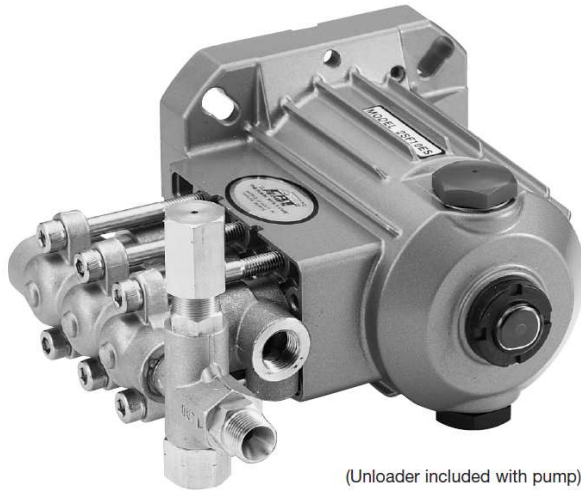




DIRECT-DRIVE PLUNGERPUMP MODEL



(Unloader included with pump)

Head
Brass

2SF09ES
2SF11ES
2SF13ES

Specifications

	2SF09ES	2SF11ES	2SF13ES	Brass
Pump specifications:				
Discharge Pressure	130	110	90	bar
Volume	9,0	11,0	13,0	l/min
RPM	2800	2800	2800	min ⁻¹
Stroke	4,6	5,8	6,8	mm
Bore	18	18	18	mm
Common Pump specifications:				
Crankcase Capacity	0,35			l
Max. Fluid Temperature *	71			°C max.
Max. Inlet Pressure	0,1 - 5,2			bar
Inlet Port (1)	3/8"			NPTF
Discharge Port (2)	3/8"			NPTF
Bypass Port (1)	1/4"			NPTF
Shaft Diameter, Hollow	24			mm
Weight	4,8			kg

* Above 71°C call CAT PUMPS for inlet conditions and elastomer recommendations.

PUMP FEATURES

- Ultimate portability - less than 11 pounds - less than 10" long.
- Unique spring loaded inlet valves and the flow through ceramic plungers provides a smooth, steady flow.
- Regulating Unloader is standard on each pump to assure system pressure control and pump protection.
- Special HT and FPM seals and FPM or EPDM O-Rings für liquid compatibility.

⚠ CAUTIONS AND WARNINGS

All High Pressure Systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. CAT PUMPS does not assume any liability or responsibility for the operation of a customer's high pressure system.

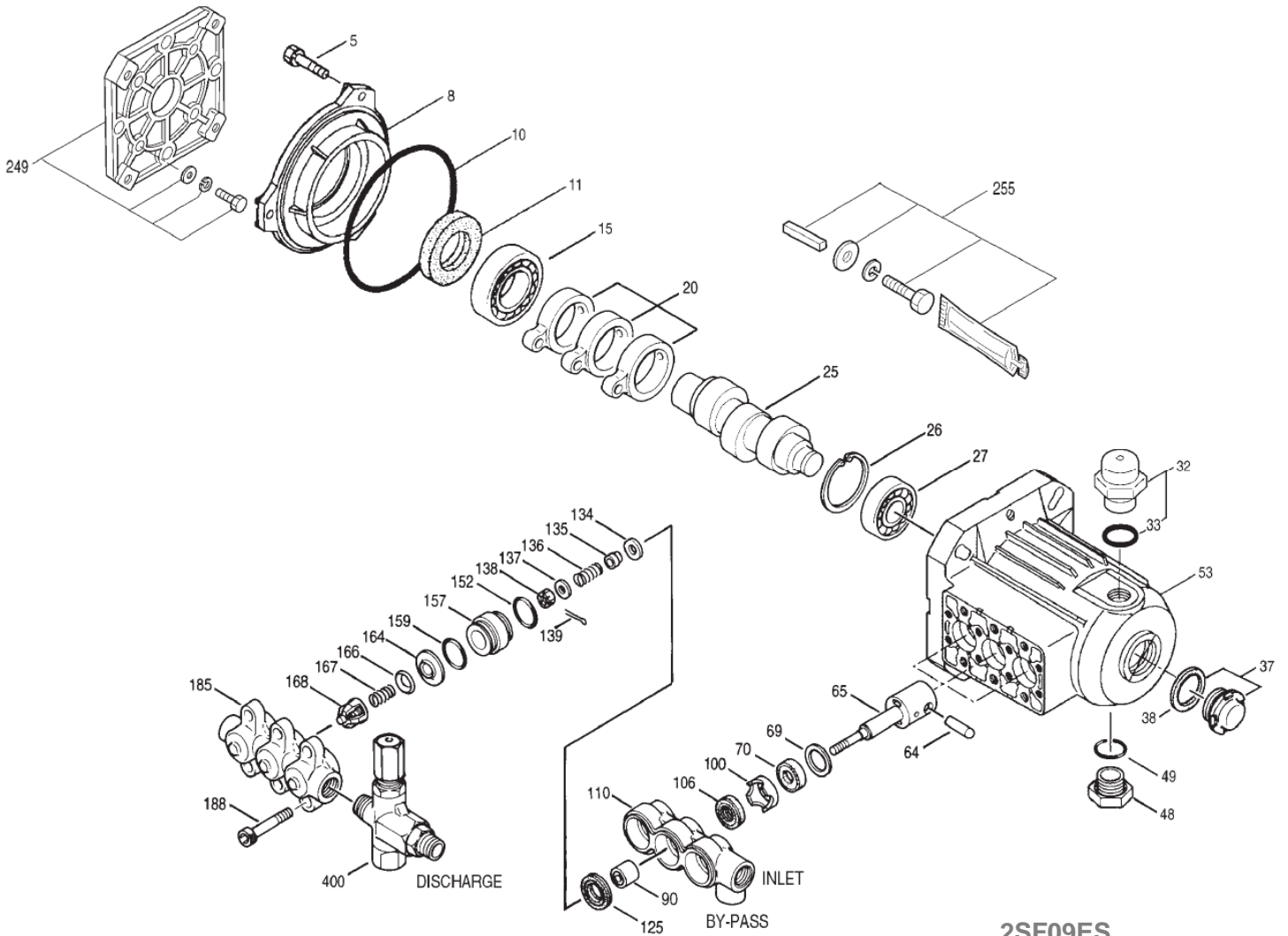
Read all CAUTIONS and WARNINGS before commencing service or operation of any high pressure system. The CAUTIONS and WARNINGS are included in each service manual and with each Accessory Data sheet. CAUTIONS and WARNINGS can also be viewed online at www.catpumps.com/cautions-warnings or can be requested directly from CAT PUMPS.

WARRANTY

View the Limited Warranty on-line at www.catpumps.com/warranty.

"Customer confidence is our greatest asset"

EXPLODED VIEW



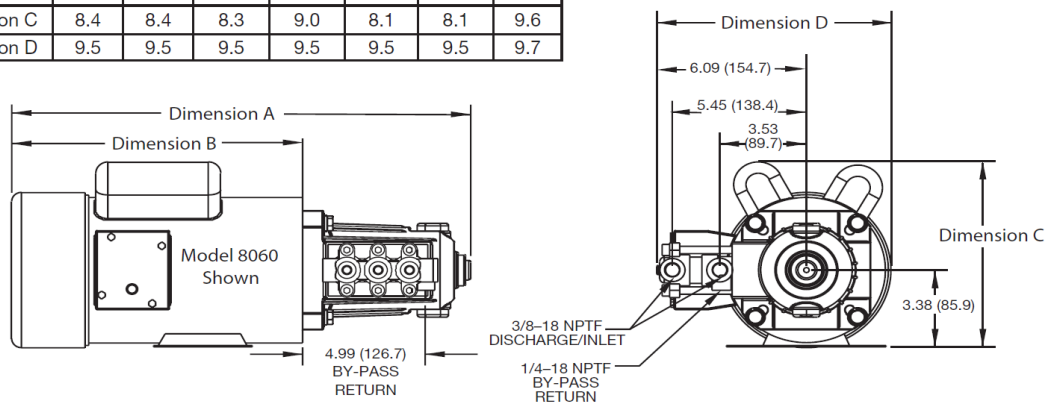
2SF09ES

2SF11ES

2SF13ES

2SF DIMENSIONAL DRAWING

MODEL	8050	8052	8055	8057	8060	8062	8125
Dimension A	18.2	18.2	20.0	18.7	18.7	19.2	19.1
Dimension B	11.3	11.3	13.1	11.8	11.8	12.3	12.2
Dimension C	8.4	8.4	8.3	9.0	8.1	8.1	9.6
Dimension D	9.5	9.5	9.5	9.5	9.5	9.5	9.7



PARTS LIST

ITEM	DESCRIPTION	PART-NUMBER	QTY
		2SF09ES	
		2SF11ES	
		2SF13ES	

each Pump

ITEM	DESCRIPTION	PART-NUMBER	QTY
		2SF09ES	
		2SF11ES	
		2SF13ES	

each Pump

ITEM	DESCRIPTION	PART-NUMBER	QTY
5	Screw	549360	3
6	Washer	150810	3
8	Cover, Bearing, Inner	540619	1
10	O-Ring, Bearing Cover, NBR	14044	1
11	Seal, Oil, NBR	540618	1
15	Bearing, inner	56110	1
20	Rod, Connecting	44863	3
25	Crankshaft 2SF09ES	540626	1
	Crankshaft 2SF11ES	540617	1
	Crankshaft 2SF13ES	540616	1
26	Ring, Retaining	12385	1
27	Bearing, Outer	15710	1
32	Cap, Oil Filler , w. O-Ring	45690	1
33	O-Ring, Oil Filler cap	14179	1
37	Gauge, Bubble Oil w. Gasket	92241	1
38	Gasket, Flat Flex, Oil Gauge	44428	1
48	Plug, Drain, 1/2" NPT	44842	1
49	O-Ring, Drain Plug	14179	1
53	Crankcase	547285	1
64	Pin, Crosshead	16948	3
65	Rod, Plunger	44865	3
69	Washer, M24	126259	3
70	Seal, Oil	25461	3
83	Retainer, Seal	44869	3
90	Plunger, Ceramik	45847	3
106	Seal, Low Pressure, NBR	44876	3
110	Manifold, Inlet	44874	1

ITEM	DESCRIPTION	PART-NUMBER	QTY
125	Seal, High Pressure, NBR	43245	3
134	Valve, Inlet	45854	3
135	Spacer, Inlet	549520	3
136	Spring, Inlet Valve	44872	3
137	Washer, conical, M6	88575	3
138	Nut, Slotted	27000	3
139	Cotterpin, M1,6x10	14158	3
152	O-Ring, Adapter, NBR	26089	3
157	Discharge Valve Adapter	44878	3
159	O-Ring, Adapter, outer, NBR	26089	3
164	Seat	44881	3
166	Valve	43723	3
167	Spring	541062	3
168	Retainer, Spring	44565	3
185	Manifold, Discharge	44879	1
188	Screw, HSH, M8x75	126762	6
255	Assy, Bolt Mount	30517	1
300*	Kit, Seal, NBR	34053	1
310*	Kit, Valve, NBR	34052	1
311*	Kit, Inlet Valve, NBR	34668	1
400	Unloader, Regulating, BB	7500S	1

* Kit # 300 Incls: 106; 125; 139; 152; 159

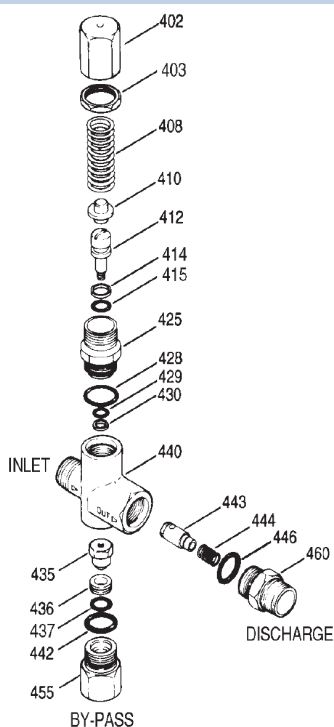
* Kit # 310 Incls: 152; 159; 164; 166-168

* Kit # 311 Incls: 134-137; 139; 152; 159

Italics are optional items.

subject to modifications
Rev.-No.: 1a Date: 17.04.2012 (JF)

UNLOADER REGULATING (ITEM 400)



ITEM	DESCRIPTION	PARTS-NUMBER	QTY
each Valve			
7500S			

402	Cap, Hex Adjusting, BB	540081	1
403	Nut, Look, M18x1, BB	31047	1
408	Spring, Pressure, STZP	32094	1
410	Retainer, Spring, BB	107672	1
412	Stem, Piston, M5	45694	1
414	Back-up-Ring, Piston Stem, PTFE	20184	1
415	O-Ring, Piston Stem, NBR	14190	1
	<i>O-Ring, Piston Stem, FPM</i>	14161	1
425	Retainer, Piston, BB	107673	1
428	O-Ring, Piston Retainer, NBR	13969	1
	<i>O-Ring, Piston Retainer, FPM</i>	14320	1
429	O-Ring, Body, NBR	14759	1
	<i>O-Ring, Body, FPM</i>	14160	1
430	Back-up-Ring, Body, PTFE	107675	1
435	Valve and Ball, Assembly, M5	45696	1
436	Seat	107680	1
437	O-Ring, Seat, NBR	13963	1
	<i>O-Ring, Seat, FPM</i>	14303	1
440	Body, BB	—	1
442	O-Ring, Bypass Fitting, NBR	13969	1
	<i>O-Ring, Bypass Fitting, FPM</i>	14320	1
443	Valve, Check w. O-Ring	541060	1
444	Spring	45924	1
446	O-Ring, Discharge Fitting, NBR	13969	1
	<i>O-Ring, Discharge Fitting, FPM</i>	14320	1
455	Fitting, Bypass, 3/8"NPTF, SS	45695	1
460	Fitting, Discharge, 3/8"NPTM, SS	107681	1
468	Kit, O-Ring, NBR Incls: 414, 415, 428, 429, 430, 437, 442, 446	32097	1
	Kit, O-Ring, FPM Incls: 414, 415, 428, 429, 430, 437, 442, 446	31627	1

Italics are optional items.

SPECIFICATIONS

Flow Range	1,9 - 23,0 L/min
Pressure Range	7 - 140 bar
Max. Temperature	88 °C
Inlet Port (rear)	3/8" NPTM
Discharge Port (front)	M18x1,0
By-Pass Port (bottom)	3/8" NPTF
Weight	410 g
Dimensions (L x W x H)	76 x 25 x 108 mm

UNLOADER TYPE

Each pump comes with a pressure sensitive regulating unloader. This unloader will set system pressure. While in by-pass the line pressure will drop to a low pressure mode and then quickly build up to set system pressure when the system is back to full use.

INSTALLATION AND START-UP

Install a pressure gauge close to the manifold head of the pump to assist in setting system pressure and to periodically monitor system pressure.

By-pass line can be directed to the ground, or to a reservoir or be redirected to the 1/4"NPTF port on bottom side of inlet manifold. If routing to pump inlet use a 3/8" flexible hose and thermo valve.

NOTE: If not using a thermo valve **DO NOT EXCEED 6 MINUTES** in by-pass.

NOTE: For Hi-Temp seal pumps **DO NOT USE THERMO VALVE**, use optional dual pressure switches and mechanical relays.

Pump should be purged of air before commencing with operation. Liquid must flow through the pump without discharge restriction to assure full system pressure is reached.

Setting and adjusting the unloader pressure must be done with the system turned on. Start the system with the unloader backed off to the lowest pressure setting (counterclockwise direction). Squeeze the trigger and read the pressure on the gauge at the pump. Do not read pressure at the gun or nozzle. If more pressure is desired, release the trigger, turn adjusting cap one quarter turn in a clockwise direction. Squeeze the trigger and read the pressure. Repeat this process until the desired system pressure is reached. Thread locking nut up to adjusting cap.

NOTE: Pressure is not set at the factory.

SERVICE

The unloader should be serviced on the same schedule as the seals in the pump. Refer to SF Plunger Pump Service Manual for start-up, servicing of seals and valves, torque requirements and diagnosis and maintenance chart.

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