



# CATALOGUE 2022

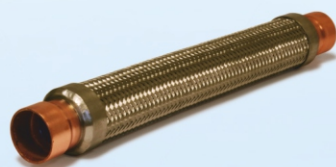
series: 28 • 45 (R410A) • 90 (CO<sub>2</sub>) • 130 (CO<sub>2</sub>) bar



Pressure vessels



Linear components



Vibroeliminators



Oil control system



Electronic components



Filters

## Content

<b>GENERAL INFORMATION .....</b>	<b>2</b>
<b>TYPE CODE .....</b>	<b>3</b>
<b>PRESSURE VESSELS .....</b>	<b>4</b>
Refrigerant receivers FP-LR, FP-LRH .....	4
Refrigerant receivers for CO <sub>2</sub> FP-LR(HP90) .....	4
Suction accumulators FP-AS .....	5
Suction accumulators for CO <sub>2</sub> FP-AS(HP90) .....	5
Suction accumulators with heat exchanger FP-AS-HE .....	6
<b>OIL CONTROL SYSTEM .....</b>	<b>6</b>
Oil separators FP-OS .....	6
Oil separators for CO <sub>2</sub> FP-OS(HP130) .....	6
Oil separators for screw compressors FP-OSF .....	7
Oil receivers FP-OR .....	7
Oil receivers for CO <sub>2</sub> FP-OR(HP130) .....	7
Oil filters FP-OF .....	8
Oil filters for CO <sub>2</sub> FP-OF(HP130) .....	8
Differential check valve FP-DV .....	8
Helical oil separators with receiver for CO <sub>2</sub> FP-OSR(HP130) .....	8
Helical oil separators with receiver FP-OSR .....	8
Oil separators for screw compressors FP-OS .....	9
Heating kit for cyclone oil separator .....	9
Safety valves FP-SV .....	9
Tee valves FP-TV .....	9
FeedWay. Electronic oil level regulators FP-ERL4 .....	10
FeedWay. Adapters .....	10
FeedWay. Electronic oil level regulators for CO <sub>2</sub> FP-ERL(HP130) .....	11
FeedWay. Adapters for CO <sub>2</sub> .....	11
Electronic refrigerant sensors FP-ELS2 .....	12
Electronic oil level sensors FP-OLS2.....	12
Electronic level sensors FP-ELS-L .....	12
Electronic level sensors FP-ELS-L for CO <sub>2</sub> .....	12
Electronic level sensors. Adapter .....	13
<b>LINEAR COMPONENTS .....</b>	<b>13</b>
Welded vibroeliminators FP-VA .....	13
Adapters FP-A .....	13
Rotalock valves FP-RV .....	14
Piedestal FP-DR and FP-ST-LRH .....	14
Filter-driers with replaceable core FP-SDF .....	15
Filter-driers with replaceable core for CO <sub>2</sub> FP-SDF(HP130) .....	15
Refillable refrigerant cylinders and special containers FP-CR .....	16
<b>EVAJET. EVAPORATOR MANAGEMENT SYSTEM .....</b>	<b>16</b>
Evajet. Refrigeration cycle controller FP-MC .....	16
Evajet. Pressure sensors FP-PT .....	17
Evajet. Electronic expansion valves FP-ERV .....	17
<b>AUTOMATION .....</b>	<b>17</b>
Fan speed controller FP-FSR-8 .....	17
<b>DRAWINGS, CHARTS, TABLES .....</b>	<b>18</b>



## 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 more than 300 models of cooling system components. 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 – TÜV Nord.

## RANGE OF PRODUCTS

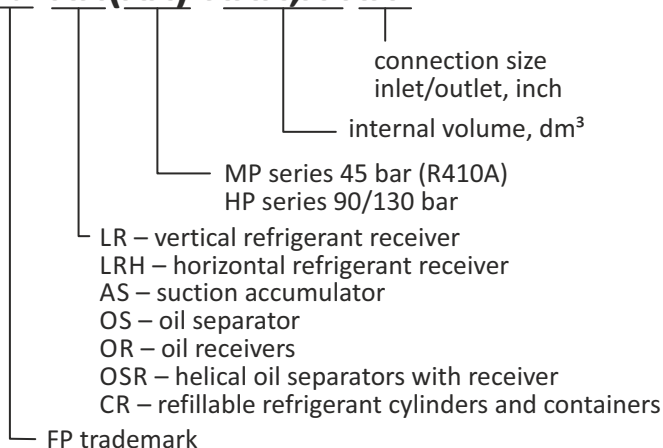
- Electronic oil level regulator FeedWay®;
- Refrigerant receivers, Suction accumulators;
- Oil separators, Oil receivers, Oil filters;
- Helical oil separators with receiver;
- Safety valves;
- Differential check valve;
- Rotolock valves;
- Filter-driers with replaceable core;
- Electronic expansion valves Evajet®;
- Welded vibroeliminators;
- Receivers station;
- Refillable refrigerant cylinders;
- Fan speed controller.

## CONTACTS

<i>Department</i>	<i>Email</i>	<i>Telephone</i>	<i>Attn. person</i>
General info:	info@frigopoint.com	+7 (4722) 23-12-72	
Sales department (Russia):	kaa@frigopoint.com	+7-919-439-43-30	Artem Kamynin
Sales department (Europe):	sales.europe@frigopoint.com	+90-543-441-62-82	Gokhan Cingoz

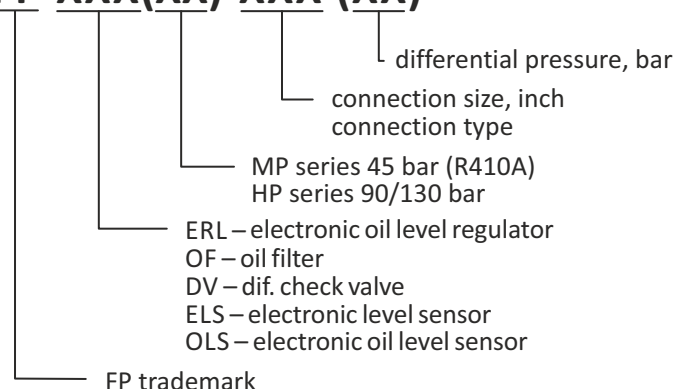
## PRESSURE VESSELS

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



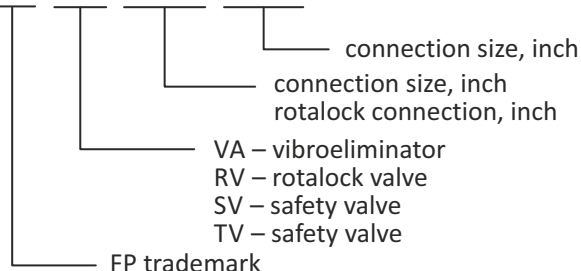
## COMPONENTS OF THE OIL RETURN LINE

### FP-XXX(XX)-XXX-(XX)

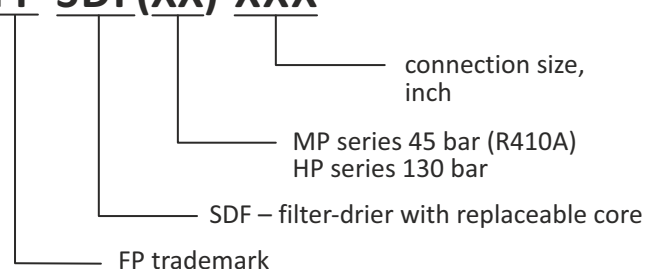


## LINEAR COMPONENTS

### FP-XX-XXX-XXX

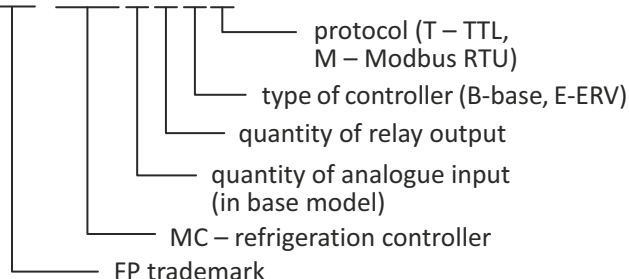


### FP-SDF(XX)-XXX

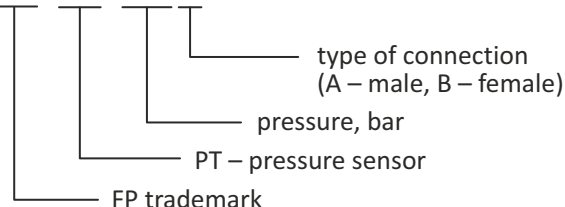


## EVAPORATOR MANAGEMENT SYSTEM

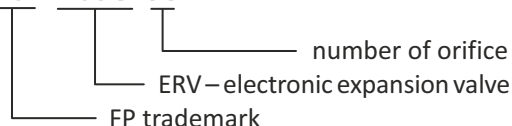
### FP-MCXXXX



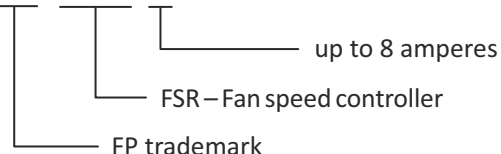
### FP-PT-XXX



### FP-ERV-X









### FP-FSR-8



## REFRIGERANT RECEIVERS

Receiver is a vessel 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 NH<sub>3</sub>. The delivery set of the refrigerant receivers includes inspection glasses and a nut to the port of the safety valve (without a plug).

Vertical refrigerant receivers										
Type	Model	Ø D, mm	H, mm	A, mm	In/Out	SG <sup>[1]</sup> , M24 pcs	SVP <sup>[2]</sup> , 1¼"	Volume, dm <sup>3</sup>	Notes	
 <div> <div>Cu-St WELD</div> <div>28 bar SERIES</div> <div>45 bar SERIES</div> </div>	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		
 <div> <div>Cu-St WELD</div> <div>28 bar SERIES</div> <div>45 bar SERIES</div> </div>	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		
 <div> <div>28 bar SERIES</div> <div>45 bar SERIES</div> </div>	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		
 <div> <div>28 bar SERIES</div> <div>45 bar SERIES</div> </div>	FP-LR(MP)-20,0	240	551	160	1 1/4" UN	—	+	20.0	Draw. 4, 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	Draw. 5, 6	
	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-250,0	450	1590	220	2 1/4" UN	3	+	250.0		
	FP-LR-300,0 ST	450	2056	250	89 mm ODS(St)	4	+	300.0		
	FP-LR-350,0 ST	450	2356	250	89 mm ODS(St)	4	+	350.0		

Vertical refrigerant receivers for CO <sub>2</sub>												
Type	Model	Ø D, mm	H, mm	A, mm	B, mm	In/Out, mm	CC <sup>[1]</sup> , pcs	SVP <sup>[2]</sup> , ½NPT	LSP <sup>[3]</sup> , inch	FO <sup>[4]</sup> , mm	Volume, dm <sup>3</sup>	Notes
 <div> <div>90 bar SERIES</div> </div>	FP-LR(HP90)-50	325	834	196	611	28	3	+	11/4	35	50	Draw. 11, 19, 20
	FP-LR(HP90)-80	325	1264	196	1041	28	3	+	11/4	35	80	
	FP-LR(HP90)-110	325	1830	196	1606	35	3	+	11/4	35	110	
 <div> <div>90 bar SERIES</div> </div>	FP-LR(HP90)-160	325	1274	206	1051	35	3	+	11/4	35	160	Draw. 10, 19, 20
	FP-LR(HP90)-220	325	1839	206	1616	35	3	+	11/4	35	220	



**NOTES:** SG<sup>[1]</sup>, M24 – Sight glass, M24×1;  
SVP<sup>[2]</sup>, 1¼" – Safety valve port, 1¼";  
LSP<sup>[3]</sup> – Level sensor port;  
FO<sup>[4]</sup>, 1¼" – Flash out;


Cu – Copper connections;  
St – Steel connections;  
FP-LR – series 28 bar;  
FP-LR(MP) – series 45 bar;  
FP-LR(HP) – series 90 bar.

Horizontal refrigerant receivers												
Type	Model	Ø D, mm	L, mm	L1, mm	A, mm	A1, mm	H, mm	In/Out	SG <sup>[1]</sup> , 1¼ pcs	SVP <sup>[2]</sup> , 1¼"	Volume, dm <sup>3</sup>	Notes
 <div> <div>28 bar</div> <div>45 bar</div> </div>	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	
 <div> <div>28 bar</div> <div>45 bar</div> </div>	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-250,0	450	1615	960	600	520	520	2 1/4" UN	2	+	250.0	Draw. 9
	FP-LRH-300,0 ST	450	2025	1060	600	520	578	89 mm ODS(St)	3	+	300.0	
	FP-LRH-350,0 ST	450	2325	1400	600	520	578	89 mm ODS(St)	3	+	350.0	

## 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	Ø D, mm	H, mm	A, mm	In/Out	Volume, dm <sup>3</sup>	Notes
 <div> <div>Cu-St WELD</div> <div>28 bar</div> <div>45 bar</div> </div>	FP-AS(MP)-2,0-012	102	319	55	1/2" ODS(Cu)	2.0	Draw. 12 Table 1 Table 2 Table 3
	FP-AS(MP)-2,0-058	102	319	55	5/8" ODS(Cu)	2.0	
	FP-AS(MP)-3,5-078	102	520	55	7/8" ODS(Cu)	3.5	
	FP-AS(MP)-3,5-118	102	520	55	1 1/8" ODS(Cu)	3.5	
	FP-AS(MP)-5,0-118	133	436	70	1 1/8" ODS(Cu)	5.0	
	FP-AS(MP)-5,0-138	133	442	70	1 3/8" ODS(Cu)	5.0	
	FP-AS(MP)-7,0-138	159	441	90	1 3/8" ODS(Cu)	7.0	
	FP-AS(MP)-7,0-158	159	443	90	1 5/8" ODS(Cu)	7.0	
 <div> <div>Cu-St WELD</div> <div>28 bar</div> <div>45 bar</div> </div>	FP-AS(MP)-9,0-158	159	563	90	1 5/8" ODS(Cu)	9.0	Draw. 13
	FP-AS(MP)-12,0-218	190	546	320	2 1/8" ODS(Cu)	12.0	
	FP-AS(MP)-12,0-258	190	546	320	2 5/8" ODS(Cu)	12.0	Draw. 14, 6 Table 1 Table 2 Table 3
	FP-AS(MP)-25,0-218	240	680	455	2 1/8" ODS(Cu)	25.0	
	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	
	FP-AS(MP)-60,0-108ST	325	900	610	108 mm (St)	60.0	

Suction accumulators for CO <sub>2</sub>							
Type	Model	Ø D, mm	H, mm	A, mm	In/Out, mm	Volume, dm <sup>3</sup>	Notes
 <div> <div>90 bar</div> </div>	FP-AS(HP90)-3	114	484	58	22	3.0	Draw. 15, 16, 19
	FP-AS(HP90)-5	159	425	90	28	5.0	
	FP-AS(HP90)-7	159	540	90	35	7.0	

**NOTES:** SG<sup>[1]</sup>, M24 – Sight glass, M24×1;  
SVP<sup>[1]</sup>, 1¼" – Safety valve port, 1¼";

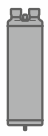

Cu – Copper connections;  
St – Steel connections;  
FP-LR – series 28 bar;  
FP-LR(MP) – series 45 bar.




Suction accumulators with heat exchanger								
Type	Model	Ø D, mm	H, mm	A, mm	In/Out LP <sup>[1]</sup>	In/Out HP <sup>[2]</sup>	Volume, dm <sup>3</sup>	Notes
 <div> Cu-St WELD 28bar SERIES 45bar SERIES </div>	FP-AS(MP)-HE-12,0-218	190	563	338	2 1/8" ODS(Cu)	5/8" ODS(Cu)	12.0	Draw. 17
	FP-AS(MP)-HE-12,0-258	190	567	338	2 1/8" ODS(Cu)	5/8" ODS(Cu)	12.0	
 <div> Cu-St WELD 28bar SERIES 45bar SERIES </div>	FP-AS(MP)-HE-25,0-218	240	677	455	2 1/8" ODS(Cu)	3/4" ODS(Cu)	25.0	Draw. 18
	FP-AS(MP)-HE-25,0-258	240	677	455	2 5/8" ODS(Cu)	3/4" ODS(Cu)	25.0	
	FP-AS(MP)-HE-45,0-218	325	658	414	2 5/8" ODS(Cu)	7/8" ODS(Cu)	45.0	
	FP-AS(MP)-HE-45,0-318	325	658	414	3 1/8" ODS(Cu)	7/8" ODS(Cu)	45.0	

## OIL SEPARATORS

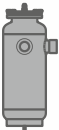
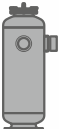
Oil separators are used to separate oil dissolved in refrigerant in order to return it to compressor's crankcase. Effectiveness of FP oil separators is more than 90% which increases system's productivity by preventing excessive oil circulation.

Oil separators										
Type	Model	Ø D, mm	H, mm	A, mm	B, mm	In/Out	ORP <sup>[3]</sup> , inch	Volume, dm <sup>3</sup>	OSP <sup>[4]</sup> , l	Notes
 <div> Cu-St WELD 28bar SERIES 45bar SERIES </div>	FP-OS(MP)-2,0-012	102	319	55	—	1/2" ODS(Cu)	3/8 SAE	2.0	0.5	Draw. 21 Table 1 Table 2 Chart 1
	FP-OS(MP)-2,0-058	102	319	55	—	5/8" ODS(Cu)	3/8 SAE	2.0	0.5	
	FP-OS(MP)-3,5-078	102	520	55	—	7/8" ODS(Cu)	3/8 SAE	3.5	0.5	
	FP-OS(MP)-3,5-118	102	520	55	—	1 1/8" ODS(Cu)	3/8 SAE	3.5	0.5	
	FP-OS(MP)-5,0-118	133	436	70	—	1 1/8" ODS(Cu)	3/8 SAE	5.0	1.0	
	FP-OS(MP)-5,0-138	133	442	70	—	1 3/8" ODS(Cu)	3/8 SAE	5.0	1.0	
	FP-OS(MP)-7,0-138	159	441	90	—	1 3/8" ODS(Cu)	3/8 SAE	7.0	1.5	
 <div> Cu-St WELD 28bar SERIES 45bar SERIES </div>	FP-OS(MP)-7,0-158	159	443	90	—	1 5/8" ODS(Cu)	3/8 SAE	7.0	1.5	Draw. 22 Draw. 23, 6 Table 1 Chart 1
	FP-OS(MP)-12-218	190	546	145	320	2 1/8" ODS(Cu)	3/8 SAE	12.0	1.75	
	FP-OS(MP)-25-218	240	680	166	455	2 1/8" ODS(Cu)	3/8 SAE	25.0	2.5	
	FP-OS(MP)-25-258	240	680	166	455	2 5/8" ODS(Cu)	3/8 SAE	25.0	2.5	
	FP-OS(MP)-45-258	325	655	166	411	2 5/8" ODS(Cu)	3/8 SAE	45.0	2.5	

Oil separators for CO <sub>2</sub>											
Type	Model	Ø D, mm	H, mm	A, mm	B, mm	C, mm	LSP <sup>[5]</sup> , inch	In/Out, mm	ORP <sup>[3]</sup> , mm	Volume, dm <sup>3</sup>	Notes
 <div>130bar SERIES</div>	FP-OS(HP130)-5	114	776	260	652	138	1 1/4	28(St)	10	5.0	Draw. 24, 19, 20
	FP-OS(HP130)-12	159	844	242	707	171	1 1/4	35(St)	10	12.0	
	FP-OS(HP130)-30	219	1129	253	711	183	1 1/4	54(St)	10	30.0	


**NOTES:** LP<sup>[1]</sup> – Low pressure;  
 HP<sup>[2]</sup> – High pressure;  
 ORP<sup>[3]</sup> – Oil return port;  
 OSP<sup>[4]</sup> – Oil separator pre-charge;  
 LSP<sup>[5]</sup>, 1 1/4" – Level sensor port;

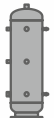
Cu – Copper connections;  
 St – Steel connections.

Oil separators for screw compressors										
Type	Model	Ø D, mm	H, mm	A, mm	B, mm	In/Out, inch	ORP <sup>[1]</sup> , inch	Volume, dm <sup>3</sup>	OSP <sup>[2]</sup> , l	Notes
	FP-OSF(MP)-12,0-158	190	543	363	353	1 5/8" ODS(Cu)	3/8" SAE	12.0	2.0	Draw. 25
	FP-OSF(MP)-12,0-218	190	520	353	353	2 1/8" ODS(Cu)	3/8" SAE	12.0	2.0	
	FP-OSF(MP)-25,0-258	240	735	496	496	2 5/8" ODS(Cu)	3/8" SAE	25.0	3.0	Draw. 26
	FP-OSF(MP)-25,0-318	240	735	496	493	3 1/8" ODS(Cu)	3/8" SAE	25.0	3.0	

## 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 <sup>[3]</sup> , M24, pcs	DVP <sup>[4]</sup> , 3/8", SAE	Volume, dm <sup>3</sup>	Notes	
	FP-OR(MP)-5,0	102	664	486	1	2	+	5.0	Draw. 27 Chart 2	
	FP-OR(MP)-8,0	133	664	494	1	2	+	8.0		
	FP-OR(MP)-12,0	159	669	502	1	2	+	12.0		
	FP-OR(MP)-16,0	190	658	—	1	2	+	16.0	Draw. 28 Chart 2	
	FP-OR(MP)-25,0	240	658	—	1	2	+	25.0		

Oil receivers for CO <sub>2</sub>												
Type	Model	Ø D, mm	H, mm	A, mm	B, mm	In/Out, mm	SG <sup>[3]</sup> , 1/2 NPT, pcs	DVP <sup>[4]</sup> , SAE, inch	LSP <sup>[5]</sup> , inch	OFP <sup>[6]</sup> , inch	Volume, dm <sup>3</sup>	Notes
	FP-OR(HP130)-5	114	741	138	639	10	2	1/4 NPT	1 1/4"	1/4" NPT	5.0	Draw. 29, 30, 20
	FP-OR(HP130)-12	159	887	152	733	10	3	1/4 NPT	1 1/4"	1/4" NPT	12.0	
	FP-OR(HP130)-25	219	942	163	773	10	3	1/4 NPT	1 1/4"	1/4" NPT	25.0	


**NOTES:** ORP<sup>[1]</sup> – Oil return port;  
 OSP<sup>[2]</sup> – Oil separator pre-charge;  
 SG<sup>[3]</sup>, M24 – Sight glass, M24×1;  
 DVP<sup>[4]</sup>, 3/8" – Diff. valve port, 3/8" SAE.  
 LSP<sup>[5]</sup>, 1/4" – Level sensor port;  
 OFP<sup>[6]</sup> – Oil filling port;


Cu – Copper connections;  
 St – Steel connections.



## 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 <sub>1</sub> , mm	D, mm	Notes
 <div> Cu-St WELD 45bar SERIES </div>	FP-OF-038	5/8"-18 UNF (3/8 SAE)	102	46	75	Draw. 31 Table 1
	FP-OF-038S	3/8" ODS(Cu)	104	46	75	

Oil filters for CO <sub>2</sub>						
Type	Model	Connection A, mm	L, mm	L <sub>1</sub> , mm	D, mm	Notes
 <div> 130bar SERIES </div>	FP-OF(HP130)	10	102	46	75	Draw. 32

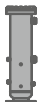
## DIFFERENTIAL CHECK VALVE

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> 45bar SERIES </div>	FP-DV-038-35	5/8"-18UNF (3/8 SAE)	3.5	Draw. 33

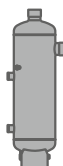
## OIL SEPARATORS WITH OIL RECEIVER

The main purpose of 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.

Oil separators with oil receiver												
Type	Model	Ø D, mm	H, mm	In/Out, mm	A, mm	B, mm	C, mm	Volume, dm <sup>3</sup>	LSP <sup>[1]</sup> , inch	OFP <sup>[2]</sup> , inch	Oil receiver volume, dm <sup>3</sup>	Notes
 <div> 130bar SERIES </div>	FP-OSR(HP130)-10	114	1305	28	788	1182	133	10.0	11/4"	1/4" NPT	6.0	Draw. 34
	FP-OSR(HP130)-20	159	1292	35	681	1155	151	20.0	11/4"	1/4" NPT	11.0	
	FP-OSR(HP130)-45	219	1130	54	511	985	163	45.0	11/4"	1/4" NPT	15.0	

## HELICAL OIL SEPARATORS WITH RECEIVERS


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 receivers											
Type	Model	Ø D, mm	H, mm	h1, mm	In/Out ODS	A, mm	B, mm	Volume, dm <sup>3</sup>	Oil receiver volume, dm <sup>3</sup>	Notes	
 <div> Cu-St WELD 28bar SERIES 45bar SERIES </div>	FP-OSR(MP)-6-034(18mm)	133	601	495	18 mm	60	100	6.0	4.0	Draw. 35 Table 4	
	FP-OSR(MP)-6-078	133	608	495	7/8"	60	100	6.0	4.0		
	FP-OSR(MP)-8-078	159	615	481	7/8"	60	100	8.0	5.5		
	FP-OSR(MP)-8-118	159	620	481	1 1/8"	60	100	8.0	5.5		
	FP-OSR(MP)-12-138	159	767	621	1 3/8"	60	100	12.0	9.0		
	FP-OSR(MP)-12-158	159	768	616	1 5/8"	60	100	12.0	9.0		
	FP-OSR(MP)-16-218	190	726	546	2 1/8"	90	100	16.0	12.0	Draw. 36 Table 4	
	FP-OSR(MP)-40-258	240	1140	910	2 5/8"	160	160	40.0	25.0		

**NOTES:** LSP<sup>[1]</sup>, 1 1/4" – Level sensor port;  
OFP<sup>[2]</sup> – Oil filling 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. Cyclone oil separators it is equipped with heating system sleeves, inspection glasses and a nut on the safety valve port.

Oil separators for screw compressors											
Type	Model	Ø D, mm	H, mm	A, mm	B, mm	In/Out ODS	ORP <sup>[1]</sup>	SVP <sup>[2]</sup> , 1¼" UN	Volume, dm <sup>3</sup>	Oil receiver volume, dm <sup>3</sup>	Notes
	FP-OS-40-218ST	325	650	178	411	2 1/8" ODS(St)	1 1/4 UN"	+	40.0	14	Draw. 37 Table 5
	FP-OS-80-318ST	325	1170	178	853	3 1/8" ODS(St)	1 3/4 UN"	+	80.0	35	
	FP-OS-200-418ST	450	1480	266	1121	4 1/8" ODS(St)	2 1/4 UN"	+	200.0	80	


### 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.

ТЭНы						
Type	Model	For models	Length, mm	Voltage, V	Power, W	Notes
	FP-THE-250-150W	FP-OS-40	250	~230	150	Draw. 38 Table 5
	FP-THE-120-150W	FP-OS-80(200)	120	~230	150	
Thermostats						
Type	Model	Temperature, °C	Voltage, V	Load, A	Notes	
	FP-TS-90	6...90	~230	10 (2.5)	Draw. 39 Table 5	

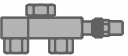
### SAFETY VALVES

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 <sup>3</sup>
		Ø d, NPT, inch	Ø D, SAE, inch			
	FP-SV-038	3/8	5/8"-18UNF (3/8 SAE)	2.8	3.0	250
	FP-SV(MP)-038	3/8	5/8"-18UNF (3/8 SAE)	4.5	4.8	110

### 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	Ø D UN, inch	Ø d NPT, inch	L, mm	□, mm	Notes
	FP-TV-114-038	1 1/4	3/8	147	SW22	Draw. 64

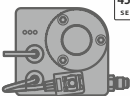
**NOTES:** ORP<sup>[2]</sup> – Oil return port;  
SVP<sup>[2]</sup>, 1¼" – Safety valve port, 1¼".

## FEEDWAY. ELECTRONIC OIL LEVEL REGULATOR

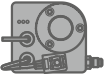
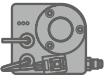

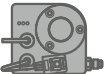
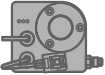
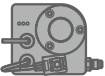
Electronic oil level regulator Feedway designed for installation into oil distribution circuit of compressor stations to control and maintain level of oil in compressor's crankcase and to give alarm signal and disconnect compressor in case of accident or low level of oil in crankcase.

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.

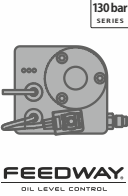
FeedWay. Electronic oil level regulator

Type	Model	Parameter	Value	Notes
 <b>FEEDWAY</b> <small>OIL LEVEL CONTROL</small>	FP-ERL4	Max. operating pressure	4.5 MPa	Draw. 40, 42
		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	IP67	
		Time fill delay	10 sec	
		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. 1 integrated cable	
		Oil connection	Thread 7/16"-20UNF external (1/4"SAE)	

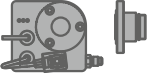
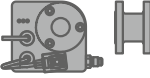
FeedWay. Adapters

Type	Model	Manufacturer – Type of compressor	Notes
	<b>FP-ERL4 + UA</b> Flange adapter 3 holes Ø 6.7 mm, D 47.6 mm 4 holes Ø 6.7 mm, D 50.0 mm	<b>Copeland:</b> D2, D3, D4, D6, D9, 4CC, 6CC, ZBH, 4M, 6M <b>Bitzer:</b> 4VC, 4TC, 4PC, 4NC, 4J, 4H, 4G, 6J, 6H, 6G, 6F, 8GC, 8FC, 4VHC-10K, 4THC-12K, 4PHC-15K, 4NHC-20K, 4VS-15K...4NSL-30K, 4VES-8F <b>Dorin:</b> all K, KP (except below) SCC 500B, 750B, 1500B, 1900B, 2000B, 2500B, H41, H5, H6, H7, SCC_1, SCC_32, SCC_4, CDSW_35, CDS_41 <b>Frascold:</b> A, B, D, F, S, V, Z Series A-SK, D-SK, F-SK, Q-SK, S-SK <b>Bock:</b> HA, HG, O-Serie, HGX4/310-4, 385-4, 464-4, 555-4 (CO <sub>2</sub> ) <b>Carrier:</b> 06E <b>Arctic Circle:</b> G2, G4, G6	Draw. 45
	<b>FP-ERL4 + BBL</b> Screw adapter 1 1/8"- 18UNEF, flange and 2 O-rings included	<b>Bitzer:</b> entire series 2...C; 4FC, 4EC, 4DC, 4CC2KHC, 4FHC, 4EHC, 4DHC, 4CHC, 2MSL-07K...4CSL-12K, 2KES – 4BES <b>Dorin:</b> H11, H2, H32, H35, K100CC/CS, K150CC/CS, K180CC/CS, K200CC, K230CS, K235CC, K240SB, K40CC, K50CS, K75CC/CS- SCC 250B, 300B, 350B, 380B, CDS_11 <b>Bock:</b> HA12/22/34, HG12/22/34 HGX12P/40-4, 50-4, 60-4, 75-4 (CO <sub>2</sub> ) HGX22P110-4, HGX22P125-4, HGX22P/160-4, HGX22P/190-4 (CO <sub>2</sub> ), HGX34P/215-4, HGX34P/255-4 (CO <sub>2</sub> ) <b>Tecumseh:</b> TAG <b>Maneurop:</b> LT; MT; NTZ; SM; SZ <b>Danfoss:</b> LFZ, MFZ, MLM, MT, SM, SZ, LT <b>Dorin:</b> H11, H2, H32, H35, K100CC/CS, K150CC/CS, K180CC/CS, K200CC, K230CS, K235CC, K240SB, K40CC, K50CS, K75CC/CS- SCC 250B, 300B, 350B, 380B, CDS_11 <b>Bock:</b> HA/HG 22/34 <b>RefComp:</b> SP2L, SP2H	Draw. 46
	<b>FP-ERL4+BBL+MLZ</b>	<b>Danfoss:</b> LLZ; MLZ	
	<b>FP-ERL4 + AA</b> Screw adapter 3/4"- 14NPTF, flange and 1O-ring included	<b>Copeland:</b> ZF06 – ZF18, ZS21-45, ZB 21-45 production before 06.2014 <b>Bitzer:</b> ZL, ZM <b>Bristol:</b> H29, H2, H7, H79 <b>InvoTech:</b> YSM, YSH	Draw. 47
	<b>FP-ERL4 + CD</b> Rotalock adapter 1-3/4"- 12UNF	<b>Copeland:</b> ZR 90 - ZR 19, ZR 250 - ZR 380, ZB 56 - ZB 11M, ZS 56 - ZS 11M, ZF 24 - 48 ZH, ZB 220	Draw. 48
	<b>FP-ERL4 + CE</b> Rotalock adapter 1-1/4"- 12UNF (free flange)	<b>Copeland:</b> Summit:ZR 94-ZR190 ZB 50, ZB 58-ZB 114, ZF-25 - ZF49, ZB 15-45 , ZF06 - ZF18 production from 06.2014, ZBD,ZFD. <b>FP:</b> FP-SH, FP-SL, FP-SM <b>InvoTech:</b> YM, YF, YH230-355	Draw. 49

FeedWay. Electronic oil level regulators for CO<sub>2</sub>

Type	Model	Parameter	Value	Notes
 <b>FEEDWAY</b> <small>OIL LEVEL CONTROL</small>	FP-ERL(HP130)	Max. operating pressure, MPa	130	Draw. 41, 43
		Test pressure, MPa	170	
		Power supply	230 V; 50/60 Hz; 0.04 A	
		Range of filling	40%...60% from sight glass height	
		Protection class	IP67	
		Time fill delay	10 sec	
		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. 1 integrated cable	
		Oil connection	Thread 7/16"-20UNF external (1/4"SAE)	


FeedWay for CO<sub>2</sub>. Adapters

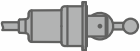
Type	Model	Manufacturer – Type of compressor	Notes
	<b>FP-ERL(HP130) + BBL</b> Screw adapter 1 1/8"-18UNEF, flange and 2 O-rings included	<b>Bitzer:</b> 4 - CTC, DTC, FTC, HTC, JTC, KTC, MTC, PTC <b>Bock:</b> YAX2...CO2 T, HGX34 / 46...CO2 T <b>Copeland:</b> 4MSL, 4MTL	Draw. 46
	<b>FP-ERL(HP130) + UD</b>	<b>Dorin:</b> CDxx M, H, B; CD2S-200, -400	Draw. 51

### ELECTRONIC REFRIGERANT SENSOR/OIL LEVEL SENSOR


Electronic sensors FP-ELS2/OLS2 are intended for use as an electronic for limit values of levels of working media in vessels, compressors, flooded evaporators, circulating receivers and pressure equipment. To be installed on the connection ports of visual level control devices.

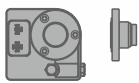
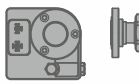
#### Electronic refrigerant sensor/oil level sensor

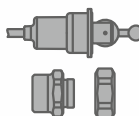
Type	Model	Parameter	ELS2	OLS2	Notes
	45bar FP-ELS2 FP-OLS2	Max. operating pressure PS	4.5 MPa	4.5 MPa	Draw. 41, 43
		Test pressure PT	5.0 MPa	5.0 MPa	
		Power supply	230 V; 50/60 Hz; 0.04 A	230 V; 50/60 Hz; 0.04 A	
		Protection class	IP67	IP67	
		Alarm relay delay	20 sec	120 sec	
		Alarm relay	max 3 A; 230 V; 50/60 Hz	max 3 A; 230 V; 50/60 Hz	
		Length of cables of power supply / alarm relay	3 m. 1 integrated cable	2 m. 1 integrated cable	
		Alarm level	40%	25%	
		Recommended working media	refrigerants	oil	

Type	Model	Parameter	Value	Notes
	45bar FP-ELS-L	Max. operating pressure PS, MPa	4.5 MPa	Draw. 44
		Test pressure PT, MPa	5.0 MPa	
		Burst pressure, MPa	20.0 MPa	
		Power supply, V DC	15...30	
		Energy consumption, VA	4	
		Ambient / storage temperature, °C	-40...+50	
		Working environment temperature, °C	-40...+80	
		Protection class	IP65	
		Alarm relay contacts	max 1 A 30 V DC (30 W); 0.25 A 250 V AC	
		Electrical connection	Cable PVC 5×0,25 (AWG23)	
		Power cable length, m	2	

#### Electronic refrigerant sensor/oil level sensor for CO<sub>2</sub>


Type	Model	Parameter	Value	Notes
	130bar FP-ELS(HP130)-L	Max. operating pressure PS	130 MPa	Draw. 44
		Test pressure PT	135 MPa	
		Burst pressure	20.0 MPa	
		Power supply	15...30 V DC	
		Energy consumption	4 VA	
		Ambient / storage temperature	-40...+50 °C	
		Working environment temperature	-40...+80 °C	
		Protection class	IP65	
		Alarm relay contacts	max 1 A 30 V DC (30 W); 0.25 A 250 V AC	
		Electrical connection	Cable PVC 5×0,25 (AWG23)	
		Power cable length	2 m	

Electronic refrigerant sensor/oil level sensor. Adapters			
Type	Model	Manufacturer – Type of compressor	Notes
	<b>FP-ELS2/OLS2 + FA</b> 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 10.	Draw. 50
	<b>FP-ELS2/OLS2 + CE</b> 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 10.	Draw. 49

Electronic refrigerant sensor/oil level sensor. Adapters			
Type	Model	Manufacturer – Type of compressor	Notes
	<b>FP-ELS-L + M24-114 (L)</b> Screw adapter M24- 1 1/4", gasket and nut included	Refrigerant receivers series FP-LR, FP-LRH, FP-OR and FP-OS after 01.2019	Draw. 52




## VIBROELIMINATORS

Vibroeliminators are designed for use in stationary or mobile refrigeration systems. The main function of vibroeliminator is to eliminate 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		
 <div> <div>Cu-St</div> <div>45 bar</div> <div>SERIES</div> </div>	FP-VA-038	230	15	10	3/8	4.5	Draw. 73 Table 1
	FP-VA-012	230	18	10	1/2	4.5	
	FP-VA-058	255	20	15	5/8	4.5	
	FP-VA-034	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	4.5	
	FP-VA-218	510	73	30	2 1/8	4.0	
	FP-VA-258	690	90	35	2 5/8	3.5	
	FP-VA-318	690	108	35	3 1/8	3.0	


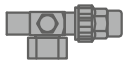
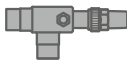
## ADAPTERS

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. 53
	Adapter FP-A-038 (3/8")	3/8 NPT	
	Adapter FP-A-012/038	1/2 – 3/8 NPT	Draw. 54
	Adapter FP-A-M24-012L	M24×1 – 1/2 NPT	Draw. 55


## 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
		Ø D, inch	Ø d, inch			
	FP-RV-014SAE	7/16" – 20UNF (1/4" SAE)	7/16" – 20UNF (1/4" SAE)	72	–	Draw. 56
	FP-RV-038SAE	5/8" – 18UNF (3/8 SAE)	5/8" – 18UNF (3/8 SAE)	72	–	
	FP-RV-1-012	1" UN	1/2" ODS	106	SW 20	Draw. 57
	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. 58

## PIEDESTALS

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 for receiver						
Type	Model	Length, mm	Width, mm	Height, mm	Protrusion length, mm	Notes
	FP-DR	224	70	30	150	Draw. 59




The horizontal receiver stand is used to mount the compressor on the receiver.

Pedestal for horizontal receiver						
Type	Model	Length, mm	Width, mm	Height, mm	Protrusion length, mm	Notes
	FP-ST-LRH	224	70	30	150	Draw. 60



**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		Number of cores	H <sub>1</sub> , mm	Notes	
			L, mm	L <sub>1</sub> , mm				
	FP-SDF(MP)-058	5/8" ODS(Cu)	222	150	1	84	Draw. 67	
	FP-SDF(MP)-078	7/8" ODS(Cu)	230	160	1	84		
	FP-SDF(MP)-118	1 1/8" ODS(Cu)	232	160	1	93		
	FP-SDF(MP)-138	1 3/8" ODS(Cu)	238	167	1	96		
	FP-SDF(MP)-158	1 5/8" ODS(Cu)	240	168	1	96		
	FP-SDF(MP)-218	2 1/8" ODS(Cu)	250	163	1	103		
	FP-SDF(MP)-258	2 5/8" ODS(Cu)	260	173	1	110		
	FP-SDF-2-078	7/8" ODS(Cu)	383	303	2	90.5		
	FP-SDF-2-118	1 1/8" ODS(Cu)	386	306	2	92		
	FP-SDF-2-138	1 3/8" ODS(Cu)	392	312	2	96		
	FP-SDF-2-158	1 5/8" ODS(Cu)	393	313	2	96		
	FP-SDF-2-218	2 1/8" ODS(Cu)	403	303	2	103		
	FP-SDF-2-258	2 5/8" ODS(Cu)	413	313	2	109		
	FP-SDF-3-138	1 3/8" ODS(Cu)	537	457	3	96		
	FP-SDF-3-158	1 5/8" ODS(Cu)	538	458	3	96		
	FP-SDF-3-218	2 1/8" ODS(Cu)	548	448	3	103		
	FP-SDF-3-258	2 5/8" ODS(Cu)	558	458	3	109		
Filter-dryers shells for CO <sub>2</sub>								
Type	Model	Connection Ød, inch	Overall dimensions		A, mm	Notes		
			L, mm	L <sub>1</sub> , mm				
	FP-SDF(HP60)-058	5/8" ODS(St)	222	150	162	Draw. 67		
	FP-SDF(HP60)-078	7/8" ODS(St)	230	160	162			
	FP-SDF(HP60)-118	1 1/8" ODS(St)	232	160	171			
	FP-SDF(HP60)-138	1 3/8" ODS(St)	238	167	174			
	FP-SDF(HP60)-158	1 5/8" ODS(St)	240	168	174			
	FP-SDF(HP90)-058	5/8" ODS	258	132	173	Draw. 68, 20		
	FP-SDF(HP90)-034	3/4" ODS	258	132	173			
	FP-SDF(HP90)-078	7/8" ODS	258	132	173			
	FP-SDF(HP90)-118	1 1/8" ODS	258	132	173			
	FP-SDF(HP90)-138	1 3/8" ODS	258	132	173			


## REFILLABLE REFRIGERANT CYLINDERS AND SPECIAL CONTAINERS

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	Ød, mm	Out, inch	Weight of refrigerant R22, kg	Volume, dm <sup>3</sup>	Working press, MPa	Notes
	FP-CR-15	240	475	220	1x7/16"-20 UNF (1/4 SAE)	12.4	12.5	3.5	Draw. 61 Table 6
	FP-CR-15Y	240	475	220	2x7/16"-20 UNF (1/4 SAE)	12.4	12.5	3.5	
	FP-CR-30Y	240	825	220	2x7/16"-20 UNF (1/4 SAE)	29.8	30.0	3.5	
	FP-CR-60Y	325	1005	260	2x7/16"-20 UNF (1/4 SAE)	59.5	60.0	3.5	

### Special containers for transporting freons



Type	Model	ØD, mm	L, mm	ØD <sub>1</sub> , mm	Out, inch	Weight of refrigerant R22, kg	Volume, dm <sup>3</sup>	Working press, MPa	Notes
	FP-CR-100	460	856	470	1x7/16"-20 UNF (1/4 SAE)	86.7	100	3.5	Draw. 62 Table 6
	FP-CR-150	460	1170	470	2x7/16"-20 UNF (1/4 SAE)	130.1	150	3.5	
	FP-CR-200	460	1484	470	2x7/16"-20 UNF (1/4 SAE)	173.4	200	3.5	
	FP-CR-250	460	1800	470	2x7/16"-20 UNF (1/4 SAE)	216.8	250	3.5	

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

## 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. 69
		Dimension	Overall dimension 77x35.5x79(65.5) mm Panel 77x35.5 mm	
		Interface	RS485 Modbus RTU	
		Enviroment	-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 <sup>2</sup>	
		Set	Controller, mounts, temperature sensor — 3 pcs	

**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	Output, mA	Voltage, VDC	Notes
	FP-PT-10A(W)	-0.5...10	7/16-20UNF (A) (1/4 SAE) M	4...20	8...25	Draw. 66
	FP-PT-35A(W)	0...35	2 m. 1 integrated cable	4...20	8...25	
	FP-PT-10B(W)	-0.5...10	7/16-20UNF (B) (1/4 SAE) F	4...20	8...25	Draw. 66
	FP-PT-35B(W)	0...35	2 m. 1 integrated cable	4...20	8...25	

**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-8).

Evajet. Electronic expansion valves				
Type	Model	Parameter	Value	Notes
	FP-ERV	Voltage	220 V, ±10%	Draw. 70 Table 7
		Ingress protection rating	IP 67	
		Operating principle	PWM	
		Recommend period	6 sec	
		Capacity (R22)	0.36...16.3 kBT	
		Capacity range	10...100%	
		Working temperature	-50...+50 °C	
		Plunger sealing leakage	<0.02% from kv-value	
		Maximum operating pressure	45 bar	

**FAN SPEED CONTROLLER**

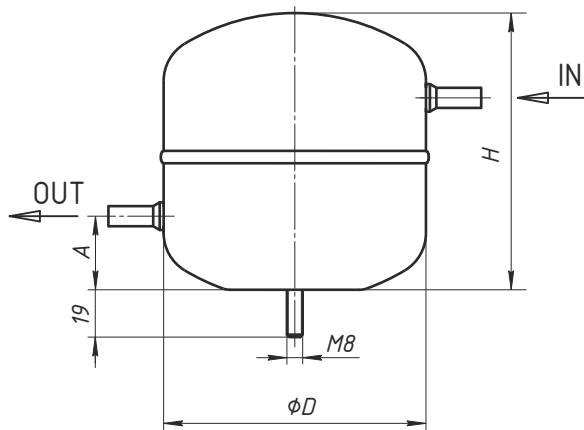
Fan speed controller FP-FSR-8 is designed for installation on refrigeration units in order to maintain a given level of condensation pressure in the system by changing the speed of condenser fans by voltage regulation. The device is a slave, control takes place on the master. The device provides unified input signals 0 ... 10 V and 4...20 mA, digital inputs for remote activation and emergency, as well as an alarm relay.

Fan speed controller				
Type	Model	Parameter	Value	Notes
	FP-FSR-8	Voltage	~400 V ±10%, 50/60 Hz with automatic synchronization	Draw. 71, 72
		Output voltage range	25...99% of supply voltage	
		Maximum connected power	5.5 kVA	
		Rated current	8 A	
		Minimum current	0.2 A	
		Maximum current*	12 A	
		Dissipation power	30 W	
		Analog inputs	0...10 V – 1 pcs, 4...20 mA – 1 pcs	
		Digital inputs	2 pcs, Dry contact	
		Output relay	Max 1 A, 250 VAC; 3 A, 30 VDC	
		Protection class	IP55	

\* Ambient temperature — ≤ +50 °C,  
maximum duration — ≤ 10 seconds every 5 minutes.

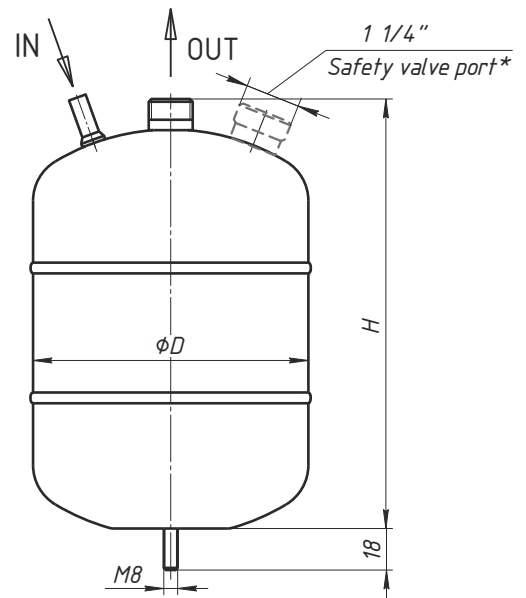
## Drawing 1.

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



## Drawing 2.

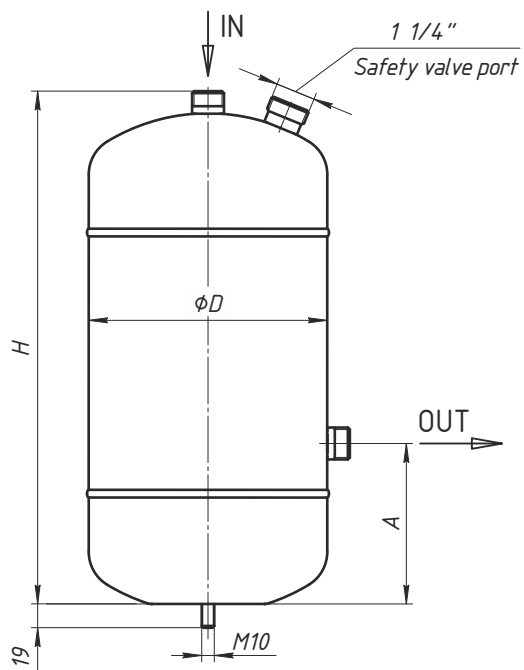
Vertical receivers FP-LR-2,5...8,0. Page 4



\* Model FP-LR-2,5...6,3 without safety valve port  
Model FP-LR-8,0 with safety valve port

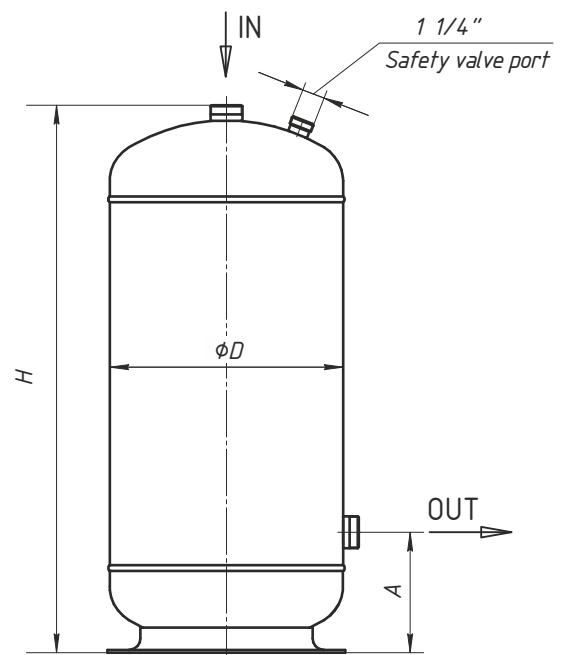
## Drawing 3.

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



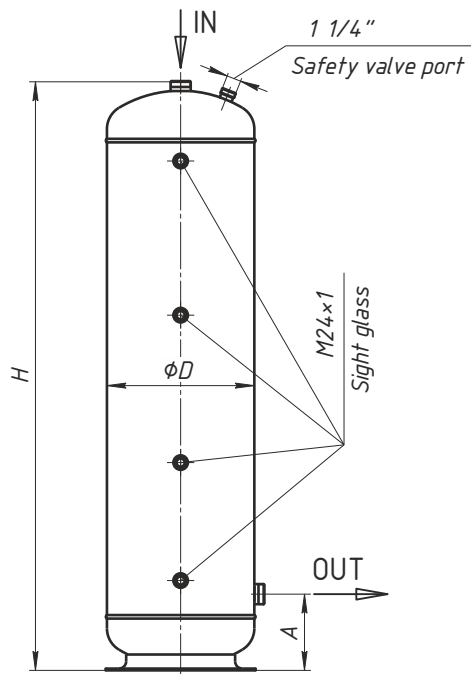
## Drawing 4.

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



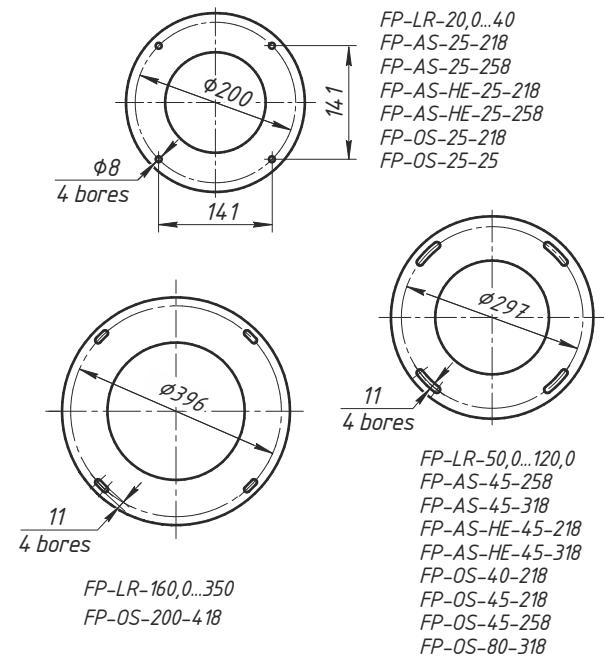
## Drawing 5.

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



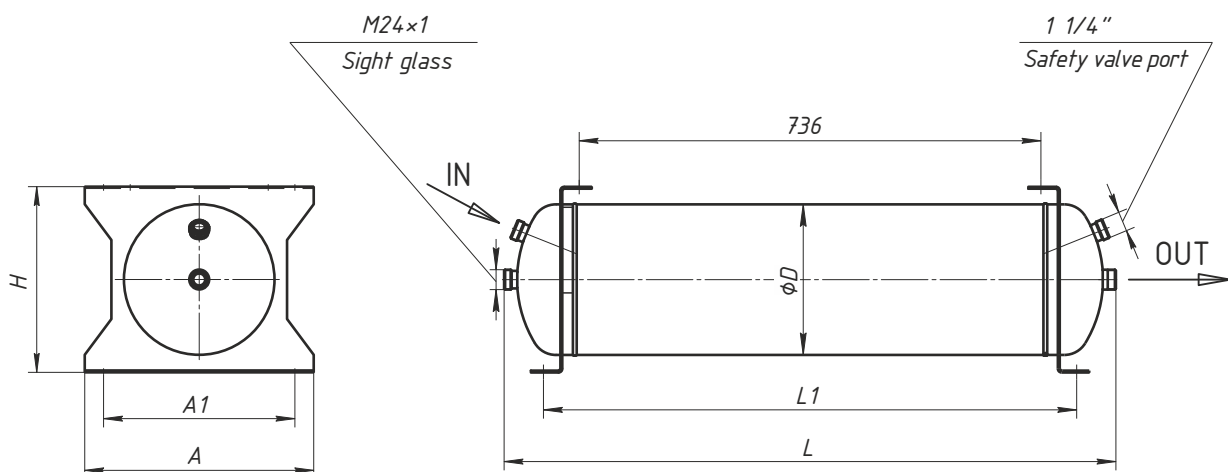
## Drawing 6.

Circular platforms for receivers and separators. Page 4, 5, 6



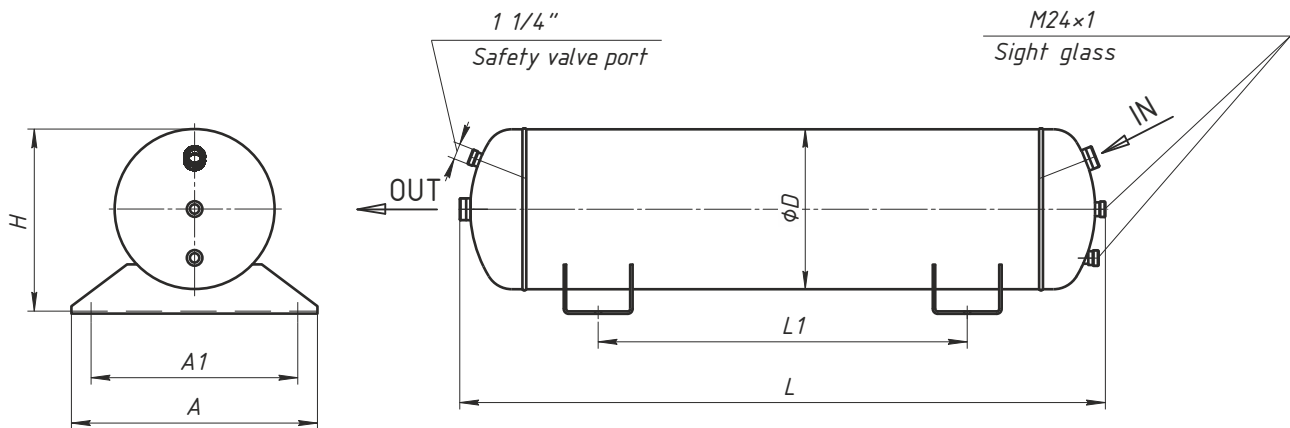
## Drawing 7.

Horizontal receivers FP-LRH-16,0...70,0. Page 5



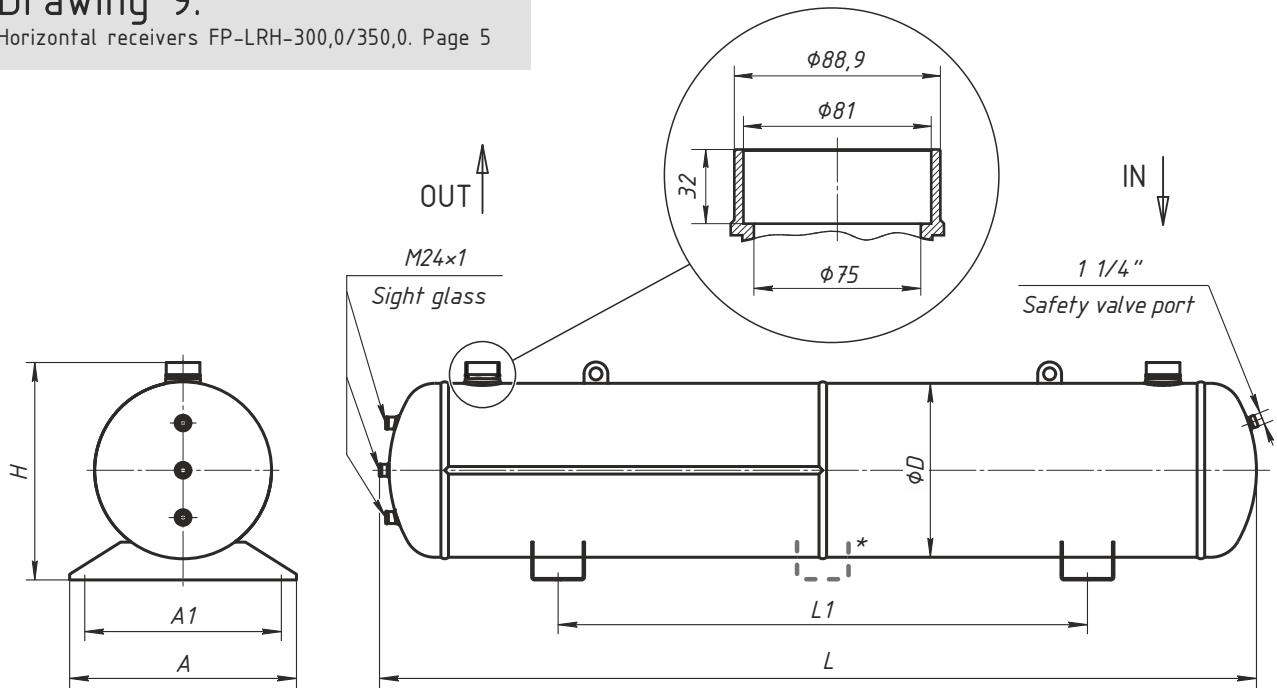
## Drawing 8.

Horizontal receivers FP-LRH-100,0....250,0. Page 5



## Drawing 9.

Horizontal receivers FP-LRH-300,0/350,0. Page 5



\* Three-legged model FP-LRH-350,0

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

inch	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	10,00	12,70	16,00	19,05	22,30	28,60	35,00	42,00	54,00	66,70	79,40

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

Model	Q <sub>0</sub> (R22)	Q <sub>0</sub> (R134A)	Q <sub>0</sub> (R507)
FP-AS(MP)-2,0-012	7	4	4,5
FP-AS(MP)-2,0-058	10	6	7
FP-AS(MP)-3,5-078	25	15	16
FP-AS(MP)-3,5-118 / FP-AS(MP)-5,0-118	41	25	27
FP-AS(MP)-5,0-138 / FP-AS(MP)-7,0-138	65	37	43
FP-AS(MP)-7,0-158 / FP-AS(MP)-9,0-158	100	61	64
FP-AS(MP)-12,0-218 / FP-AS(MP)-25,0-218	144	105	112
FP-AS(MP)-12,0-258 / FP-AS(MP)-25,0-258 / FP-AS(MP)-45,0-258	159	117	127
FP-AS(MP)-45,0-318	315	256	266
FP-AS(MP)-60,0-108ST	646	254	560

TABLE 3. Correction coefficients for another working conditions

t <sub>0</sub>	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

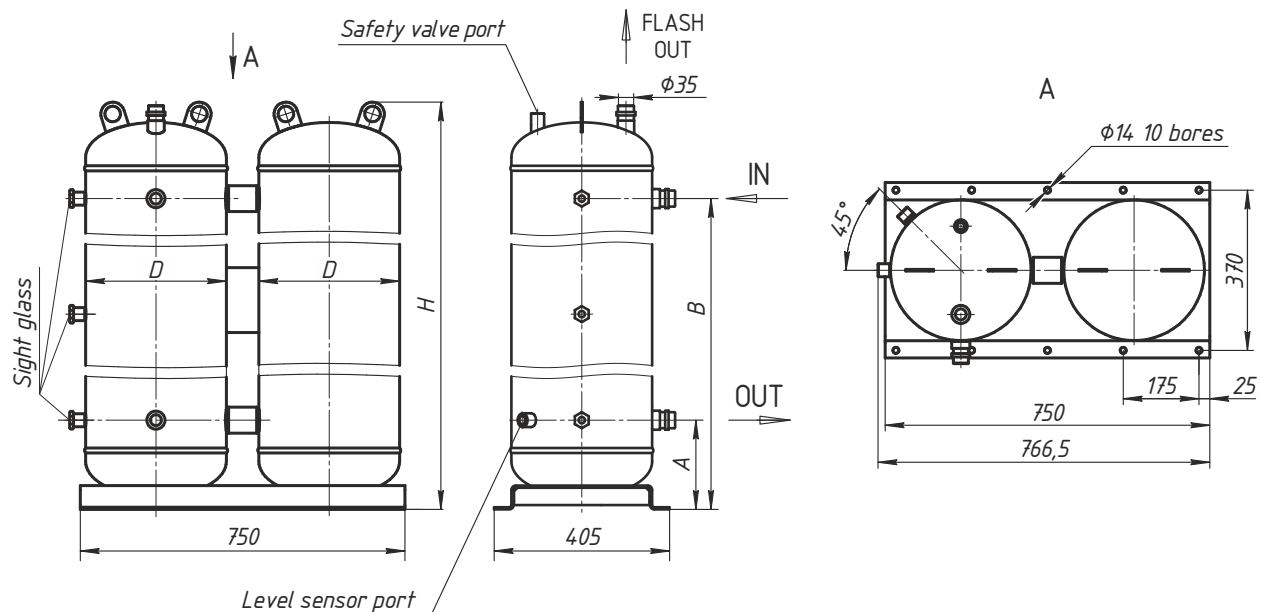
Formula:  $QK = Q_0 * K$  (Q<sub>0</sub> – nominal capacity, K – correction factor, QK – given nominal capacity for selection)

Calculation example:

Q<sub>0</sub> (R22) = 25 kW; t<sub>0</sub> = -11 °C; K=1,7=(2-1,7)\*(-10-(-11))/(-10-(-15))=1,76; Q<sub>n</sub> (R22)=25\*1,76=44 kW → FP-AS-5-138

## Drawing 10.

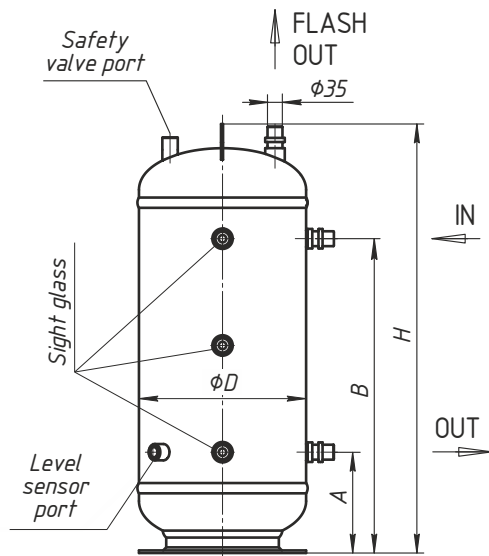
Refrigerant receivers FP-LR(HP90)-160/200. Page 4





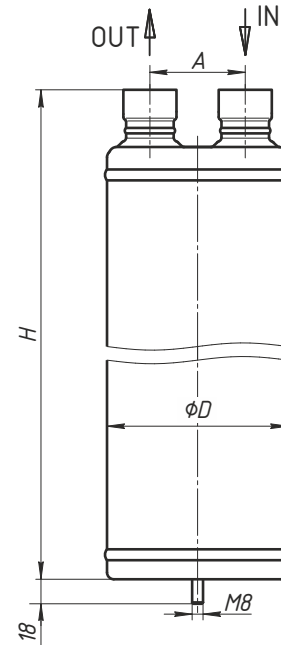
## Drawing 11.

Refrigerant receivers FP-LR(HP90)-50...110. Page 4



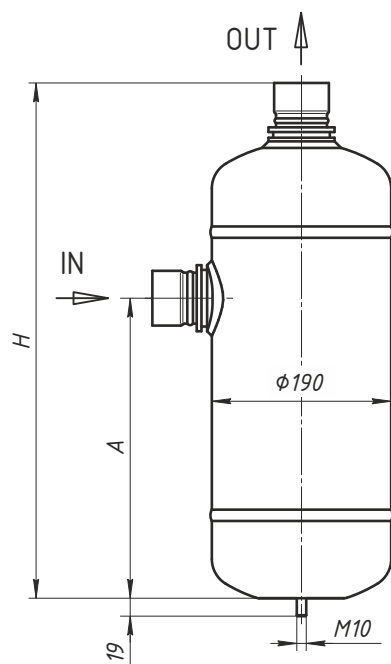
## Drawing 12.

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



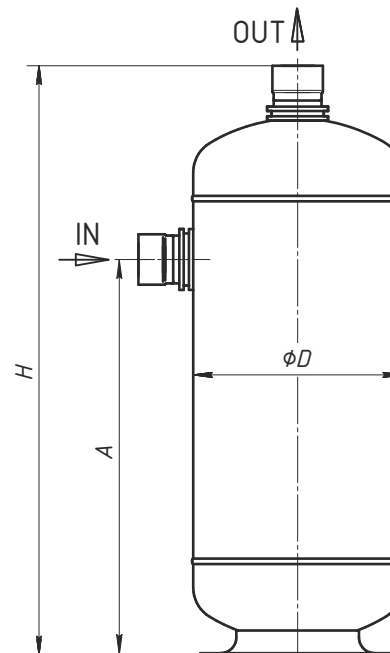
## Drawing 13.

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



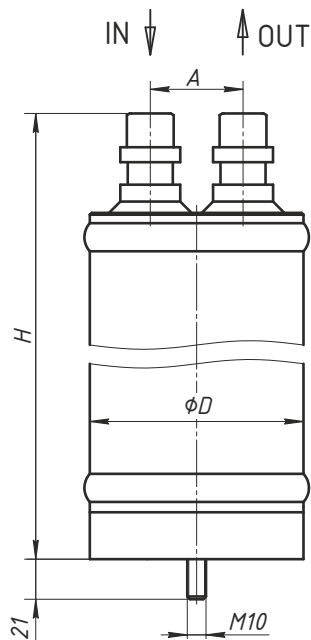
## Drawing 14.

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



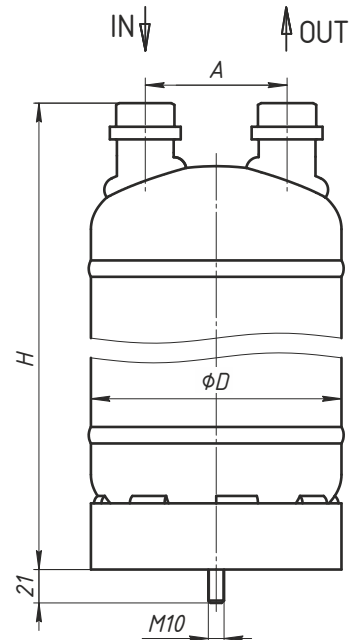
### Drawing 15.

Suction accumulators FP-AS(HP90)-3. Page 4



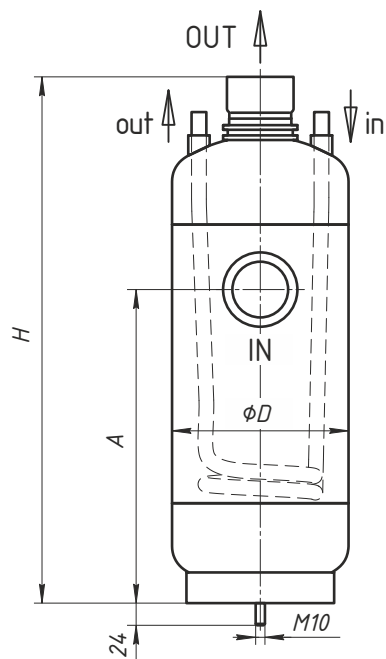
### Drawing 16.

Suction accumulators FP-AS(HP90)-5/7. Page 4



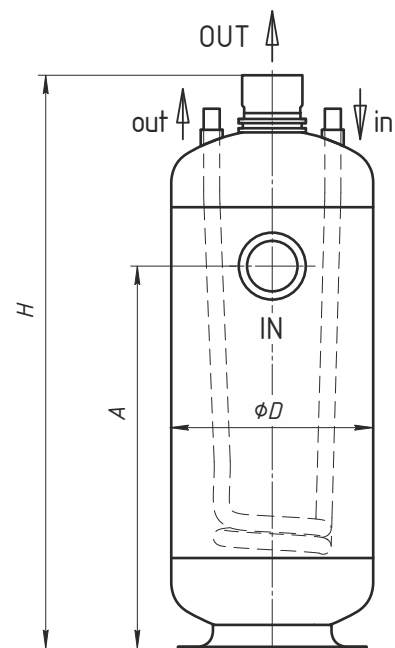
### Drawing 17.

Suction accumulators FP-AS-HE-12. Page 6



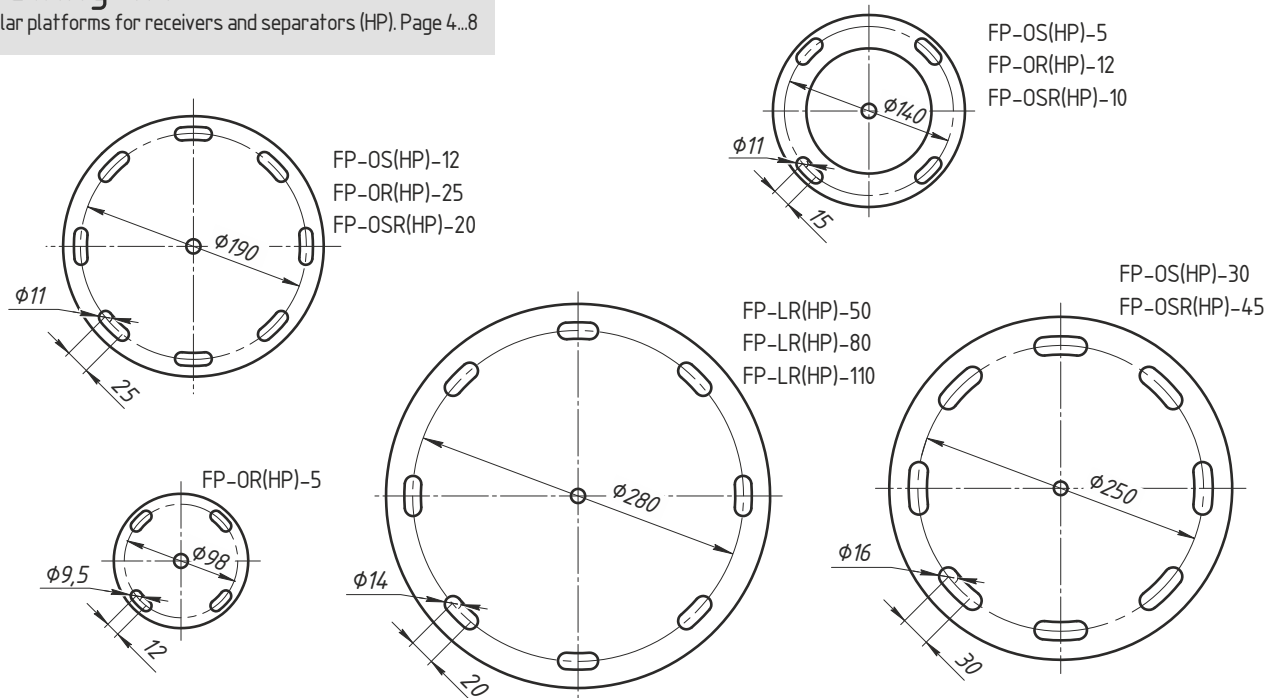
### Drawing 18.

Suction accumulators FP-AS-HE-25, 45. Page 6



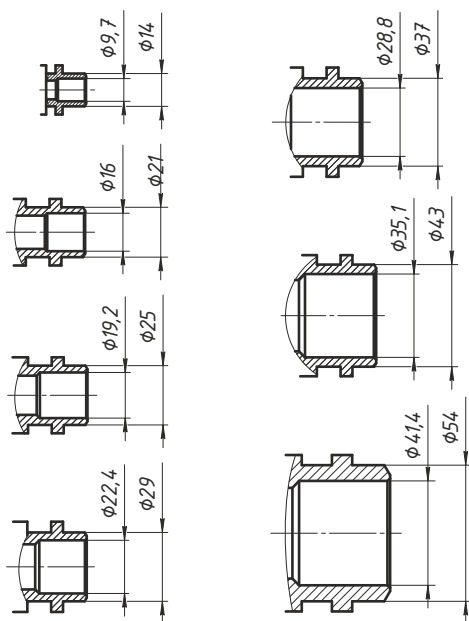
## Drawing 19.

Circular platforms for receivers and separators (HP). Page 4...8



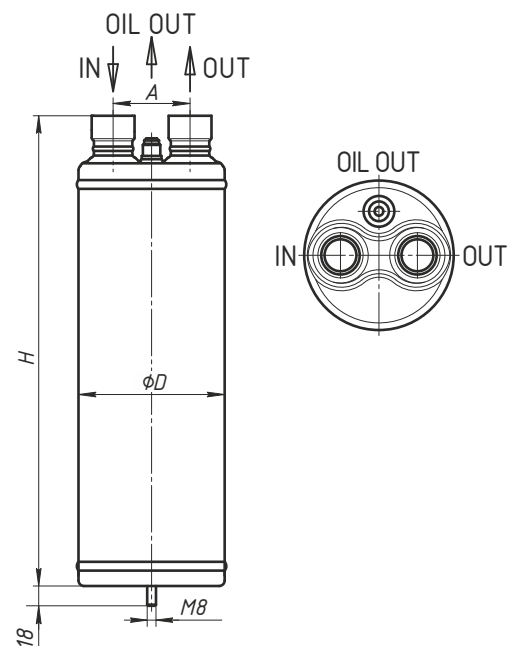
## Drawing 20.

Connection dimensions for soldering ODS (St). Page 4, 6, 8, 15



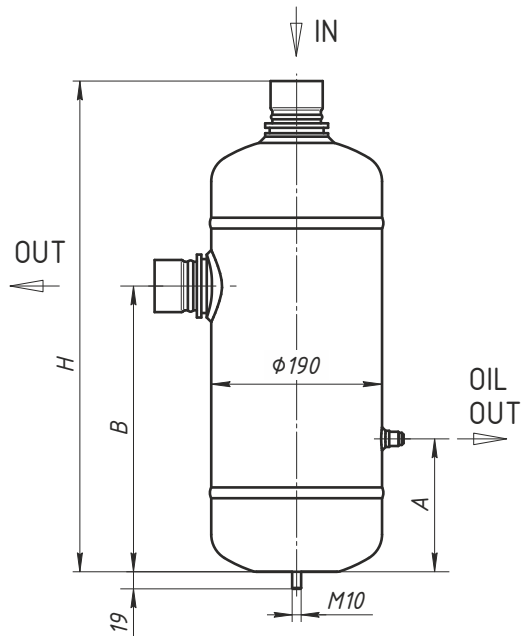
## Drawing 21.

Oil separators FP-OS-2,0...7,0. Page 6



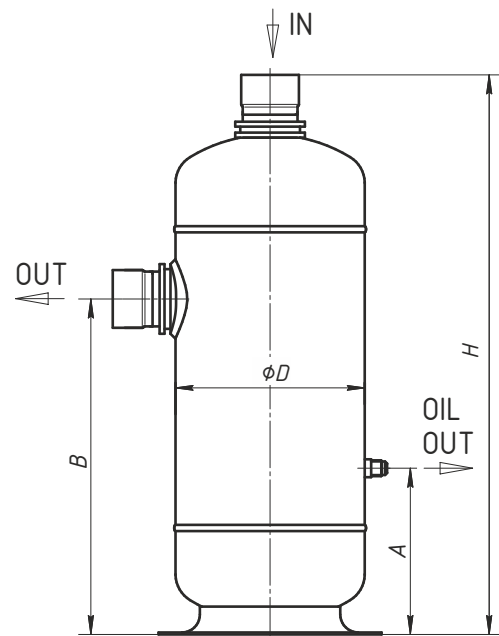
## Drawing 22.

Oil separators FP-OS-12. Page 6



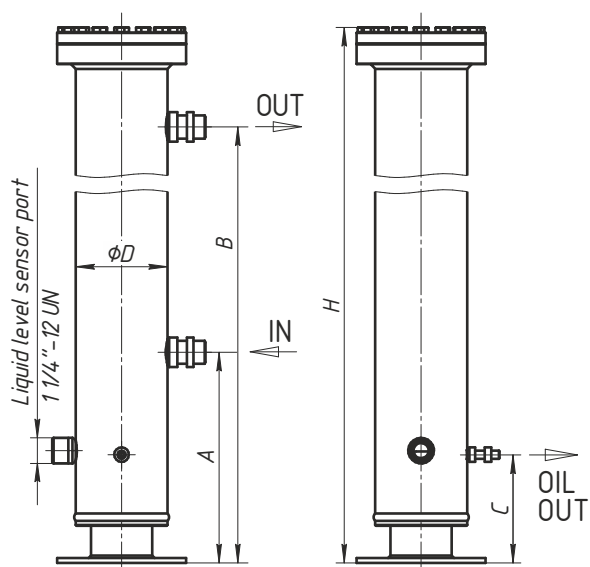
## Drawing 23.

Oil separators FP-OS-25...45. Page 6



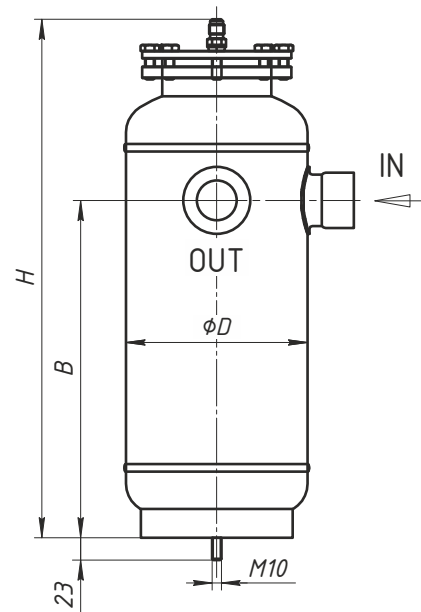
## Drawing 24.

Oil separators FP-OS(HP130)-5...30. Page 6



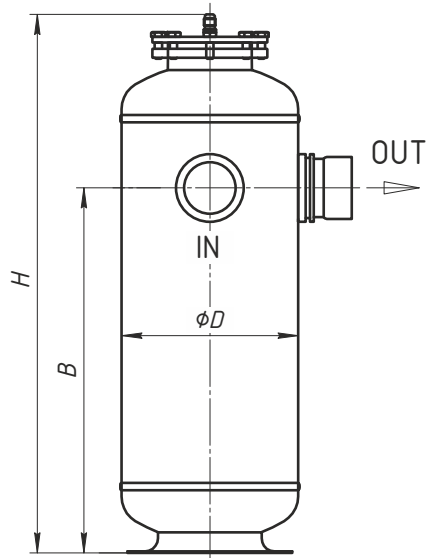
## Drawing 25.

Oil separators FP-OSF-12. Page 7



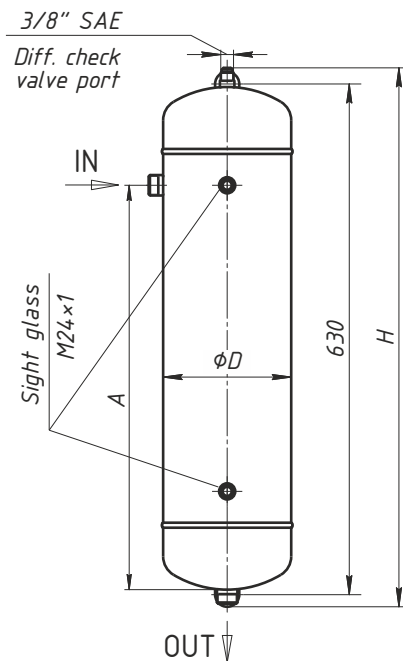
## Drawing 26.

Oil separators FP-OSF-25. Page 7



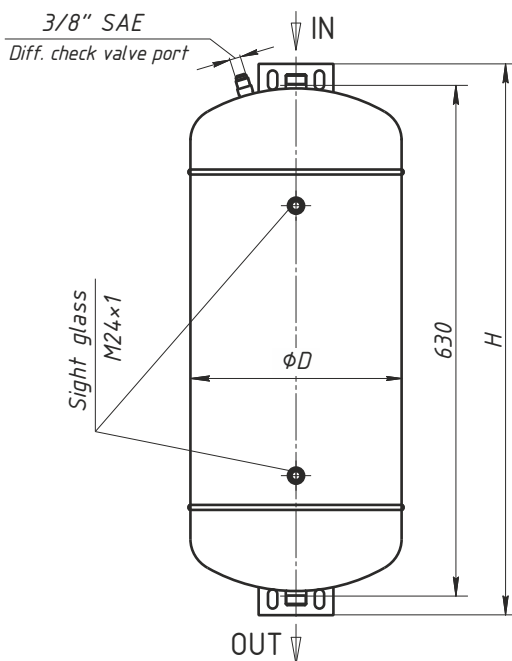
## Drawing 27.

Oil receivers FP-OR-5...12. Page 7



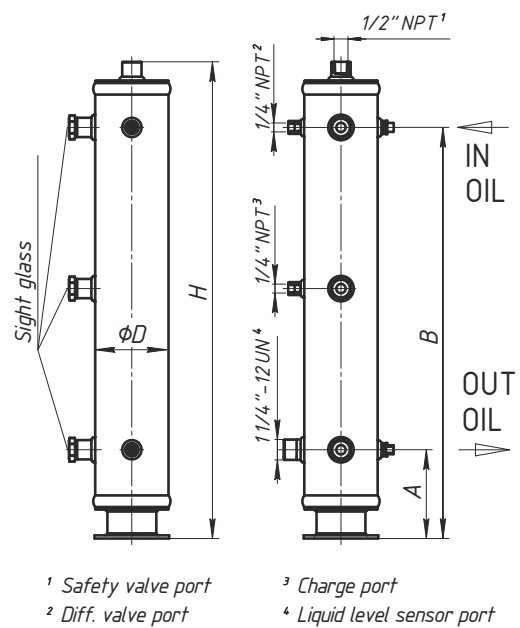
## Drawing 28.

Oil receivers FP-OR-16/25. Page 7



## Drawing 29.

Oil receivers FP-OR(HP130)-5. Page 7

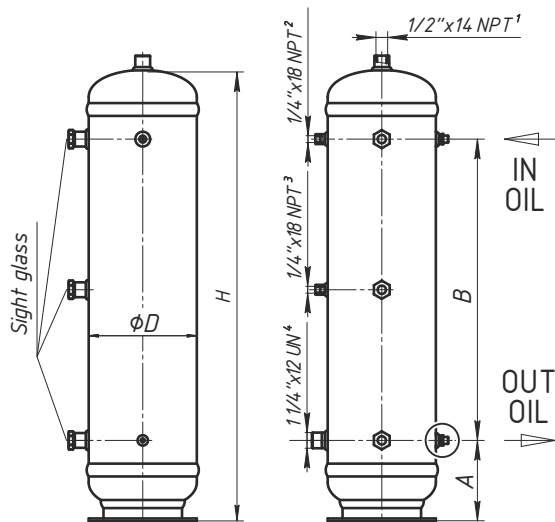


¹ Safety valve port  
² Diff. valve port

³ Charge port  
⁴ Liquid level sensor port

## Drawing 30.

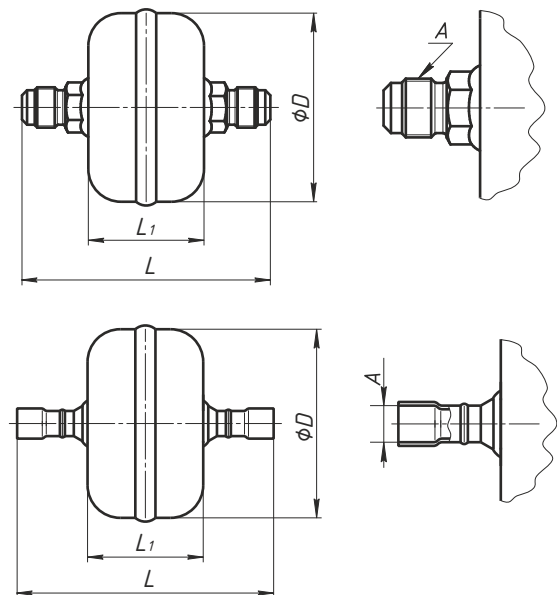
Oil receivers FP-OR(HP130)-12/25. Page 7



- ¹ Safety valve port
- ² Diff. valve port
- ³ Charge port
- ⁴ Liquid level sensor port

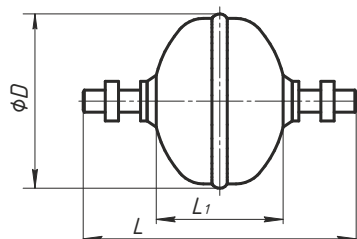
## Drawing 31.

Oil filters FP-OF-038/038S. Page 8



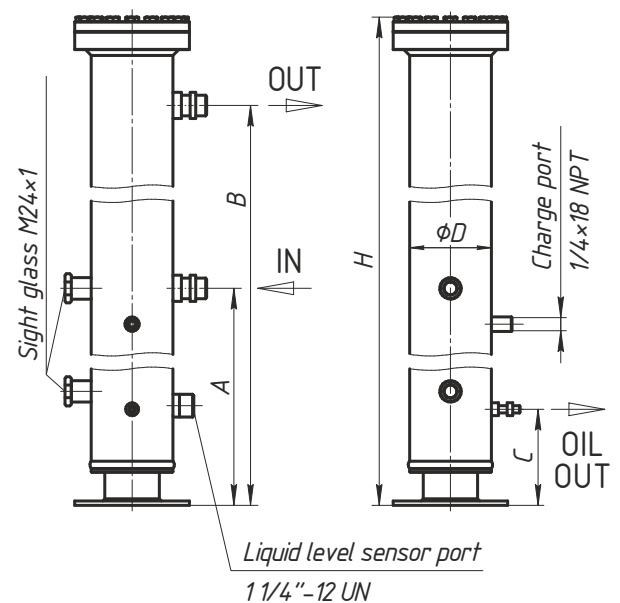
## Drawing 32.

Oil filters FP-OF(HP130). Page 8



## Drawing 34.

Oil separators with oil receiver FP-OSR(HP130). Page 8



## Drawing 33.

Differential check valve. Page 8

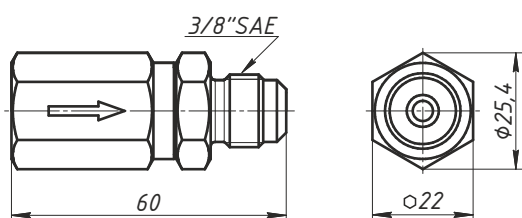


CHART 1. Quick selection chart for oil separator

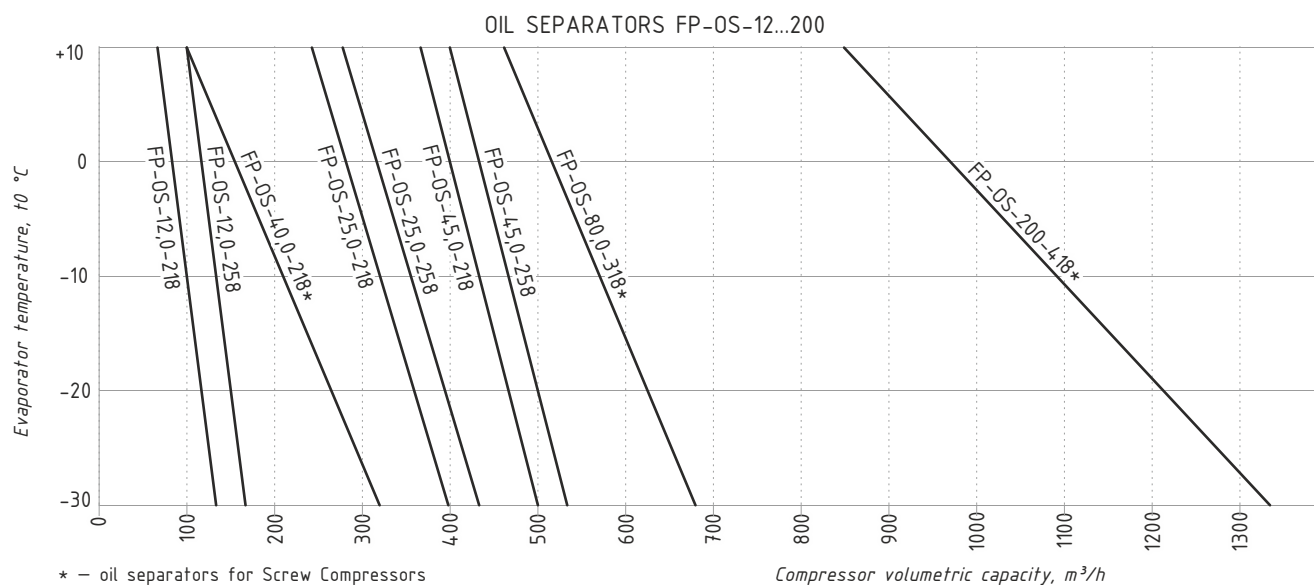
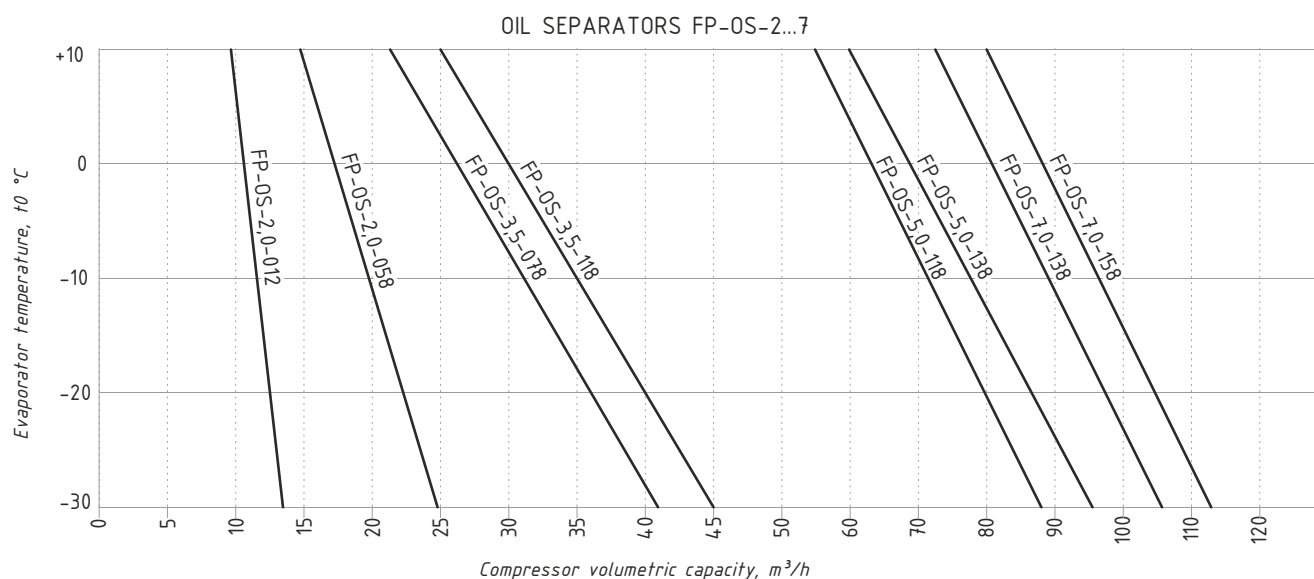


TABLE 4. Selection of helical oil separators with receiver

Model	Cooling capacity at the nominal temperature of the evaporator, kW							
	R404A/507A		R410A		R134a		R407C	
	-30 °C	0 °C	-30 °C	0 °C	-30 °C	0 °C	-30 °C	0 °C
FP-OSR-6-034	16	20	22	27	11	13	19	24
FP-OSR-6-078	24	31	33	41	16	20	29	36
FP-OSR-8-078	27	35	38	47	18	23	30	38
FP-OSR-8-118	29	38	41	50	20	29	33	41
FP-OSR-12-138	39	49	54	61	38	42	46	54
FP-OSR-12-158	52	65	72	81	42	48	61	72
FP-OSR-16-218	94	118	126	153	75	93	105	122
FP-OSR-40-258	215	280	279	372	161	190	262	309



CHART 2. Quick selection chart for oil receivers

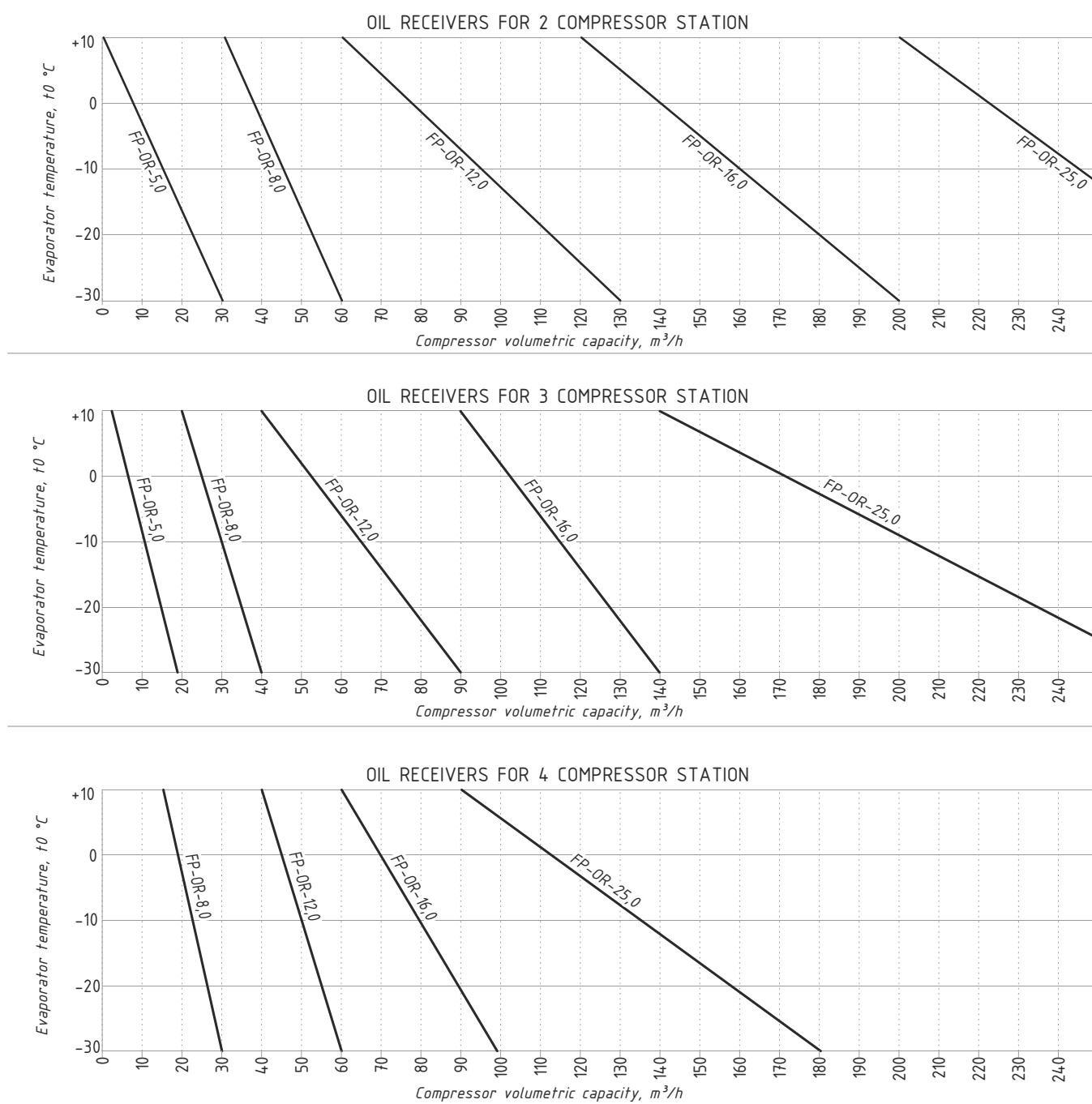
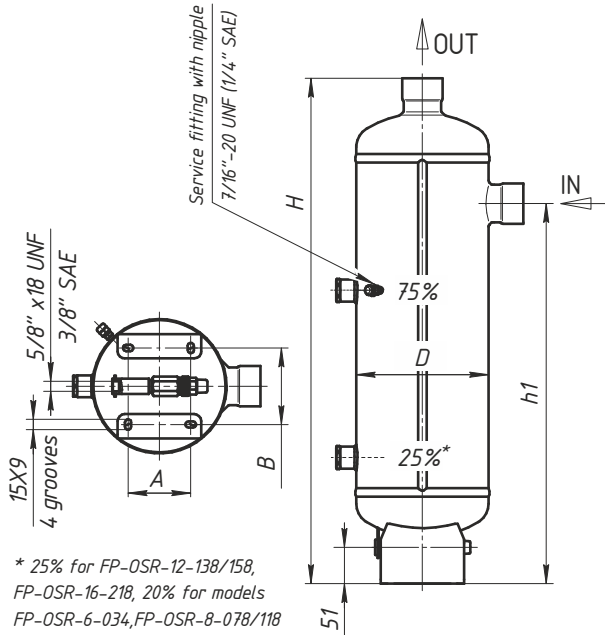


TABLE 5. Kit for oil separators for screw compressors

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

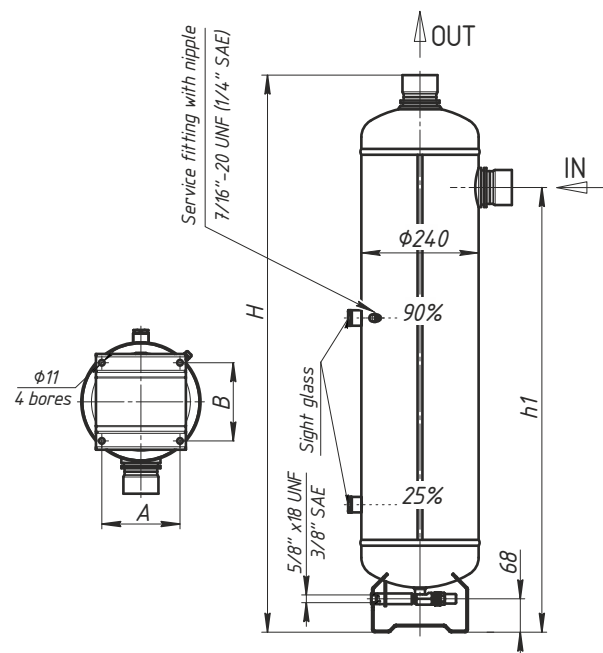
## Drawing 35.

Oil separators with oil receiver FP-OSR(MP)-6...16. Page 8



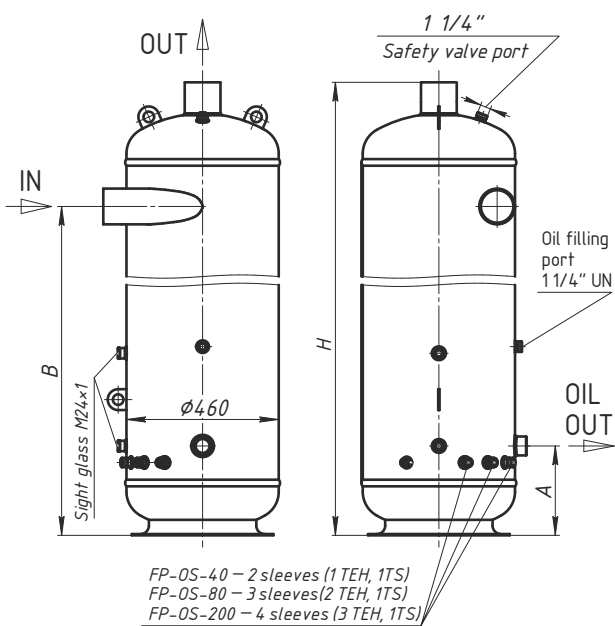
## Drawing 36.

Oil separators with oil receiver FP-OSR(MP)-40. Page 8



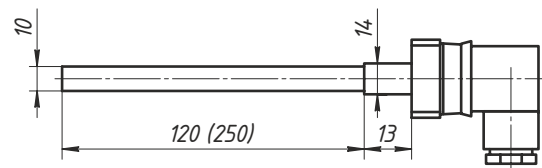
## Drawing 37.

The cyclone oil separators FP-OS-40...200. Page 9



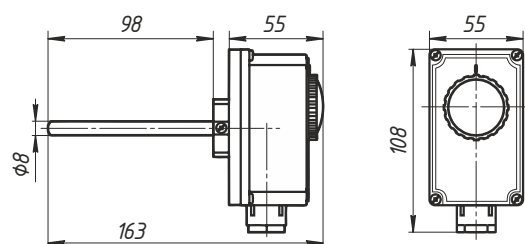
## Drawing 38.

Heaters FP-TEH. Page 7



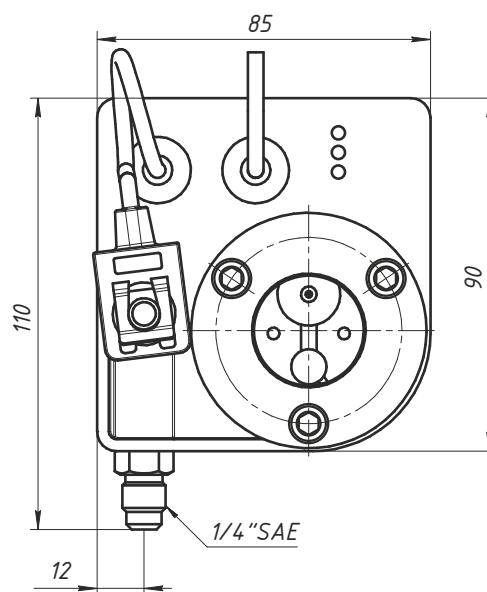
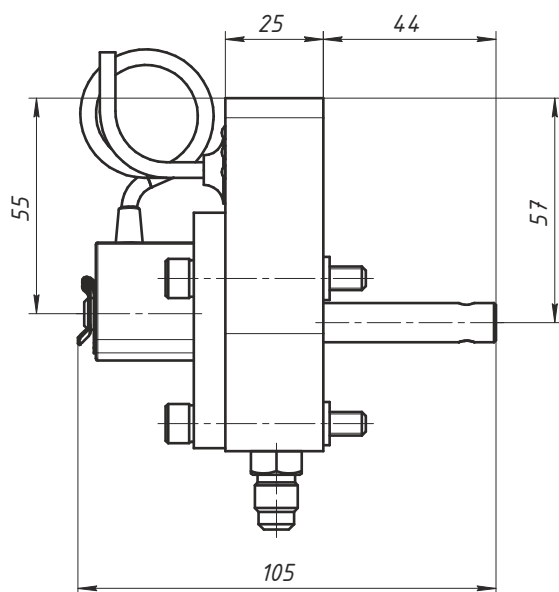
## Drawing 39.

Thermostats FP-TS. Page 7



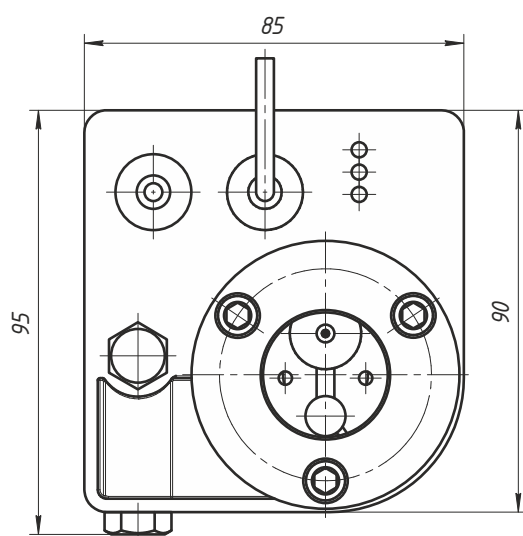
## Drawing 40.

Electronic oil level regulators FP-ERL4. Page 10



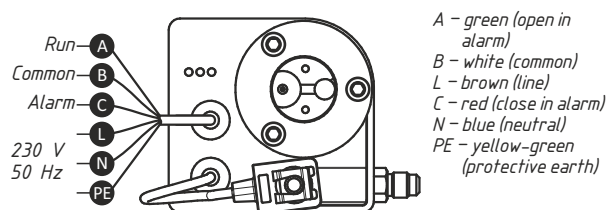
## Drawing 41.

Electronic level sensors FP-OLS2/ELS2. Page 11



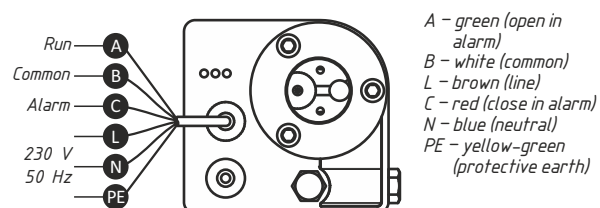
## Drawing 42.

Electrical connections FP-ERL4. Page 10



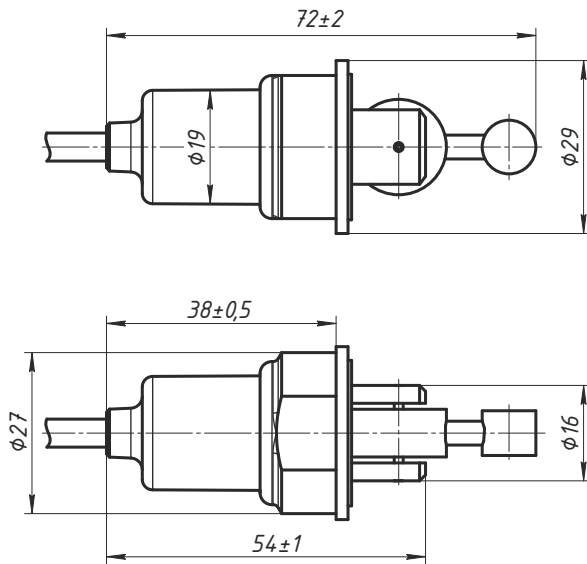
## Drawing 43.

Sensors OLS2/ELS2. Electrical connections. Page 11



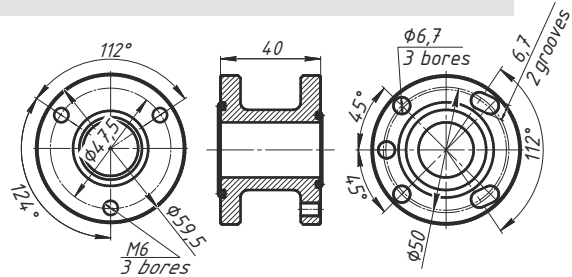
## Drawing 44.

Electronic level sensor FP-ELS-L. Page 12



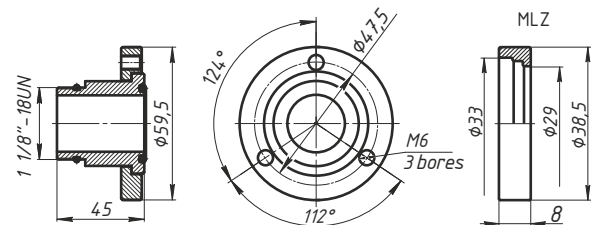
## Drawing 45.

Adapter FP-ERL-UA. Page 10



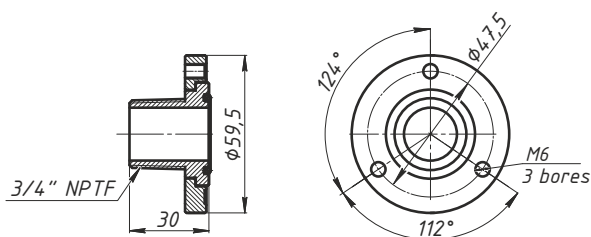
## Drawing 46.

Adapter FP-BBL(+MLZ). Page 8, 10, 11



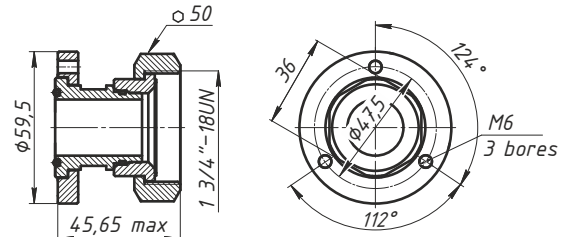
## Drawing 47.

Adapter FP-AA. Page 10



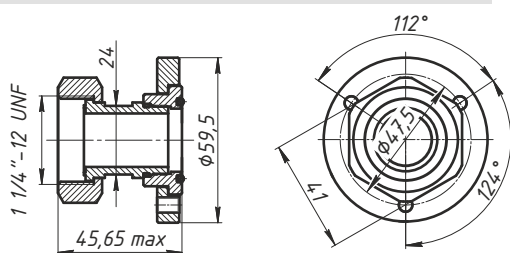
## Drawing 48.

Adapter FP-CD. Page 10



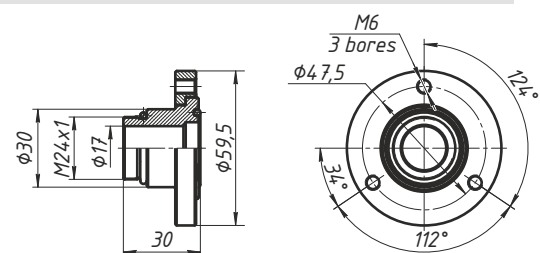
## Drawing 49.

Adapter FP-CE. Page 10, 13



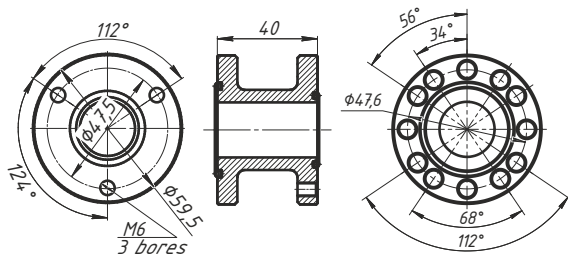
## Drawing 50.

Adapter FP-FA. Page 13



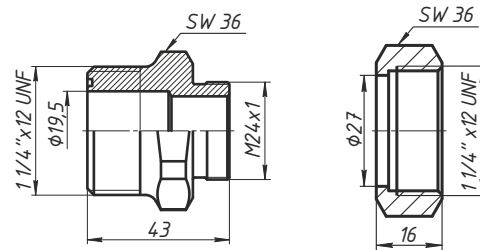
## Drawing 51.

Adapter FP-UD. Page 11



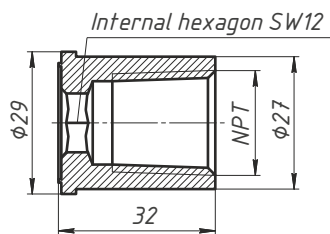
## Drawing 52.

Adapter FP-A-M24-114L. Page 13



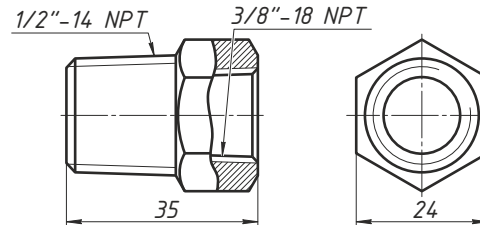
## Drawing 53.

Adapter FP-A-012; FP-A-038. Page 13



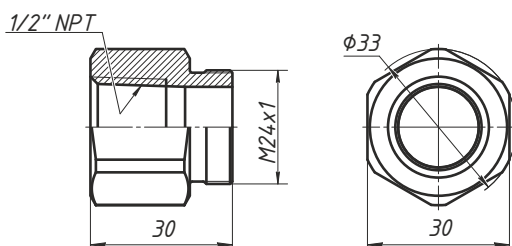
## Drawing 54.

Adapter FP-A-012/038. Page 13



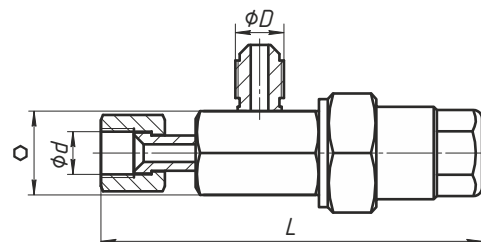
## Drawing 55.

Adapter FP-A-M24-012. Page 13



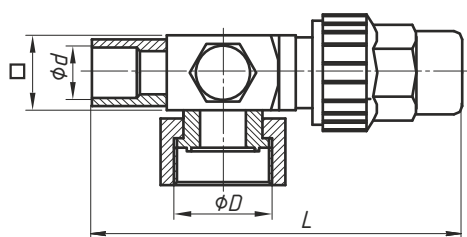
## Drawing 56.

Rotalock valves FP-RV-014SAE/038SAE. Page 14



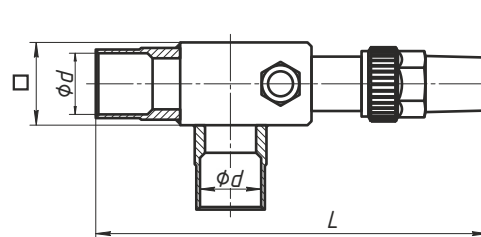
## Drawing 57.

Rotalock valves Page 14



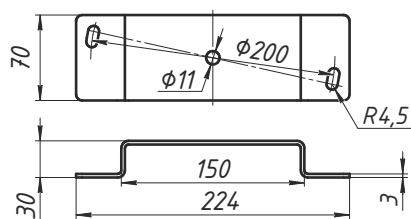
## Drawing 58.

Rotalock valves FP-RV-318-318. Page 14



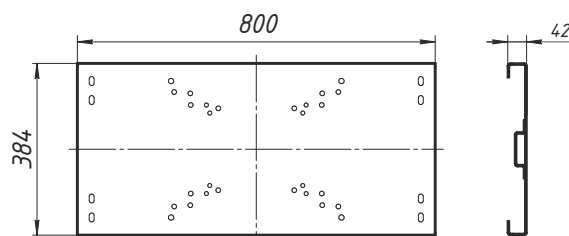
## Drawing 59.

Piedestal for receiver. Page 14



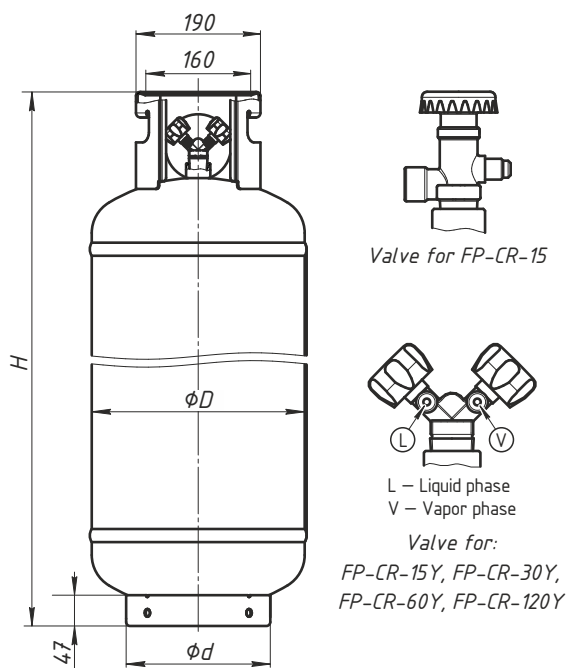
## Drawing 60.

Piedestal for horizontal receiver FP-ST-LRH. Page 14



## Drawing 61.

Refillable refrigerant cylinders. Page 16



## Drawing 62.

Special containers for transporting freons. Page 16

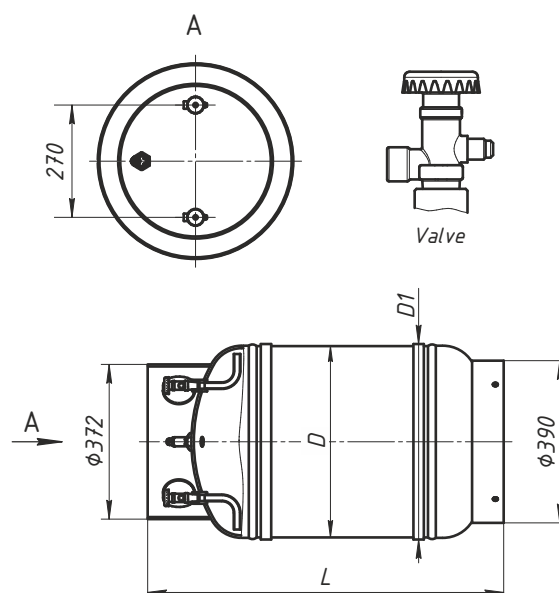


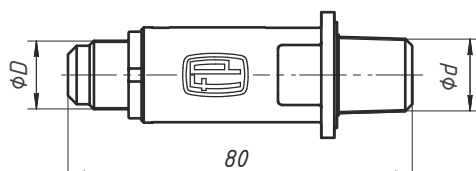
TABLE 5. Information about the mass of filling freon cylinders, kg

Model	R22	R134A	R404A	R407C	R410A	R507A
FP-CR-15	12,1	12,3	10,1	11,4	10,2	10,1
FP-CR-15Y	12,1	12,3	10,1	11,4	10,2	10,1
FP-CR-30Y	26,0	26,4	21,6	24,4	21,8	21,5
FP-CR-60Y	52,0	52,9	43,2	48,8	43,6	43,1
FP-CR-100	86,7	88,2	72,0	81,3	72,7	71,8
FP-CR-150	130,1	132,2	108,0	122,0	109,1	107,7
FP-CR-200	173,4	176,3	144,0	162,7	145,5	143,6
FP-CR-250	216,8	220,4	180,0	203,4	181,8	179,5

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

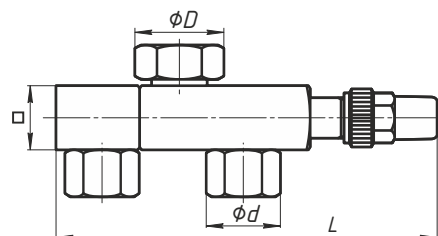
## Drawing 63

Safety valve FP-SV. Page 9



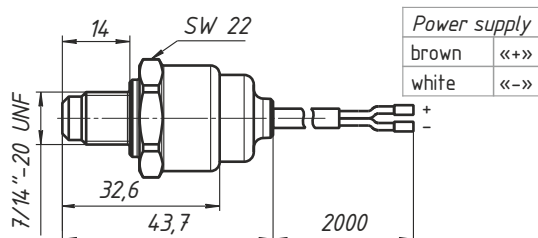
## Drawing 64.

Tee valves FP-TV. Page 9



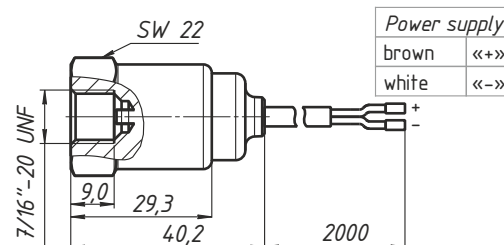
## Drawing 65.

Pressure sensors FP-PT-10A(W)/35A(W). Page 12



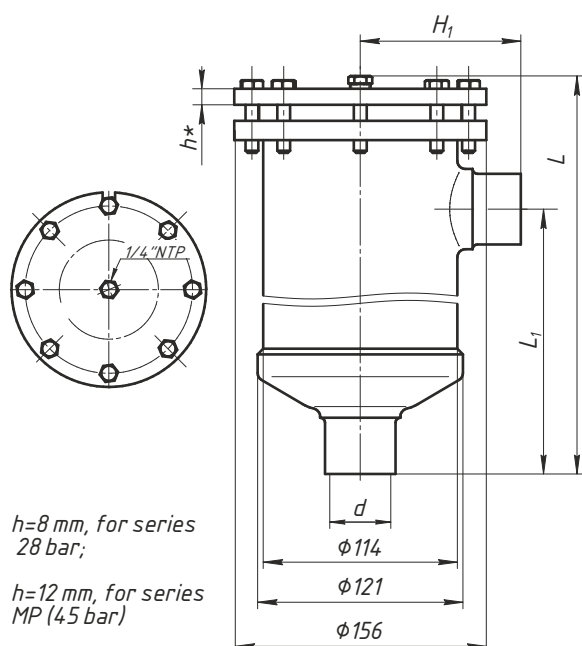
## Drawing 66.

Pressure sensors FP-PT-10B(W)/35B(W). Page 12



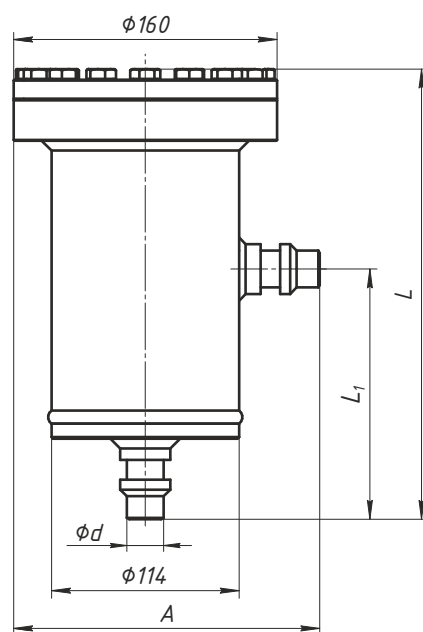
## Drawing 67.

Cases of filter dryers with replaceable solid core. Page 15



## Drawing 68.

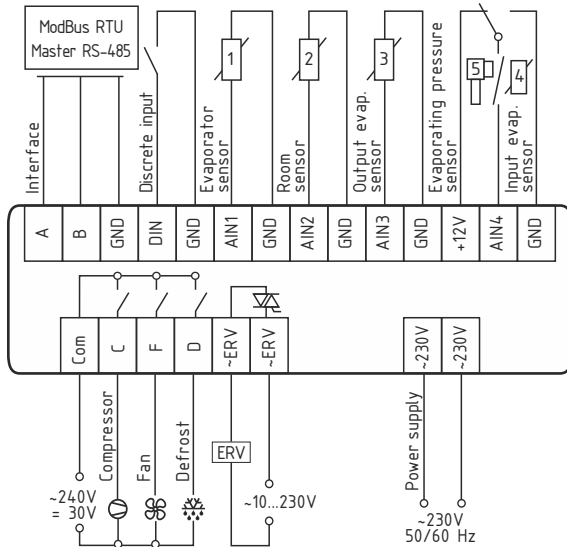
Cases of filter dryers with replaceable solid core. Page 15





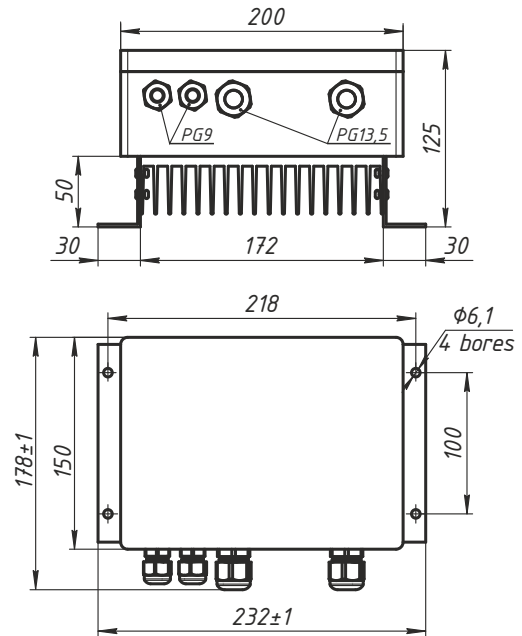
## Drawing 69.

Refrigeration controller FP-MC electrical conn. Page 16



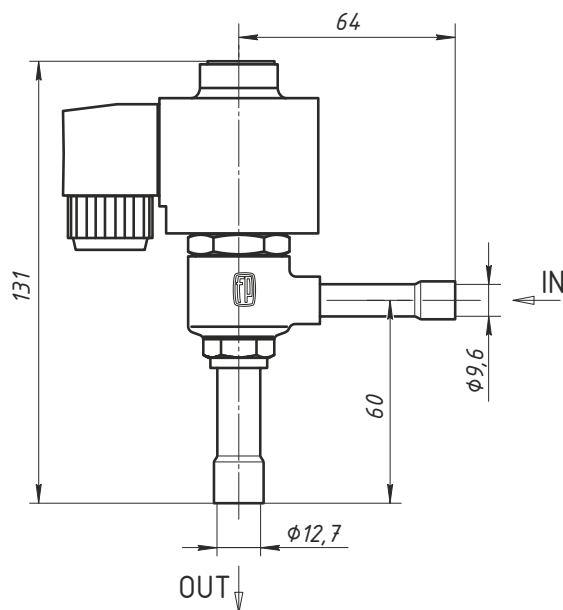
## Drawing 71.

Fan speed controller FP-FSR-8. Page 17



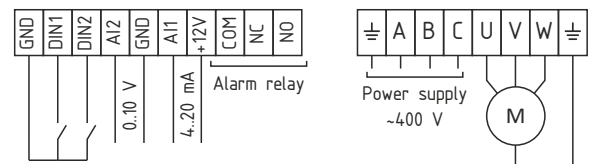
## Drawing 70.

Electronic expansion valves FP-ERV. Page 17



## Drawing 72.

Fan speed controller FP-FSR-8 electrical conn. Page 17



## Drawing 73.

Welded vibroeliminators FP-VA. Page 13

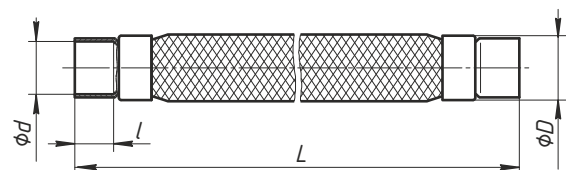


TABLE 7. Nominal capacity of the electronic expansion valves FP-ERV

Type	Nominal capacity*, kW						kv-value, m <sup>3</sup> /h	MOPD**, bar	
	R22	R134a	R404A/R507	R407C	R410A	R744		20 W	25 W
ERV-1	0.36	0.32	0.29	0.39	0.46	0.42	0.003	60	60
ERV-2	1.0	0.9	0.8	1.1	1.3	1.3	0.010	51	60
ERV-3	1.6	1.4	1.3	1.7	2.0	2.1	0.017	36	48
ERV-4	2.6	2.1	2.0	2.5	3.2	3.4	0.025	31	41
ERV-5	4.1	3.4	3.1	4.0	5.1	5.3	0.046	24	31
ERV-6	6.4	5.3	4.9	6.4	8.0	8.3	0.064	23	28
ERV-7	10.2	8.5	7.8	10.1	12.7	13.2	0.114	22	27
ERV-8	16.3	13.5	12.5	17.0	20.2	21.0	0.162	16	19

\* Capacities are specified under the following conditions: condensing temperature  $t_c=32\text{ }^{\circ}\text{C}$ , liquid temperature before EEV  $t_l=28\text{ }^{\circ}\text{C}$ , evaporation temperature  $t_e=5\text{ }^{\circ}\text{C}$ . The selection of ERV for design conditions is recommended to be carried out in the VesSel online service located at <http://frigopoint.com/ru/vessel/online>

\*\* Maximum operating differential pressure for the specified coil power (at AC230 supply voltage 50Hz)

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

*improve the best*



cooling  
technologies

Russia, Belgorod  
tel: +7 (4722) 23-12-70  
fax: +7 (4722) 56-99-09  
mob: +7-919-439-43-30  
internet: [www.frigopoint.com](http://www.frigopoint.com)  
email: [info@frigopoint.com](mailto:info@frigopoint.com)