A2F Fixed Displacement Pump/Motor

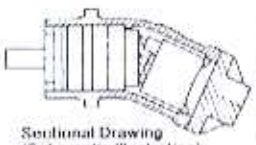
For detailed technical documentation, see Pamphlet A2F, Catalog Register 1

Short Designation

1. Pump/Motor Type	2. Size	3. Direction of Rotation	4. Series	5. Shaft End
A2F	55	r	1	P

Fixed Displacement Pump/Motor **A2F**

Product Group A2



Sectional Drawing (Schematic Illustration)

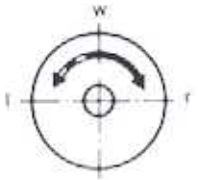
Sizes 10–225

Sizes 379–915

(9,4 cm³/rev.)	10
(11,6 cm³/rev.)	12*
(22,7 cm³/rev.)	23
(28,1 cm³/rev.)	28*
(44,3 cm³/rev.)	45
(54,8 cm³/rev.)	55*
(63,0 cm³/rev.)	63
(80,0 cm³/rev.)	80*
(86,5 cm³/rev.)	87
(107 cm³/rev.)	107*
(125 cm³/rev.)	125
(160 cm³/rev.)	160*
(182 cm³/rev.)	182
(225 cm³/rev.)	225*
(379 cm³/rev.)	379
(468 cm³/rev.)	468*
(740 cm³/rev.)	740
(915 cm³/rev.)	915*

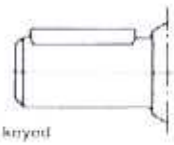
viewed at shaft end

clockwise	r
anti-clockwise	l
bidirectional (not for open circuit)	w

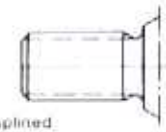


Series	1
Series	2
Series	3
Series	4

keyed	P
splined	Z



keyed



splined

Ordering Example

A2F 55/r 1 P 1
Fixed Displacement Motor A2F size 55, clockwise rotation, series 1, keyed shaft, port plate 1

* preferred sizes

The Axial Piston unit of the product group A2 with fixed displacement can operate either as a Hydro-pump or as a Hydro-motor.

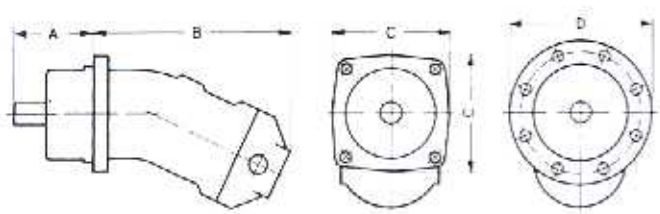
If used as a pump, the flow is proportional to the input speed and to the displacement.

If used as a motor, the output speed is proportional to the consumption capacity and vice versa proportional to the displacement.

The output torque increases with the differential pressure (Δp) between the high and low pressure side.

Sizes (sizes in heavy print preferred)

Size	Dim.
Displacement V_g [3]	cm³/rev.
Torque constant [4]	kpm/bar
	Nm/bar
Maximum speed in closed circuit n_{max}	min⁻¹
Maximum speed in open circuit n_{oc} [1]	min⁻¹
Moment of inertia J	kg m²



Dimensions [mm] **and weights** [kg] (approx. values)

Size	10 **12**	23 **28**	45 **55**	63 **80**	87 **107**	125 **160**	182 **225**	379 **468**	740 **915**
A	80	100	123	102	160	130	200	222	275
B	155	196	261	350	320	422	393	497	624
C	95	118	150	165	190	210	236	–	–
D	–	–	–	–	–	–	–	400	500
kg	5	12	23	33	44	63	88	215	408

Table of Values (theoretical values without considering η_{mh}

Size	Dim.
Electric Motor speed	min⁻¹
Flow at Electric Motor Speed	l/min
Power at Electric Motor Speed and Δp = 320 bar	kW
Consumption/Flow rate at speed n_{max}	l/min
Power at speed n_{max} and Δp = 320 bar	kW
Flow at speed n_{oc} [2]	l/min
Power at speed n_{oc} and Δp = 320 bar	kW
Torque [4] at Δp = 320 bar	kpm
	Nm

[1] The values are valid providing there is an absolute pressure of 1 bar (overpressure = 0) on the suction inlet S and when operated on mineral oil.

6. Port Plate

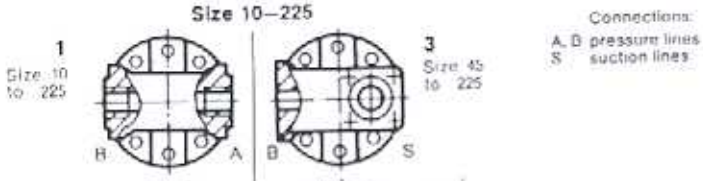
1

Port Plate	1
Port Plate	2
Port Plate	3
Port Plate	4

Use of Port Plates for

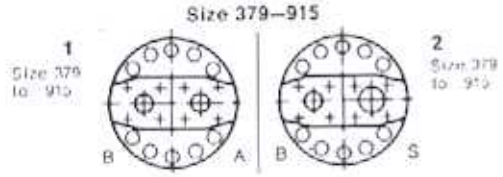
Motor operation | **Pump operation** (open circuit)

Size 10–225



Connections:
A, B pressure lines
S suction lines

Size 379–915



Assignment of the series, shaft ends and port plates to the sizes

Series		4		3		1		2		1		2		1		2		2	
Sizes		10	12	23	28	45	55	63	80	87	107	125	160	182	225	379	468	740	915
Port Plate Number	1	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P	P	P	P
	2					P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P	P	P	P
	3					P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z	P/Z				
	4	P/Z	P/Z	P/Z	P/Z														

10	12	23	28	45	55	63	80	87	107	125	160	182	225	379	468	740	915
9,4	11,6	22,7	28,1	44,3	54,8	63	80	86,5	107	125	160	182	225	379	468	740	915
0,0153	0,0188	0,0367	0,0455	0,0719	0,0887	0,102	0,130	1,140	0,173	0,202	0,259	0,295	0,364	0,614	0,758	1,204	1,482
0,1501	0,1844	0,3600	0,4463	0,7053	0,8701	1,001	1,275	1,373	1,697	1,982	2,541	2,894	3,571	6,023	7,436	11,81	14,54
6000	6000	4750	4750	3750	3750	3350	3350	3000	3000	2650	2650	2360	2360	1900	1900	1500	1500
5000	4000	4000	3000	3000	2500	2700	2240	2500	2000	2240	1750	2000	1500	1500	1200	1200	1000
0,0004	0,0004	0,0017	0,0017	0,0052	0,0052	0,0109	0,0109	0,0167	0,0167	0,0322	0,0322	0,0532	0,0532	0,225	0,225	0,702	0,702

and η_v)

10	12	23	28	45	55	63	80	87	107	125	160	182	225	379	468	740	915
1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	970	970	970
13,6	16,8	32,9	40,7	64,2	79,5	91,4	116	125	155	181	232	264	326	550	454	718	888
7,27	9,0	17,5	21,7	34,3	42,4	48,7	61,9	66,9	82,7	96,5	123,7	141	174	293	242	383	473
56,4	69,6	108	133,5	166	206	211	268	259	321	331	424	429	531	720	889	1110	1372
30,1	37,1	57,5	71	88,6	110	112,6	143	138	171	176	226	229	282	384	474	592	732
5,6	45	88	81,8	129	133	165	174	210	208	272	272	353	327	551	545	861	888
24,3	24	47	43,6	68,8	71	88	93	112	111	145	145	188	175	294	290	459	473
4,9	6	11,7	14,6	23	28,4	32,6	41,6	44,8	55,4	64,6	82,9	94,4	116	196	243	385	474
48	59	115	143	226	278	320	408	439	543	634	813	926	1143	1927	2380	3779	4653

*) 3 % displacement losses included.
*) In open circuit, V_g is 3 % less.

*) Without considering η_{mh}.