-BBL) Frascold: A; B; D; F; S; V; W; Z Bock: HA (кроме HA12/22/34); HG (кроме HG12/22/34); O; HGX4/5/6/7-4 R134a Carrier: 06E Arctic Circle: G2; G4; G6	Draw. 31
	FP-ERL3/4 + BBL Screw adapter 1 1/8"-18UNEF, flange and 2 O-rings included	Bitzer: entire series 2...C; 4FC; 4EC; 4DC; 4CC Dorin: all H; K100CC/CS; K150CC/CS; K180 CC/CS; K200CC; K230CS; K235CC; K240SB; K40CC; K50CS; K75CC/CS Bock: HA12/22/34; HG12/23/34; HGX12P; HGX22P; HG-12P-34P; HG22/34E Tecumseh: TAG; TAN Maneurop: LT; MT; NTZ; SM; SZ	Draw. 32
	FP-ERL3/4+BBL+MLZ	Danfoss: LLZ; MLZ	
	FP-ERL3+AA Screw adapter 3/4"-14NPTF, flange and 1 O-ring included	Copeland: ZB15...48 before 06/2014; ZBD21...45 before 06/2014; ZF06...25 before 06/2014; ZF24...48 after 05/2012; ZS21...45 before 06/2014; ZB56, 75, 92, 11 before 05/2012; ZS56...11 before 05/2012 Bitzer: ZL; ZM Bristol: H29; H2; H7; H79	Draw. 33
	FP-ERL3/4 + CD Rotalock adapter 1-3/4"-12UNF	Copeland: ZB220; ZH; ZF24...48 до 05/2012; ZR90, 11, 12, 16, 19; ZR250...380; ZS56...11 after 05/2012 Bitzer: GSD80182, 80235, 80295 до 80485	Draw. 34
	FP-ERL3/4 + CE/CEL Rotalock adapter 1-1/4"-12UNF (free flange)	Copeland: all ZB15...48; ZF06...25; ZS21...45 — all after 06/2014; ZB50, 58, 66, 76, 95, 114; ZR94, 108, 125, 144, 160, 190; ZBD, ZFD; ZF48; ZH40, 45, 50, 64, 75; ZP 90, 103, 104, 120, 122, 137, 154, 182 FP: FP-SH, FP-SL, FP-SM Bitzer: GSD60182 до 60235	Draw. 35

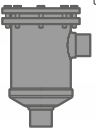
VIBROELIMINATORS

Vibroeliminators are designed for use in stationary or mobile refrigeration systems. The main function of vibroeliminator is to eliminate of vibrations from the compressor working on pumping or suction pipe of the refrigeration system.

Vibroeliminators							
Type	Model	Overall dimensions		Connection		Max working pressure, MPa	Notes
		L, mm	Ø D, mm	l, mm	Ød ODS, inch		
	FP-VA-038	230	15	10	3/8	4.5	Draw. 39 Table 1
	FP-VA-012	230	18	10	1/2	4.5	
	FP-VA-058	255	20	15	5/8	4.5	
	FP-VA-018	255	27	15	3/4	4.5	
	FP-VA-078	290	32	20	7/8	4.5	
	FP-VA-118	330	38	20	1 1/8	4.5	
	FP-VA-138	375	50	20	1 3/8	4.5	
	FP-VA-158	430	60	25	1 5/8	4.0	
	FP-VA-218	510	73	30	2 1/8	3.5	
	FP-VA-258	690	90	35	2 5/8	3.0	
FP-VA-318	690	108	35	3 1/8	3.0		


FILTER-DRYERS SHELLS

The FP-SDF filter-drier shells is designed to install a cartridge to protect refrigeration and air-conditioning systems from particulate matter, moisture, and acid. The filter drier is usually installed on the liquid line in front of the expansion valve or on the suction line in front of the compressor.

Filter-dryers shells						
Type	Model	Connection Ød ODS, inch	Overall dimensions		H ₁ , mm	Notes
			L, mm	L ₁ , mm		
	FP-SDF(MP)-058	5/8" ODS(Cu)	232	158	80	Draw. 36
	FP-SDF(MP)-078	7/8" ODS(Cu)	232	158	80	
	FP-SDF(MP)-118	1 1/8" ODS(Cu)	232	158	80	
	FP-SDF(MP)-138	1 3/8" ODS(Cu)	232	163	90	
	FP-SDF(MP)-158	1 5/8" ODS(Cu)	232	163	90	
	FP-SDF(MP)-218	2 1/8" ODS(Cu)	232	163	90	
	FP-SDF(MP)-258	2 5/8" ODS(Cu)	232	163	90	

REFILLABLE REFRIGERANT CYLINDERS

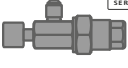


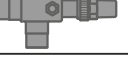
Are intended for storage and transportation of CFCs, HCFCs and HFCs. Cylinders are equipped with a valve with a safety device and a passport, meet all the standards of TR TC032 / 2013.

Refillable refrigerant cylinders							
Type	Model	ØD, mm	H, mm	Out, inch	Weight of refrigerant R22, kg	Volume, dm ³	Notes
	FP-CR-15	240	475	1x7/16-20UNF (1/4 SAE)	12.4	12.5	Draw. 37 Table 5
	FP-CR-15Y	240	475	2x7/16-20UNF (1/4 SAE)	12.4	12.5	
	FP-CR-30Y	240	825	2x7/16-20UNF (1/4 SAE)	29.8	30.0	
	FP-CR-60Y	325	1005	2x7/16-20UNF (1/4 SAE)	59.5	60.0	

The term of the technical examination of reusable freon cylinders is 5 years.


ROTALOCK VALVES

Rotalock valves are made for blocking pressure vessels, which allows to make service maintenance on-time and make it ROTALOCK VALVES easier to change receiver if needed. Working pressure of rotalock valves is 4,5 MPa.

Rotalock valves						
Type	Model	Connection		L, mm	□, mm	Notes
		∅ D, inch	∅ d, inch			
 <small>45bar SERIES</small>	FP-RV-014SAE	7/16" – 20UNF (1/4" SAE)	7/16" – 20UNF (1/4" SAE)	72	–	Draw. 40
	FP-RV-038SAE	5/8" – 18UNF (3/8 SAE)	5/8" – 18UNF (3/8 SAE)	72	–	
	FP-RV-1-038F	1" UN	5/8" – 18UNF (3/8 SAE)	106	SW 20	Draw. 41
	FP-RV-1-012	1" UN	1/2" ODS	106	SW 20	Draw. 42
	FP-RV-1-038	1" UN	3/8" ODS	106	SW 20	
	FP-RV-1-058	1" UN	5/8" ODS	106	SW 20	
	FP-RV-114-058	1 1/4" UN	5/8" ODS	109	SW 22	
	FP-RV-114-034	1 1/4" UN	3/4" ODS	142	SW 30	
	FP-RV-114-078	1 1/4" UN	7/8" ODS	142	SW 30	
	FP-RV-114-118	1 1/4" UN	1 1/8" ODS	145	SW 30	
	FP-RV-134-078	1 3/4" UN	7/8" ODS	142	SW 30	
	FP-RV-134-118	1 3/4" UN	1 1/8" ODS	185	SW 36	
	FP-RV-134-138	1 3/4" UN	1 3/8" ODS	187	SW 36	
	FP-RV-134-158	1 3/4" UN	1 5/8" ODS	191	SW 36	
	FP-RV-214-138	2 1/4" UN	1 3/8" ODS	201	SW 50	
	FP-RV-214-158	2 1/4" UN	1 5/8" ODS	203	SW 50	
	FP-RV-214-218	2 1/4" UN	2 1/8" ODS	205	SW 50	
	FP-RV-318-318	3 1/8" ODS	3 1/8" ODS	288	SW 100	Draw. 43


SAFETY VALVES

Safety valve should be installed on all vessels that have a safety valve port. It is designed to protect the vessels working under pressure against excessive pressure by dumping excess fluid.

Safety valves							
Type	Model	Connection		Nominal pressure, MPa	Set point pressure, MPa	Max. volume of vessel, dm ³	Notes
		∅ d, NPT, inch	∅ D, SAE, inch				
 <small>28bar SERIES</small> <small>45bar SERIES</small>	FP-SV-038	3/8	5/8"-18UNF (3/8 SAE)	2.8	3.0	250	Draw. 44
	FP-SV(MP)-038	3/8	5/8"-18UNF (3/8 SAE)	4.5	4.8	250	


TEE VALVES

Tee valve FP-TV designed for installation on SVP of the pressure vessels. The switching valve has two ports for connecting the safety devices. Using the change-over valves allows to dismantle one of the safety devices for the purpose of testing and calibration (after operation) without stopping the entire refrigeration system.

Tee valves						
Type	Model	∅ D UN, inch	∅ d NPT, inch	L, mm	□, mm	Notes
 <small>45bar SERIES</small>	FP-TV-114-038	1 1/4	3/8	147	SW22	Draw. 45





PIEDESTAL

The pedestal is used for vessels having a diameter of 190 mm; if necessary, install it on a support platform (profile pipe) – vertical receivers FP-LR-10,0; 12.5; 16.0; FP-AS-12 fluid separators and FP-OS-12 oil separators.

Pedestal						
Type	Model	Length, mm	Width, mm	Height, mm	Protrusion length, mm	Notes
	FP-DR	224	70	30	150	Draw. 46



ADAPTERS

Adapter connecting vessel's safety valve port (thread 1 1/4") with safety valve with internal taper threaded 1/2" or 3/8". Front socket for hex wrench makes adapter to a safety valve installation easier.

Adapters			
Type	Model	Connection, inch	Notes
	Adapter FP-A-012 (1/2")	1/2 NPT	Draw. 47
	Adapter FP-A-038 (3/8")	3/8 NPT	
	Adapter FP-A-012/038	1/2 – 3/8 NPT	Draw. 48
	Adapter FP-A-M24-012	M24 – 1/2 NPT	Draw. 49
	Adapter FP-A-M24-114	M24 – 1 1/4 UN	Draw. 50



EVAJET. REFRIGERATION CYCLE CONTROLLERS

The refrigeration controller FP-MC-23 is designed to control superheat, room temperature, defrost cycle and fan. The controller has 3 temperature and 1 pressure sensor, 3 power relays (compressor, fan, defrost) and 1 triac (ERV).

Evajet. Refrigeration cycle controllers						
Type	Model	Parameter	Value			Notes
 	FP-MC-23EM	Power capacity	~230 V ±10%; 50/60 Hz			Draw. 51
		Dimension	Overall dimension 77x35.5x79(65.5) mm Panel 77x35.5 mm			
		Interface	RS485 Modbus RTU			
		Environment	-5...+55 °C, relative humidity 10..90%			
		Ingress protection	IP65 front panel, IP20 case			
		Analogue inputs	FP-TSN(PX3-42H) range-45...+110 °C — 4 pcs; 4...20 mA — 1 pcs			
		DIN	Dry contact, configured			
		Relay output C, F, D	Inductive load (AC15) 250 V/3 A, (DC13) 30 V/3 A Resistive load (AC1) 250 V/8 A, (DC1) 30 V/8 A			
		ERV	Triac (AC15) 10...230 V/1 A			
		Connection	Connection till 1.5 mm ²			



EVAJET. PRESSURE SENSORS

Pressure sensors FP-PT are designed to install to the pressure side and the suction line of the refrigerant circuit, to measure gauge pressure. The main function of the sensors is to transform the working pressure range in a unified 4-20 mA current signal. Pressure sensors are elements of automation, control and regulation of the refrigeration cycle. Pressure sensors are compatible with all types of refrigerants have a high vibration resistance and impact resistance. The sensor body is made of stainless steel and corrosion resistant action.

Evajet. Pressure sensors						
Type	Model	Pressure range, bar	Connection UNF, inch	Output, mA	Voltage, VDC	Notes
	FP-PT-10A	-0,5...10	7/16-20 (A) (1/4 SAE) M	4...20	8...25	Draw. 52
	FP-PT-35A	0...35	7/16-20 (A) (1/4 SAE) M	4...20	8...25	Draw. 54
	FP-PT-10B	-0,5...10	7/16-20 (B) (1/4 SAE) F	4...20	8...25	Draw. 53
	FP-PT-35B	0...35	7/16-20 (B) (1/4 SAE) F	4...20	8...25	Draw. 54

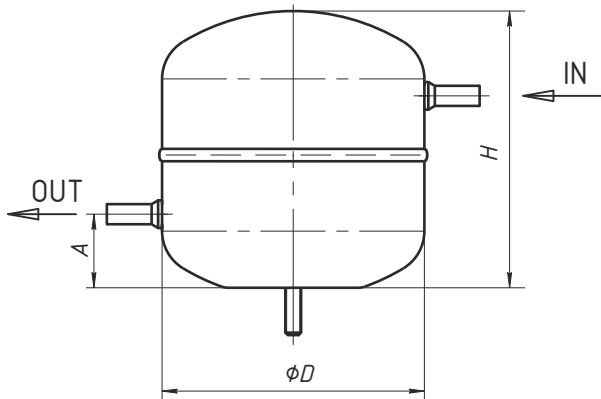
EVAJET. ELECTRONIC EXPANSION VALVES

Electronic expansion valves FP-ERV are electrically operated expansion valves designed for refrigeration and air conditioning system. Electronic expansion valve are controlled by refrigeration controller FP-MC-23EM. Valve capacity is in range from 1 till 16,3 kW (R22) and designated by orifice (from FP-ERV-1 till FP-ERV-6).

Evajet. Electronic expansion valves						
Type	Model	Parameter	Value			Notes
 	FP-ERV	Voltage	220 V, ±10%			Draw. 55 Table 7
		Ingress protection rating	IP 67			
		Operating principle	PWM			
		Recommend period	6 sec			
		Capacity (R22)	0.36...16.3 kW			
		Capacity range	10...100 %			
		Working temperature	-50...+50 °C			
		Plunger sealing leakage	<0.02 % from kv-value			
		MOPD	18 bar			
		Maximum operating pressure	45 bar			

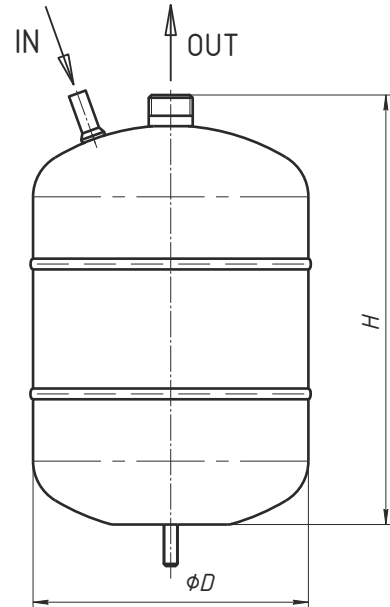
Drawing 1.

Vertical receivers FP-LR-1,0; FP-LR-1,6. Page 4



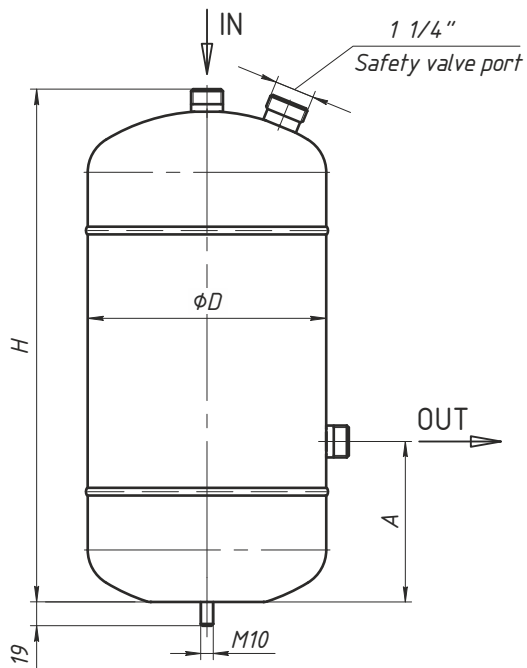
Drawing 2.

Vertical receivers FP-LR-2,5...8,0. Page 4



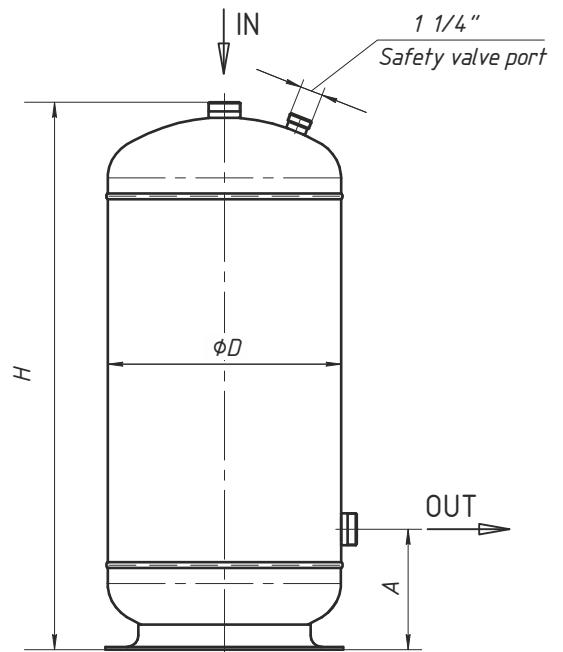
Drawing 3.

Vertical receivers FP-LR-10,0...16,0. Page 4



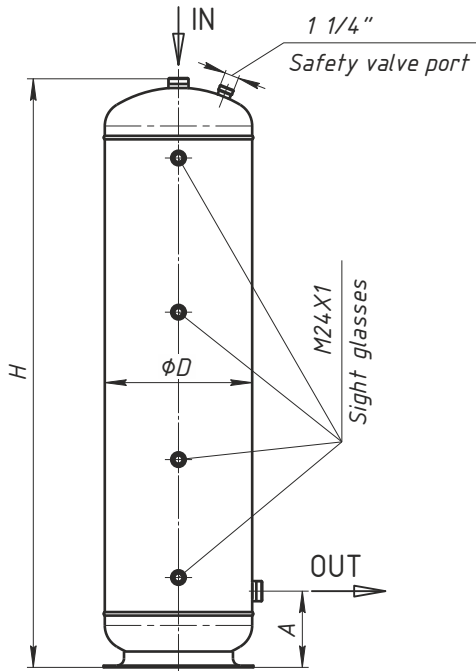
Drawing 4.

Vertical receivers FP-LR-20,0...24,8. Page 4



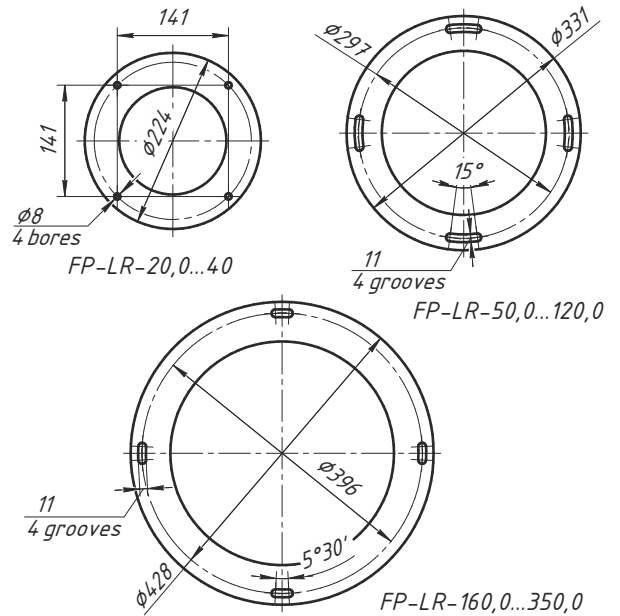
Drawing 5.

Vertical receivers FP-LR-25,0...350,0. Page 4



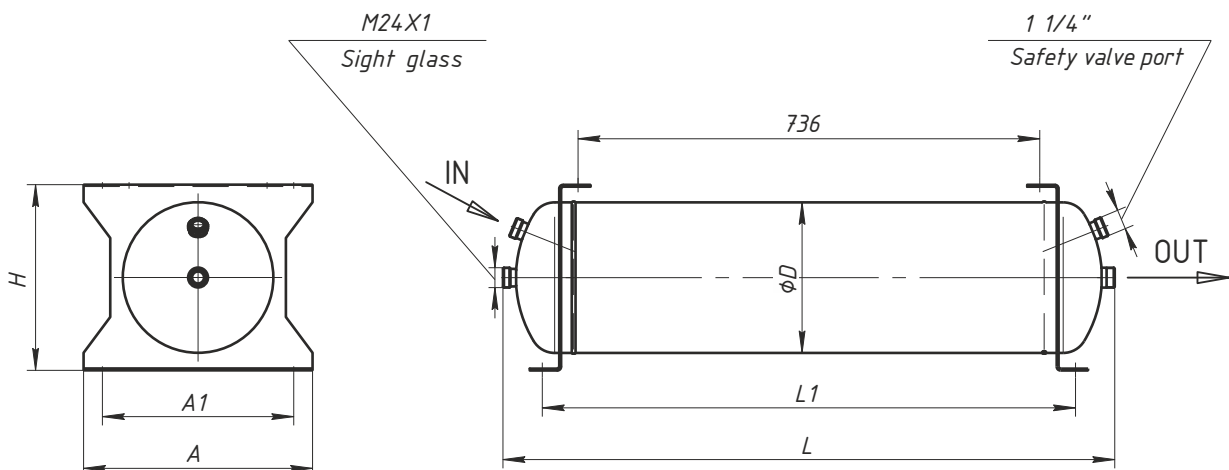
Drawing 6.

Vertical receivers circular platforms. Page 4



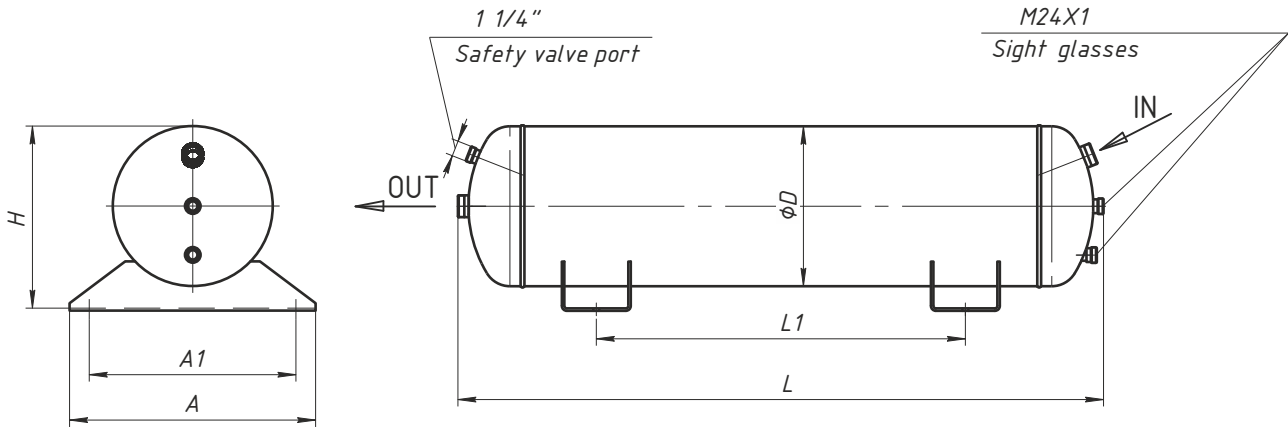
Drawing 7.

Horizontal receivers FP-LRH-16,0...70,0. Page 4



Drawing 8.

Horizontal receivers FP-LRH-100,0....300,0. Page 4



Drawing 9.

Horizontal receivers FP-LRH-350,0. Page 4

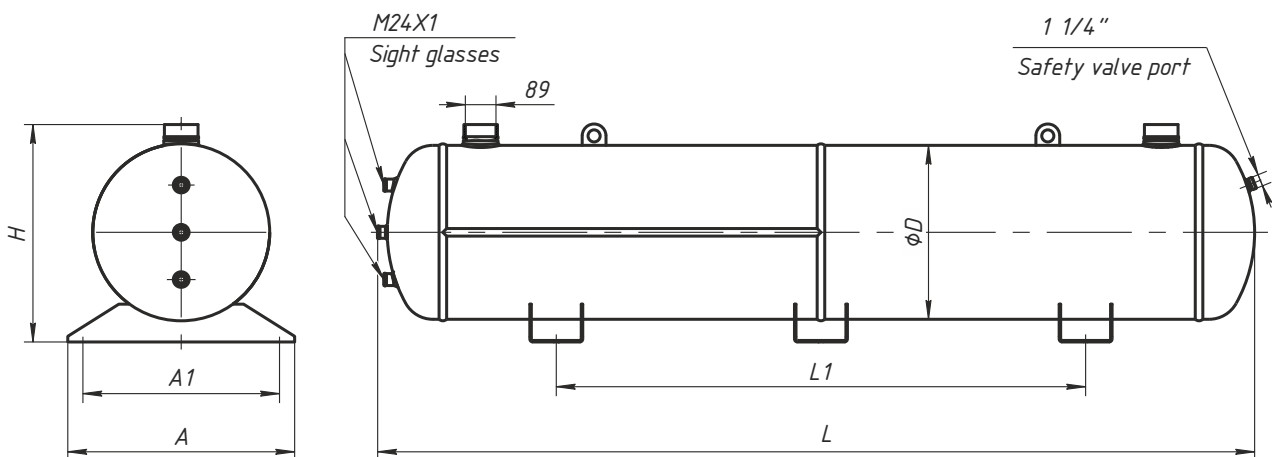


TABLE 1. Connection sizes for ODS (Cu) soldering connections

inches	3/8	1/2	5/8	3/4	7/8	1 1/8	1 3/8	1 5/8	2 1/8	2 5/8	3 1/8
mm	10,0	12,7	15,9	18,0	22,25	28,6	35,0	42,0	54,0	66,7	79,4

TABLE 2. Nominal capacity of the suction accumulators, kW (boiling point = 4 °C), kW

Model	Q ₀ (R22)	Q ₀ (R134A)	Q ₀ (R507)
FP-AS-2,0-012	7	4	4,5
FP-AS-2,0-058	10	6	7
FP-AS-2,0-034 / FP-AS-3,5-034	14	8	9
FP-AS-3,5-078	25	15	16
FP-AS-3,5-118 / FP-AS-5,0-118	41	25	27
FP-AS-5,0-138 / FP-AS-7,0-138	65	37	43
FP-AS-7,0-158 / FP-AS-9,0-158	100	61	64
FP-AS-12,0-218 / FP-AS-25,0-218	144	105	112
FP-AS-12,0-258 / FP-AS-25,0-258 / FP-AS-45,0-258	159	117	127
FP-AS-45,0-318	315	256	266

TABLE 3. Correction coefficients for another working conditions

t ₀	4	0	-5	-10	-15	-20	-25	-30	-35	-40
K	1	1,1	1,3	1,7	2	2,5	3	3,5	5	6,5

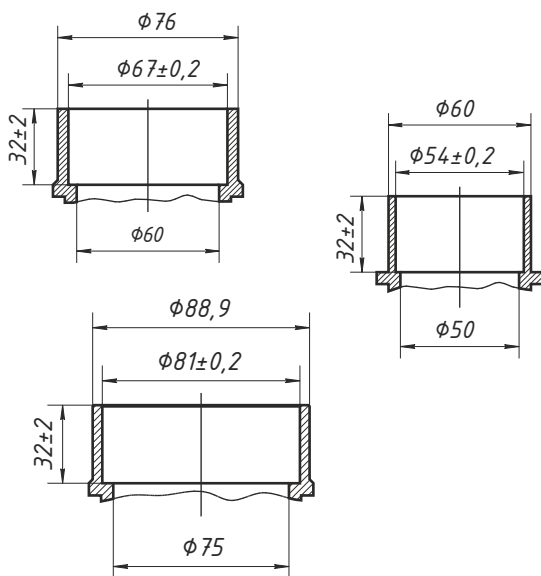
Formula: $Q_k = Q_0 * K$ (Q₀ – nominal capacity, K – correction factor, Q_k – given nominal capacity for selection)

Calculation example:

Q₀ (R22) = 25 кВт; t₀ = -11 °C; K=1,7=(2-1,7)*(-10-(-11))/(-10-(-15))=1,76; Q_n (R22)=25*1,76=44 kW → FP-AS-5-138

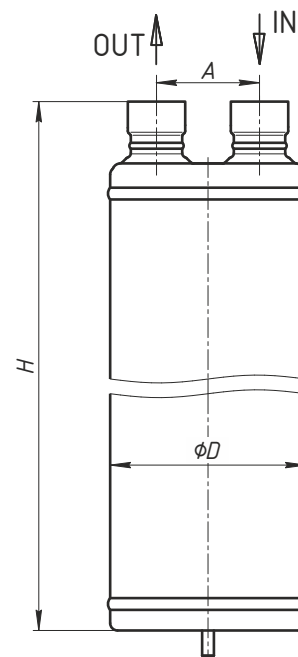
Drawing 10.

Connection dimensions for soldering ODS (St). Page 7



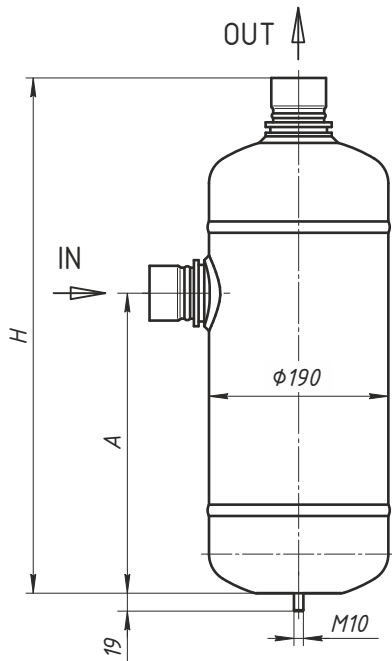
Drawing 11.

Suction accumulators FP-AS-2,0...9,0. Page 5



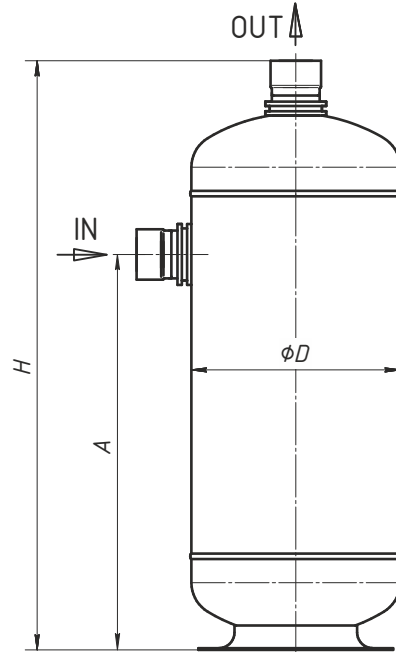
Drawing 12.

Suction accumulators FP-AS-12,0. Page 5



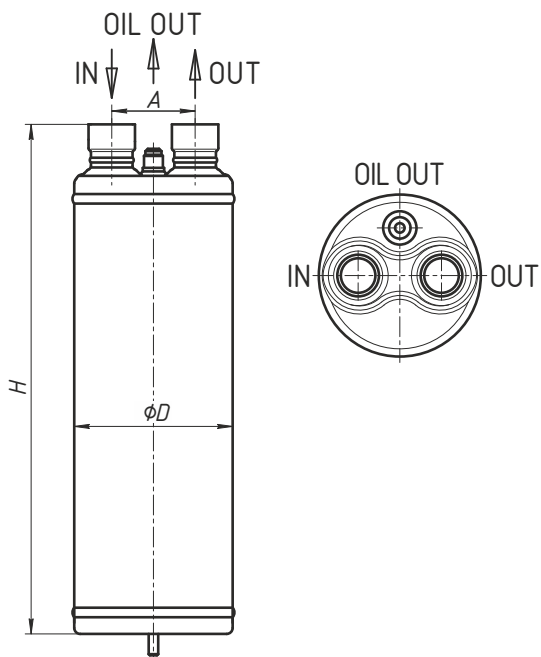
Drawing 13.

Suction accumulators FP-AS-25,0...45,0. Page 5



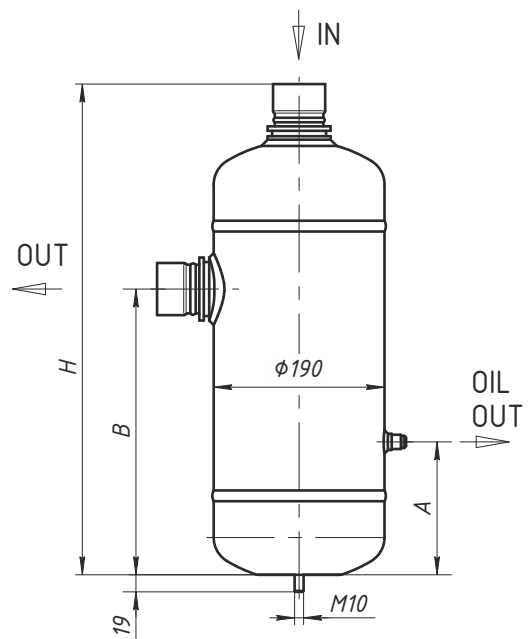
Drawing 14.

Oil separators FP-OS-2,0...7,0. Page 5



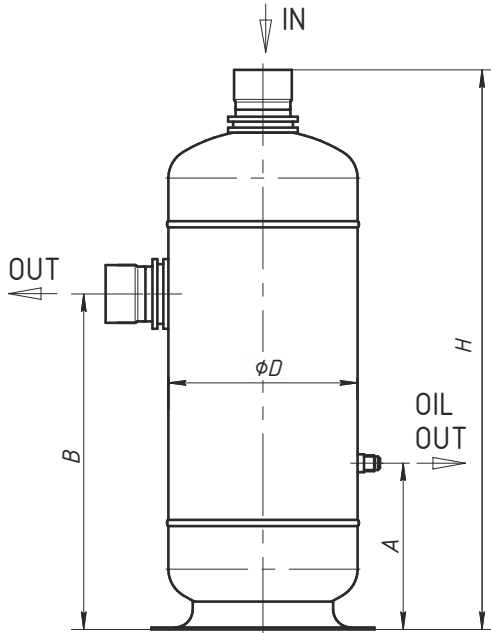
Drawing 15.

Oil separators FP-OS-12. Page 5



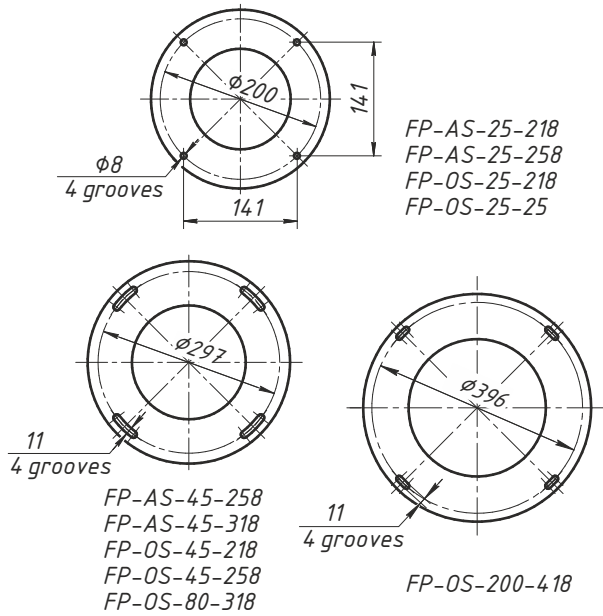
Drawing 16.

Oil separators FP-OS-25...45. Page 5



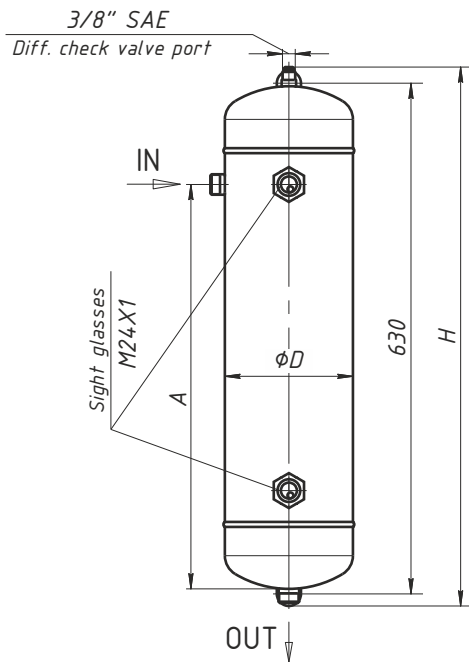
Drawing 17.

Oil separators circular platforms. Page 5



Drawing 18.

Oil receivers FP-OR-5...12. Page 6



Drawing 19.

Oil receivers FP-OR-16...25. Page 6

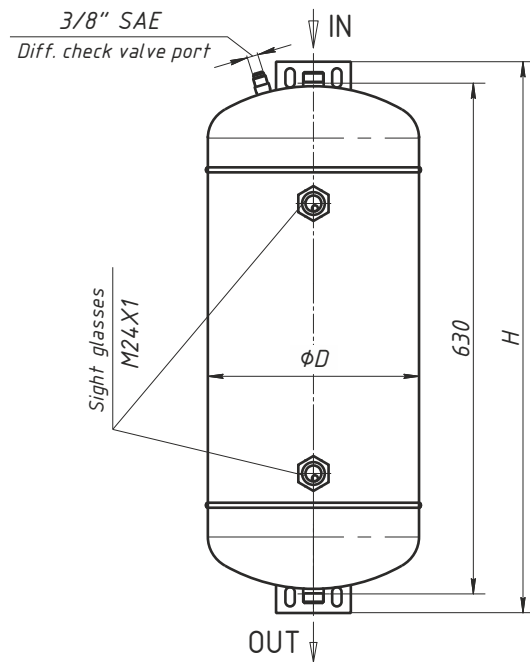


CHART 1. Quick selection chart for oil separator

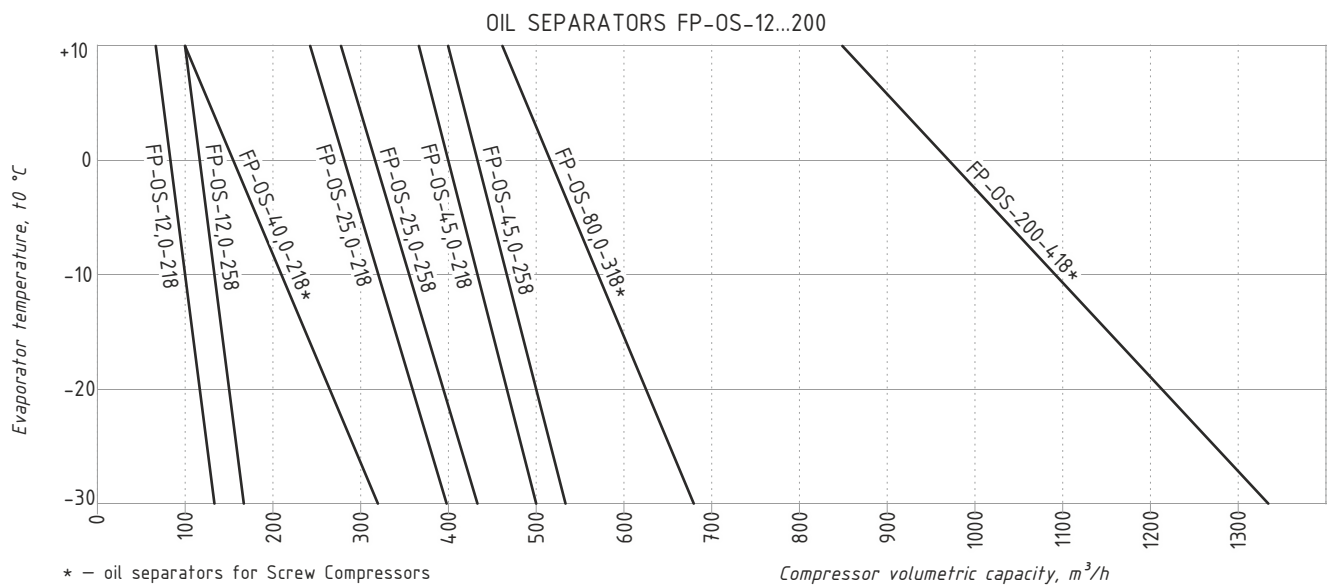
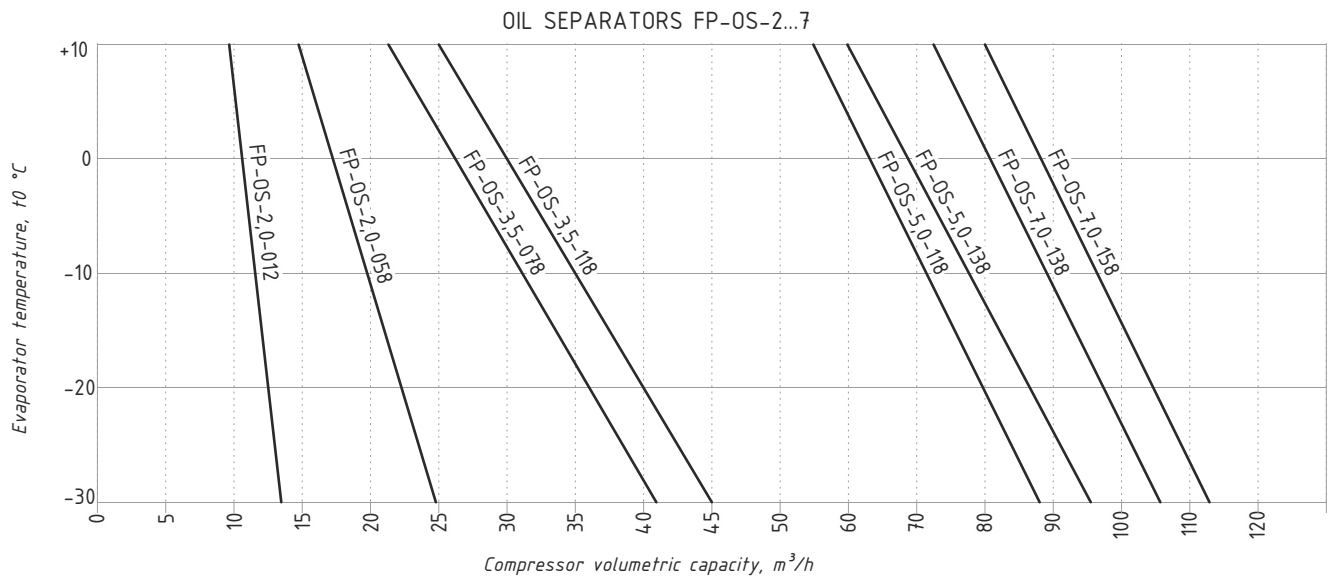


TABLE 4. Selection of helical oil separators with receiver

Model	Cooling capacity at the nominal temperature of the evaporator, kW					
	R404A/507		R134a		R407C	
	-40 °C	5 °C	-40 °C	5 °C	-40 °C	5 °C
FP-OSR-6-034	20.0	26.0	—	26.0	29.0	34.0
FP-OSR-8-078	23.0	30.0	15.8	19.4	26.7	31.3
FP-OSR-8-118	29.8	38.7	21.1	26.4	35.6	41.7
FP-OSR-12-138	42.2	52.8	28.2	35.2	49.0	57.3
FP-OSR-12-158	52.8	66.9	38.7	45.8	62.4	72.9
FP-OSR-16-218	109.0	144.0	77.4	95.0	129.0	151.0

CHART 2. Quick selection chart for oil receivers

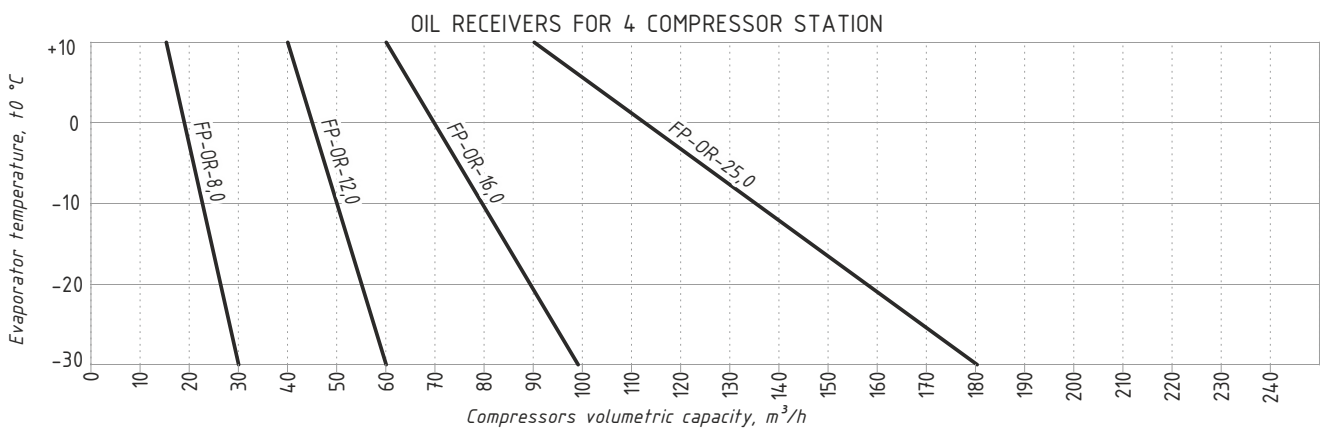
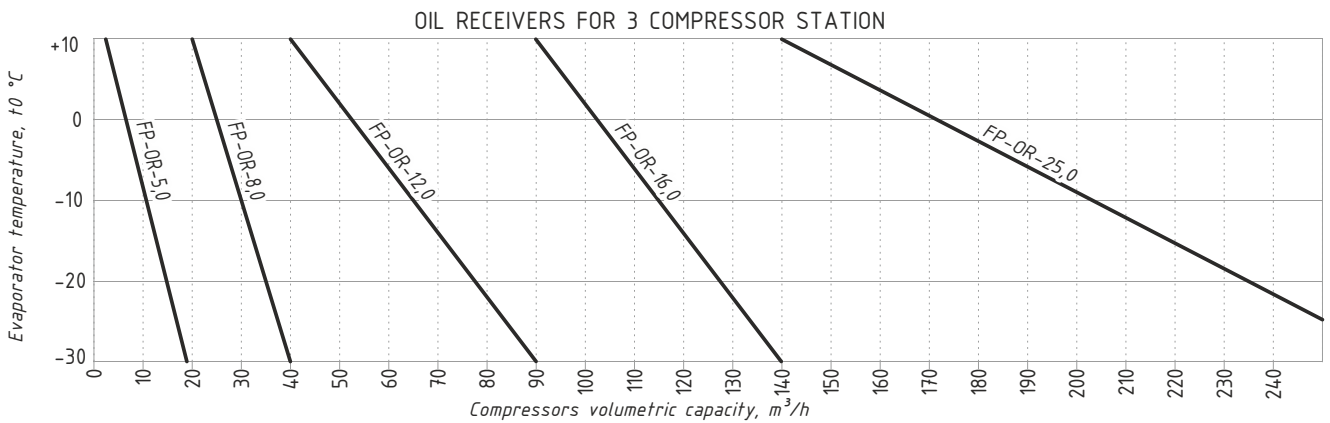
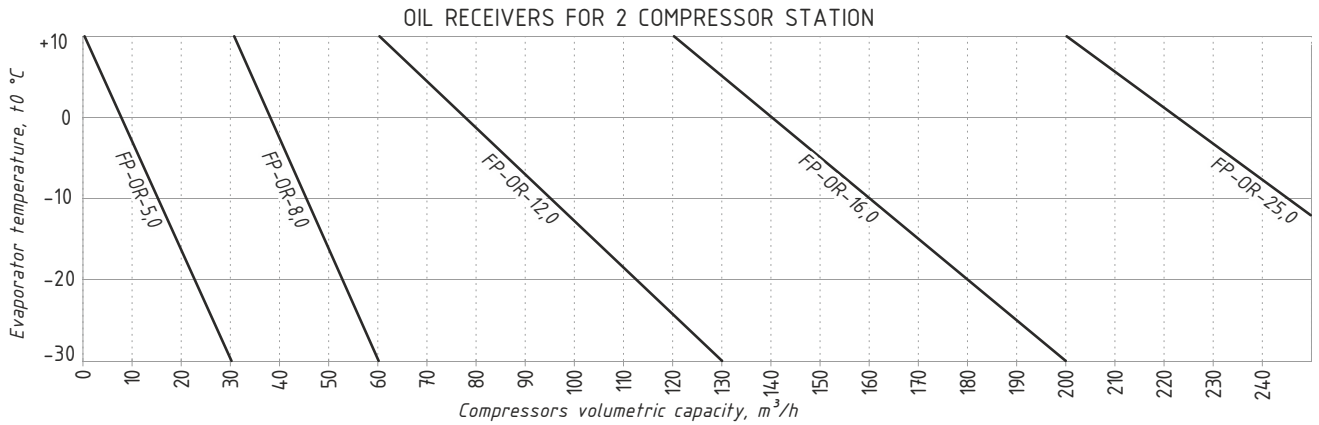
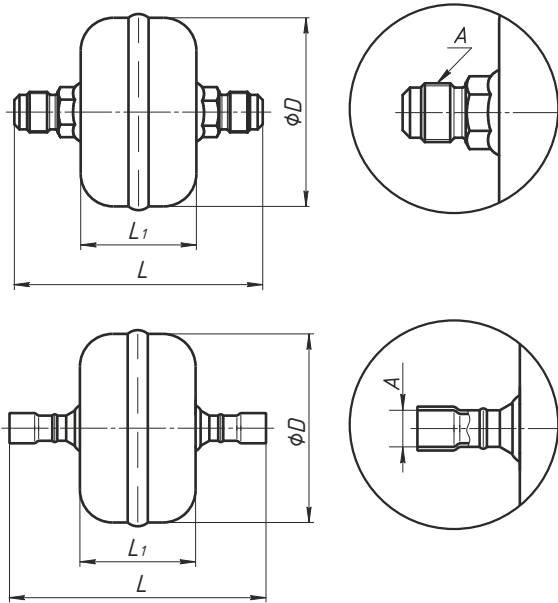


TABLE 6. Kit for oil separators for screw compressors

Name	FP-TEH-250-150W	FP-THE-120-150W	FP-TS-90
Kit for OS-40	1		1
Kit for OS-80		2	1
Kit for OS-200		3	1

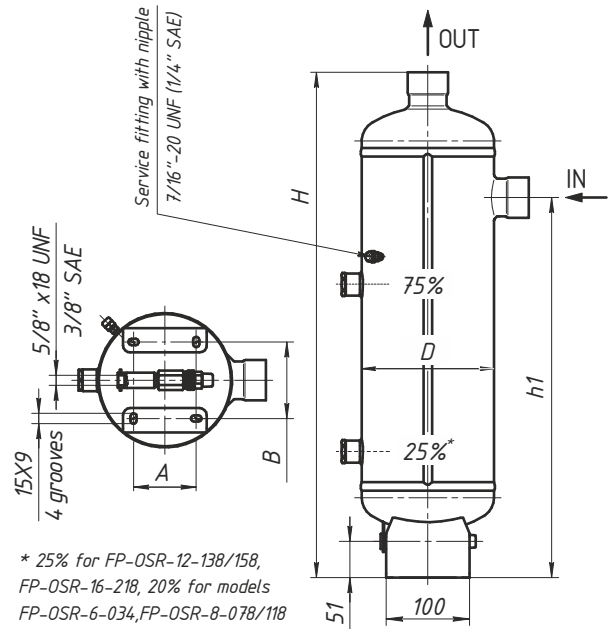
Drawing 20.

Oil filters FP-OF-038/038S. Page 6



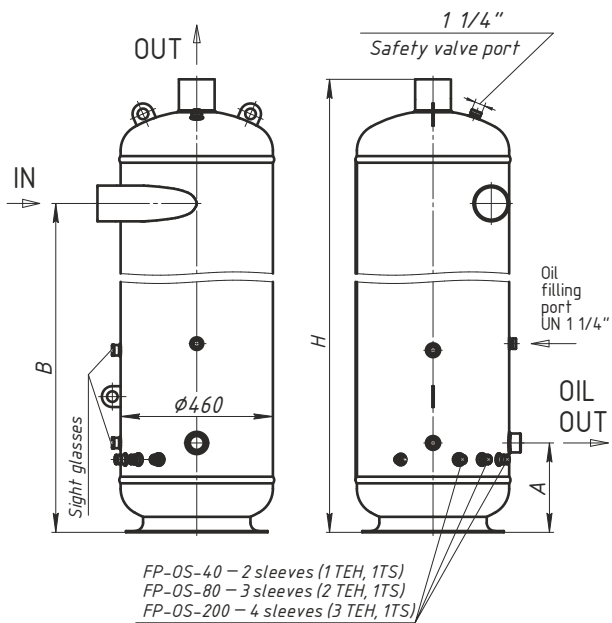
Drawing 21.

Helical oil separators with receiver FP-OSR. Page 6



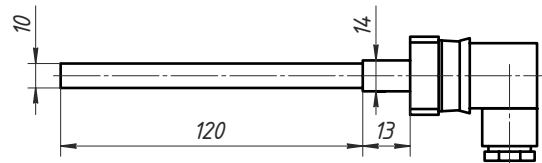
Drawing 22.

The cyclone oil separators FP-OS. Page 7



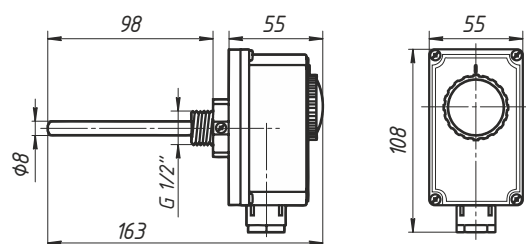
Drawing 23.

Heaters FP-TEH. Page 7



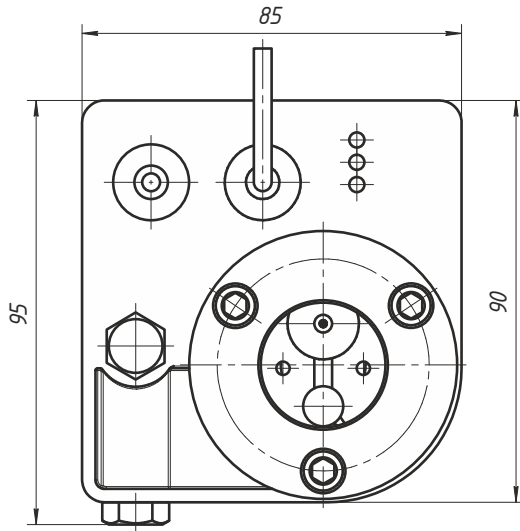
Drawing 24.

Thermostats FP-TS. Page 7



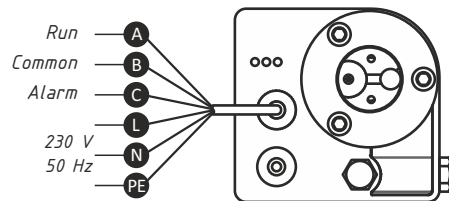
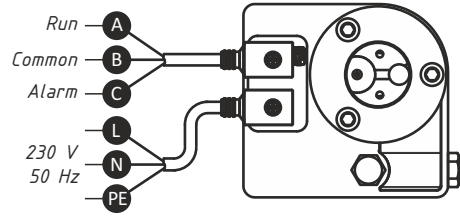
Drawing 25.

Electronic level sensors FP-ELS/OLS2/ELS2. Page 7



Drawing 26.

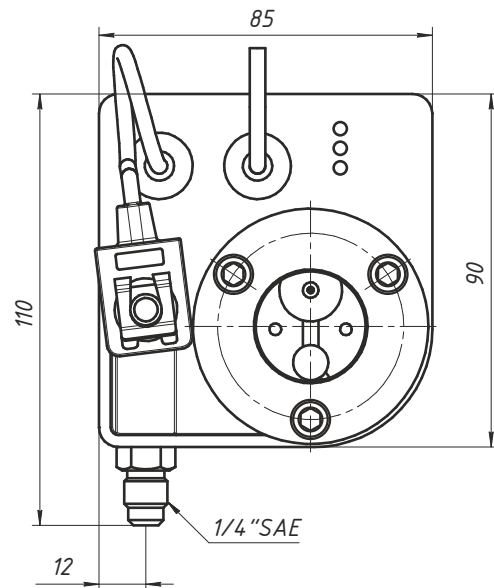
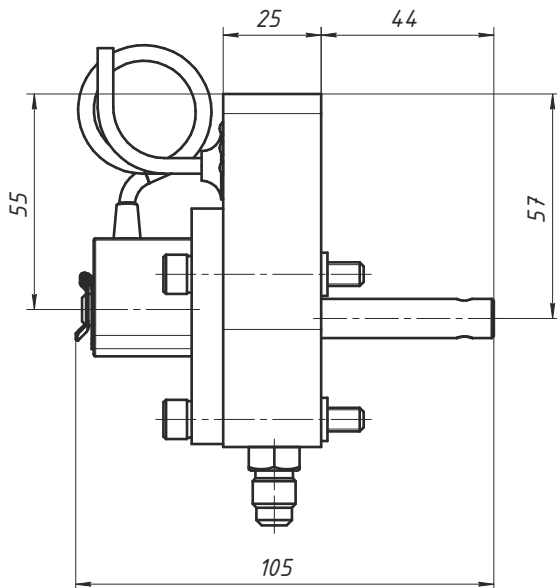
Sensors ELS/OLS2/ELS2. Electrical connections. Page 7



- A - green (open in alarm)
- B - white (common)
- C - red (close in alarm)
- L - brown (line)
- N - blue (neutral)
- PE - yellow-green (protective earth)

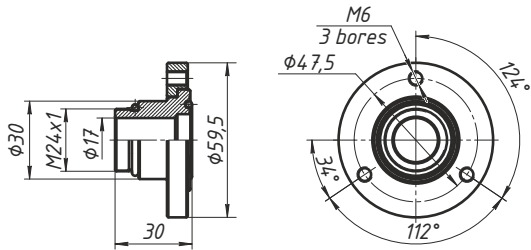
Drawing 27.

Electronic oil level regulators ERL3/ERL4. Page 8



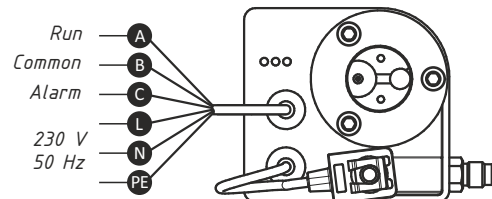
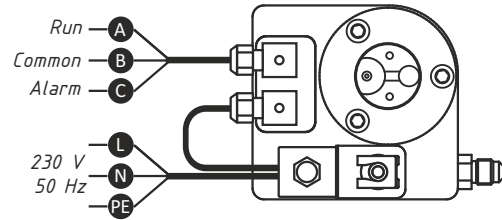
Drawing 28.

Adapter FP-FA. Page 7



Drawing 30.

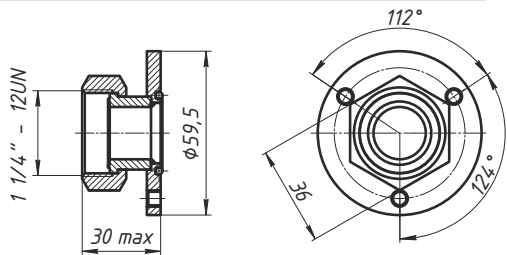
Electrical connections FP-ERL3/ERL4. Page 8



A - green (open in alarm) L - brown (line)
 B - white (common) N - blue (neutral)
 C - red (close in alarm) PE - yellow-green (protective earth)

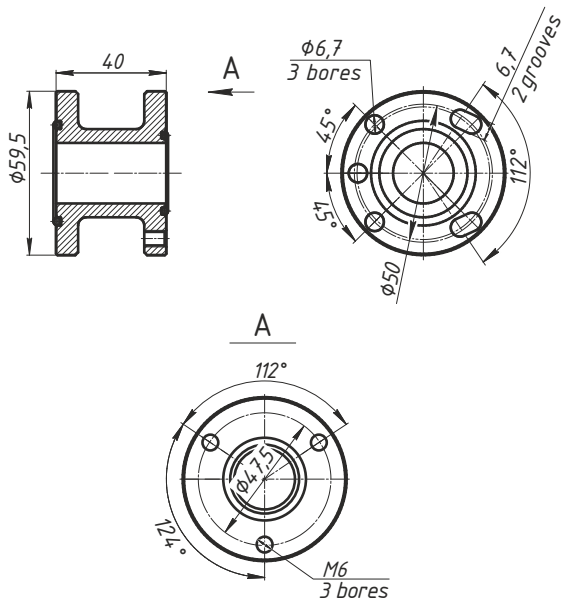
Drawing 29.

Adapter FP-CES. Page 7



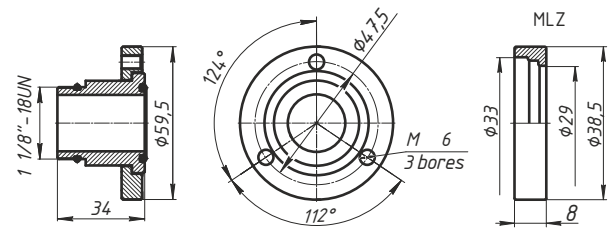
Drawing 31.

Adapter FP-UA. Page 8



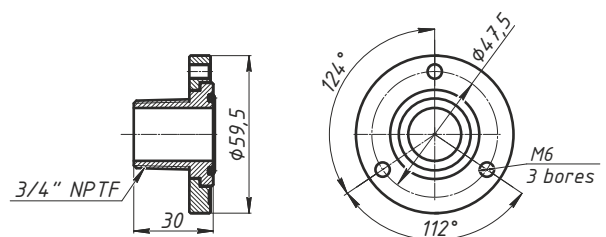
Drawing 32.

Adapter FP-BBL(+MLZ). Page 8



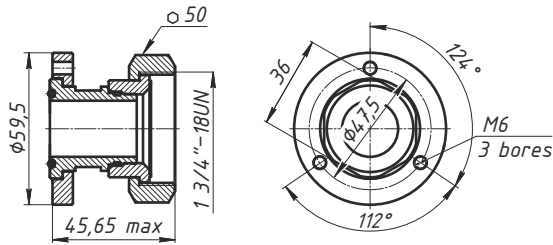
Drawing 33.

Adapter FP-AA. Page 8



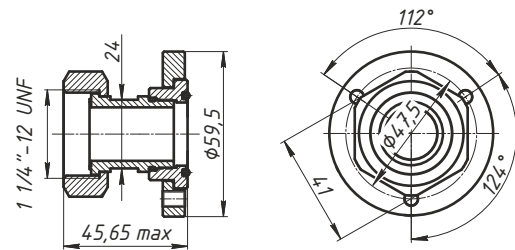
Drawing 34.

Adapter FP-CD. Page 8



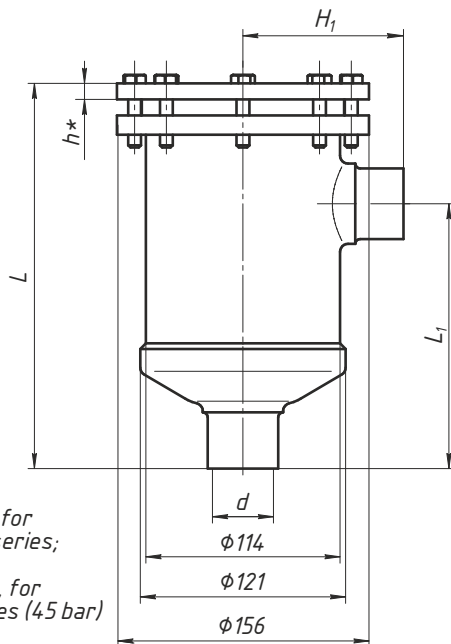
Drawing 35.

Adapter FP-CE/CEL. Page 8



Drawing 36.

Cases of filter dryers with replaceable solid core. Page 9



$h=8\text{mm}$, for 28 bar series;

$h=12\text{mm}$, for MP series (45 bar)

Drawing 37.

Refillable refrigerant cylinders. Page 9

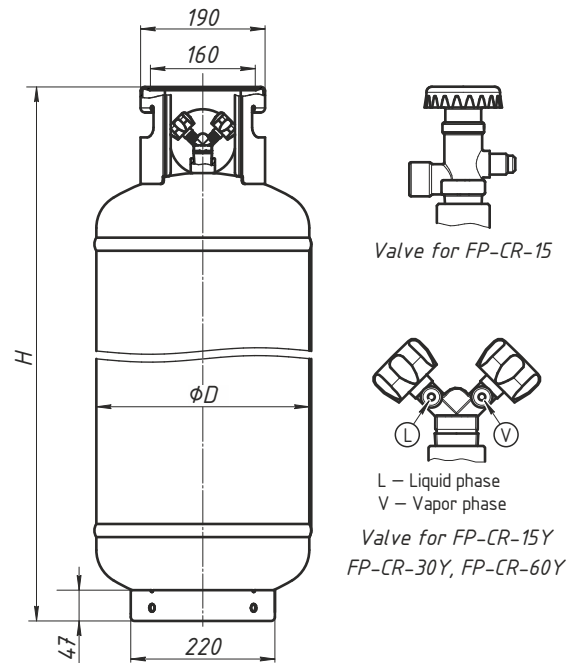


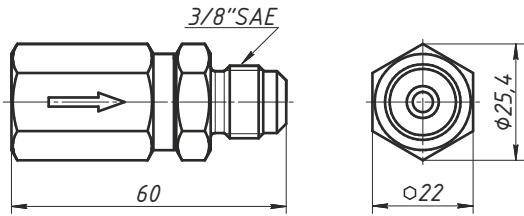
TABLE 5. Information about the mass of filling freon cylinders

Model	FP-CR-15						FP-CR-15Y					
	R22	R134A	R404A	R407C	R410A	R507A	R22	R134A	R404A	R407C	R410A	R507A
Weight*, kg	12,4	12,6	9,84	11,4	10,3	10,2	12,4	12,6	9,84	11,4	10,3	10,2
Model	FP-CR-30Y						FP-CR-60Y					
	R22	R134A	R404A	R407C	R410A	R507A	R22	R134A	R404A	R407C	R410A	R507A
Weight*, kg	23,3	27,5	21,5	24,9	22,5	22,3	46,6	55,1	43,1	49,8	45,1	44,6

* Weight of refrigerant taking into account the recommended filling - 80% of the internal volume of the cylinder.

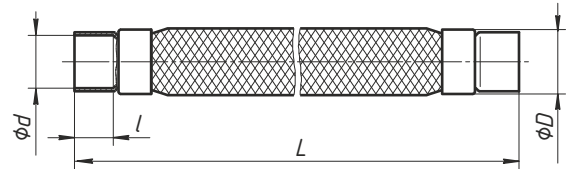
Drawing 38.

Differential check valve. Page 6



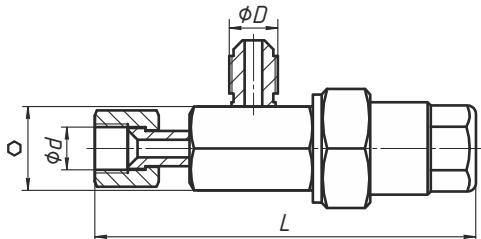
Drawing 39.

Welded vibroeliminators FP-VA. Page 9



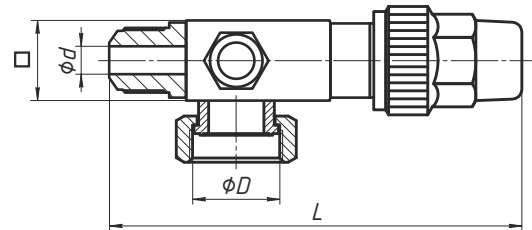
Drawing 40.

Rotalock valves FP-RV-014SAE/038SAE. Page 10



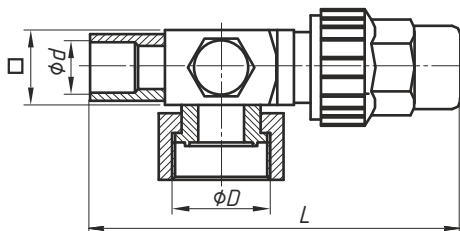
Drawing 41.

Rotalock valves FP-RV-1-038F. Page 10



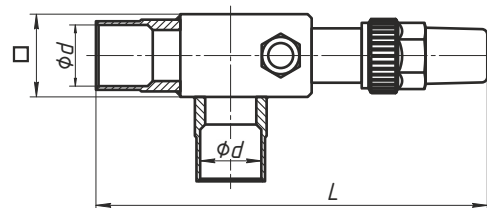
Drawing 42.

Rotalock valves Page 10



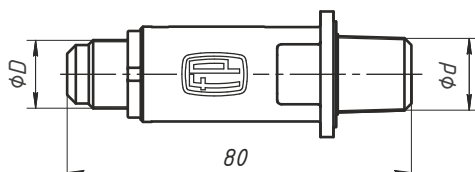
Drawing 43.

Rotalock valves FP-RV-318-318. Page 10



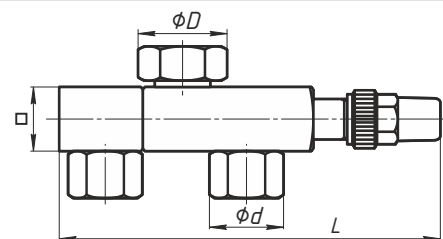
Drawing 44.

Safety valve. Page 10



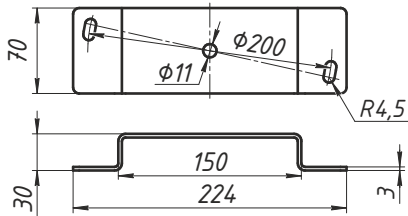
Drawing 45.

Tee valve. Page 10



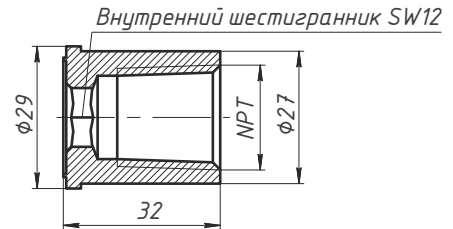
Drawing 46.

Piedestal. Page 11



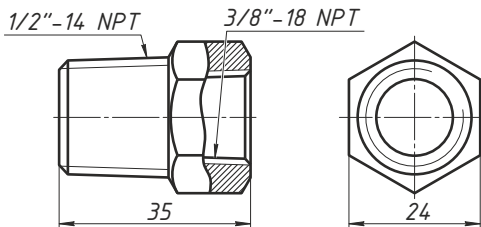
Drawing 47.

Adapters FP-A-012; FP-A-038. Page 11



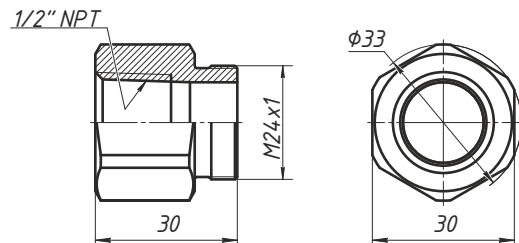
Drawing 48.

Adapters FP-A-012/038. Page 11



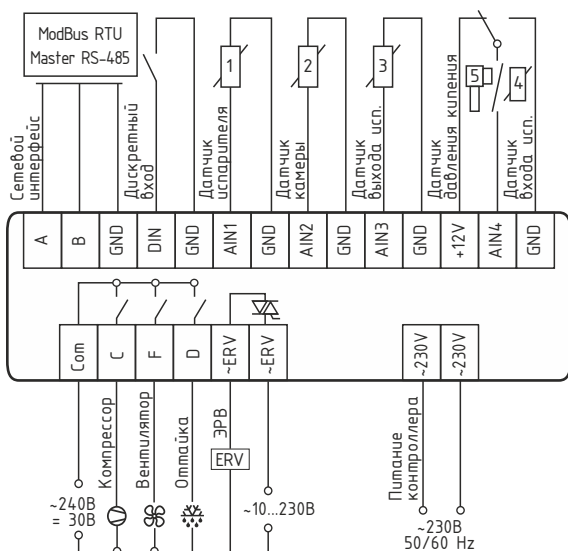
Drawing 49.

Adapters FP-A-M24-012. Page 11



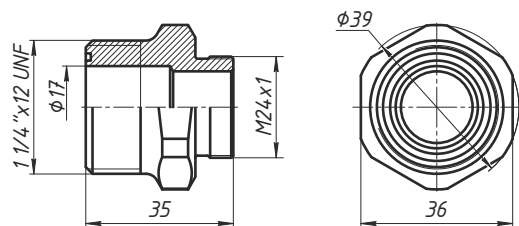
Drawing 51.

Refrigeration controller electrical conn. Page 12



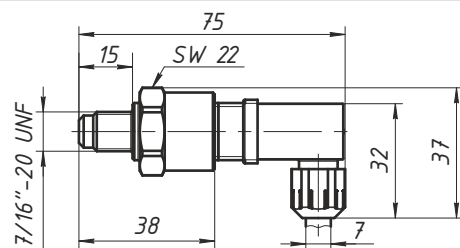
Drawing 50.

Adapters FP-A-M24-114. Page 11



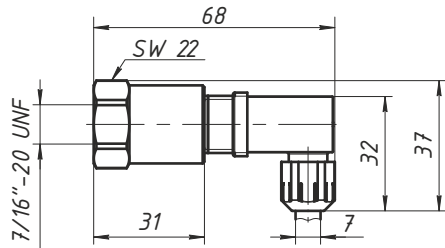
Drawing 52.

Pressure sensors FP-PT-10A; FP-PT-35A. Page 121



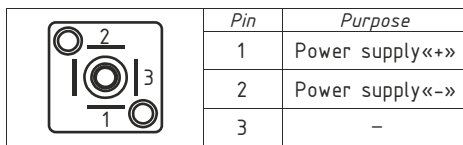
Drawing 53.

Pressure sensors FP-PT-10B; FP-PT-35B. Page 12



Drawing 54.

Electrical connection of pressure sensor. Page 12



Drawing 55.

Electronic expansion valves. Page 12

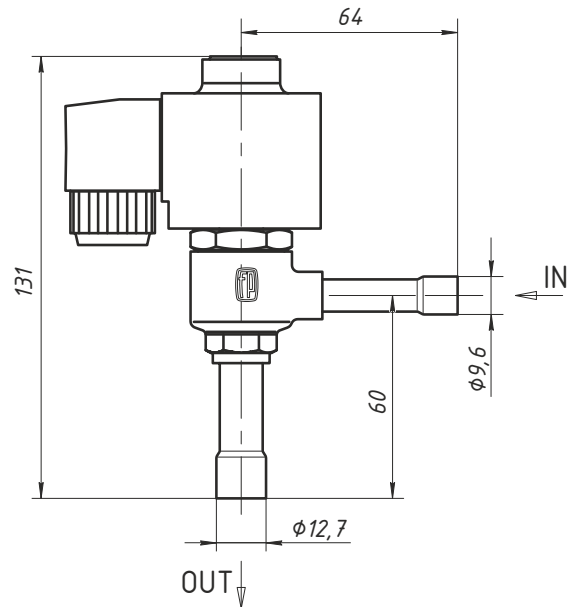


TABLE 7. Nominal capacity of the electronic expansion valves

Type	Nominal capacity, kW				kv-value, m ³ /h	Connection ODS, In x Out, inch
	R22	R134a	R404A/R507	R407C		
ERV-1	0.36	0.32	0.29	0.39	0.003	3/8 x 1/2
ERV-2	1.0	0.9	0.8	1.1	0.010	3/8 x 1/2
ERV-3	1.6	1.4	1.3	1.7	0.017	3/8 x 1/2
ERV-4	2.6	2.1	2.0	2.5	0.025	3/8 x 1/2
ERV-5	4.1	3.4	3.1	4.0	0.046	3/8 x 1/2
ERV-6	6.4	5.3	4.9	6.4	0.064	3/8 x 1/2
ERV-7	10.2	8.5	7.8	10.1	0.114	3/8 x 1/2
ERV-8	16.3	13.5	12.5	17.0	0.162	3/8 x 1/2

The manufacturer reserves the right to make changes in the design of products that do not degrade functional characteristics, without prior agreement with customers.

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