



Technical Catalogue



FROYS Series

Hydraulic Diaphragm Metering Pump

FROYS series hydraulic diaphragm metering pump

Main performance parameters

Maximum flow: 329L/h
 Maximum discharge pressure: 211bar
 Adjustment range: 30%-100%
 Steady state accuracy: $\pm 1\%$
 Suction lifting height can reach 3m water column

Main features
Driving question

Unique eccentric sick wheel integrated structure.
 Compact mechanism and accurate stroke, the installation space of the equipment the same as that of the small. Equipped with dark ball bearing to make the work more stable. The oil dissolves and smells clear, and the moving parts have a long working life. The liquid volume can be adjusted during shutdown or passage. The adjustment method can be set to manual support.

Liquid end

In the form of bypass oil replenishment.
 Hydraulically driven diaphragm, longer diaphragm life.
 A built-in adjustable safety valve automatically protects the diaphragm and pump head from overpressure damage. The high-precision one-way valve structure ensures accurate dosing of materials.
 PVC, PVDF, 316SS, Harkin 20, Hastelloy, etc. A variety of pump head materials are available, suitable for transporting various materials. Optional pressure-type double diaphragm detection (local / remote) alarm.

Main Application

Environmental protection, petrochemical industry, chemical industry, oil refining, electric power, metallurgy, medicine, food and water treatment and other fields.


Material of main components of liquid end

liquid end	Pump head	valve body	valve seat	A ball	diaphragm	sealing ring	spring
PVC	PVC	PVC	PVDF	Alumina	PTFE	FPM/EPDM*/Perfluoroether*	-----
PVDF	PVDF	PVDF	PVDF	Alumina	PTFE	FPM/EPDM*/Perfluoroether*	-----
316SS	316SS	316SS	316SS	Alumina	PTFE	FPM/EPDM*/Perfluoroether*	Hastelloy C276
Hacking 20	Hacking 20	Hacking 20	Hacking 20	Hacking 20	PTFE	FPM/EPDM*/Perfluoroether*	Hastelloy C276
Hastelloy C22	Hastelloy C22	Hastelloy C22	Hastelloy C22	Hastelloy C22	PTFE	FPM/EPDM*/Perfluoroether*	Hastelloy C276

Attachment Annex

Filterable accessories such as filters, swimming limiters, safety belts, and back pressure sensors.

FROYS series hydraulic diaphragm metering pump model definition

series ☐ flow ☐ liquid end ☐ pressure ☐ Motor ☐ interface ☐ adjust ☐ Base ☐

Series	Plunger diameter	Stroke length	Model	speed ratio	Number of strokes (min³)	Maximum viscosity cp	Metal pump head (L/h)					Plastic pump head (L/h)				Motor
							7bar	14bar	20bar	24bar			7bar	10bar		
RAS	7/16" (Φ11.1mm)	20.8 mm	RAS002	1:48	30	1760	2.3	2.2	2.1	2.0			2.2	2.0	0.25kW	
			RAS008	2:30	96	310	7.9	7.7	7.3	7.2			7.7	7.5		
	5/8"(Φ15.9mm)		RAS005	1:48	30	1760	5.0	4.7	4.5	4.4			4.7	4.5	0.37kW	
	1-1/16" (Φ27.0mm)		RAS020	1:48	30	150	19	19	18	17			18	18		
			RAS040	2:48	60	75	39	38	36	36			36	35		
			RAS060	2:30	96	40	61	60	58	57			57	57		
			RAS090	4:38	152	35	94	91	----	----			92	91		
			RAS120	4:32	178	30	116	112	----	----			114	112		
						7bar	17bar	24bar	28bar	67bar	103bar	7bar	10bar			
RBS	19/32" (Φ15.1mm)	40.6 mm	RBS020	2:50	60	102	22	22	21	21	19	18	----	----	0.75kW	
			RBS030	2:38	80	74	30	29	28	28	22	22	----	----		
			RBS040	4:50	120	44	42	40	40	40	38	36	----	----		
			RBS050	4:38	152	38	55	54	53	53	49	47	----	----		
	7/8" (Φ22.2mm)		RBS070	2:38	80	169	66	64	62	61	50	----	66	66	1.1kW	
			RBS090	4:50	120	114	96	94	92	91	80	----	96	95		
			RBS120	4:38	152	88	125	122	120	119	105	----	125	124		
	1-7/16" (Φ36.5mm)		RBS180	2:38	80	58	179	171	166	160	----	----	179	176		
			RBS270	4:50	120	34	267	259	254	248	----	----	267	264		
			RBS330	4:38	152	26	329	318	310	303	----	----	329	326		
						7bar	28bar	55bar	83bar	103bar	124bar					
RHS	7/16" (Φ11.1mm)	20.8 mm	RHS002	1:77	19	2660	1.8	1.7	1.6	1.4	1.4	1.2			0.25kW	
			RHS003	1:48	30	1760	2.5	2.2	1.9	1.9	1.9	1.9				
			RHS005	2:48	60	720	5.3	5.0	4.7	4.4	4.1	3.8				
			RHS009	2:30	96	310	8.8	8.2	7.9	7.2	6.6	6.3				
			RHS014	4:38	152	210	14.0	12.9	12.6	11.4	10.4	9.7				
			RHS015	4:32	178	180	17.0	15.8	15.4	13.9	12.7	12.0				
						7bar	14bar	20bar	24bar							
RPS	7/16" (Φ11.1mm)	20.8 mm	RPS001	1:77	19	12200	1.6	1.6	1.5	1.5					0.25kW	
			RPS002	1:48	30	7500	2.3	2.2	2.1	2.0						
			RPS008	2:30	96	2000	7.9	7.7	7.3	7.2						
	5/8" (Φ15.9mm)		RPS005	1:48	30	5000	5.0	4.7	4.5	4.4						
			RPS011	2:48	60	2500	11.0	10.7	10.3	10.0						
			RPS015	2:30	96	1250	17.6	17.0	16.7	16.0						
			RPS020	4:50	120	600	21.9	21.1	20.7	19.9						
	1-1/16" (Φ27.0mm)		RPS035	2:48	60	1000	34.6	33.9	32.1	31.1						
			RPS050	2:30	96	500	55.0	54.4	52.2	50.9						
			RPS070	4:50	120	300	68.4	67.6	64.9	63.3						
						140bar	175bar	211bar								
RTS	11/32" (Φ8.7mm)	20.8 mm	RTS001	1:48	30	1760	1.4	1.3	1.2						0.55kW	
			RTS002	2:48	60	700	2.8	2.5	2.3							
			RTS004	2:30	96	337	4.3	4.0	3.8							
			RTS006	4:38	152	143	6.8	6.4	6.0							
			RTS007	4:32	180	95	8.1	7.6	7.1							
RWS	1/2" (Φ12.7mm)	40.6 mm	RWS008	1:38	40	650	8.8	8.4	7.8						1.1kW	
			RWS012	2:50	60	285	13.5	12.6	11.9							
			RWS015	2:38	80	160	18.3	17.0	15.8						1.5kW	
			RWS025	4:50	120	43	29.0	27.1	25.2							
			RWS030	4:38	152	41	34.1	31.9	29.7							

Liquid end

coding	describe	series					
		RAS	RBS	RHS	RPS	RTS	RWS
S	316SS	Y	Y	Y	Y	Y	Y
A	Alloy20	Y	Y	Y	Y	-----	-----
B	Alloy22	Y	-----	-----	-----	-----	-----
P	PVC	Y■	Y■	-----	-----	-----	-----
T	PVDF	Y■	Y■	-----	-----	-----	-----
Z	for liquid ends made of special materials, please consult the factory and specify when ordering						

the plastic liquid end can with stand a maximum pressure of 50bar Y: standard configuration

Pressure

coding	007	010	014	017	020	024	028	055	067	083	103	124	140	175	211
describe	7bar	10bar	14bar	17bar	20bar	24bar	28bar	55bar	67bar	83bar	103bar	124bar	140bar	175bar	211bar

Motor

coding	describe	coding	describe	RAS	RBS	RHS	RPS	RTS	RWS	remark
Ordinary motor	A IEC71, 0.25kW	Explosion proof motor	S IEC71, 0.37kW, ExdIIBT4	Y	----	Y	Y	----	----	3-50-380V 1425rpm IP55/F TEFC B5
	P IEC71, 0.37kW		G IEC71, 0.25kW, ExdIIBT4	Y	----	Y	Y	----	----	
	B API, IEC71, 0.25kW		H API, IEC71, 0.25kW, ExdIIBT4	Y	----	Y	Y	----	----	
	Q API, IEC71, 0.37kW		T API, IEC71, 0.37kW, ExdIIBT4	Y	----	Y	Y	----	----	
	C API, IEC80, 0.55kW		J API, IEC80, 0.55kW, ExdIIBT4	----	Y	----	----	Y	----	
	D API, IEC80, 0.75kW		K API, IEC80, 0.75kW, ExdIIBT4	----	Y	----	----	----	----	
	E API, IEC90, 1.1kW		L API, IEC90, 1.1kW, ExdIIBT4	----	Y	----	----	----	Y	
F	API, IEC90, 1.5kW	M	API, IEC90, 1.5kW, ExdIIBT4	----	----	----	----	----	Y	
X	For other motors, please consult the factory									Special motor

Y: standard configuration

Connector

coding	describe	RAS	RBS	RHS	RPS	RTS	RWS	remark
1	Inlet: NPT1/2" internal thread; Export: RAS020-120, RBS020-050, RPS, RWS, NPT1/4" internal thread, RBS070-330, NPT3/8" internal thread	Y	Y	Y	Y	Y	Y	Metal pump head
2	Inlet: ANSI 150#RF1/2" socket welding flange; Outlet: ANSI 150#RF1/2" socket welding flange	Y	Y	Y	Y	----	----	
3	Inlet: ANSI 150#RF1/2" socket welding flange; Outlet: ANSI 300#RF1/2" socket welding flange	Y	Y	Y	Y	----	----	
4	Inlet: ANSI 150#RF1/2" socket welding flange; Outlet: ANSI 600#RF1/2" socket welding flange	----	Y	Y	----	----	----	
5	Inlet: ANSI 150#RF1/2" socket welding flange; Outlet: ANSI 900#RF1/2" socket welding flange	----	----	Y	----	Y	Y	
6	Inlet: ANSI 150#RF1/2" socket welding flange; Outlet: ANSI 1500#RF1/2" socket welding flange	----	----	----	----	Y	Y	
7	Inlet: NPT1/2" internal thread; Outlet: NPT3/8" internal thread	Y	Y	----	----	----	----	Plastic pump head
8	RAS002-008; Inlet: NPT1/4" internal thread; Outlet: NPT1/4" internal thread	Y	----	Y	----	Y	----	Metal pump head
9	Please consult the factory and specify when ordering							special interface

Y: standard configuration

Regulate

coding	describe	RAS	RBS	RHS	RPS	RTS	RWS
M	Manual stroke adjustment-2A12	Y	Y	Y	Y	Y	Y
S	Manual stroke adjustment-316SS	Y	Y	Y	Y	Y	Y
V	Electric frequency conversion speed regulation 4-20mA	Y	Y	Y	Y	Y	Y

Y: standard configuration

Find

coding	describe	RAS	RBS	RHS	RPS	RTS	RWS	remark
N	none	Y	Y	Y	Y	Y	Y	Non-metallic pump head No detection selection
B	Diaphragm rupture detection and pressure gauge	Y	Y	*	Y	---	---	
C	Diaphragm rupture detection and pressure gauge, pressure switch (including base)	Y	Y	*	Y	---	---	
D	Diaphragm rupture detection and pressure gauge, explosion-proof pressure switch (including base)	Y	Y	*	Y	---	---	

*: RHS005, 009, 014, 015 can choose diaphragm rupture detection, flow attenuation 10% Y: Standard configuration

Find

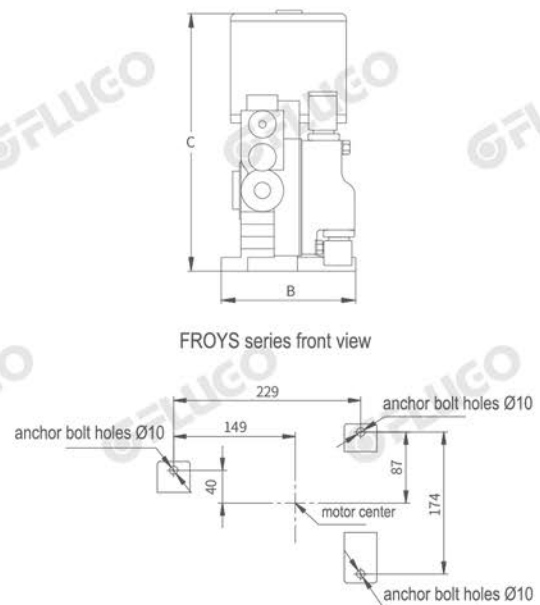
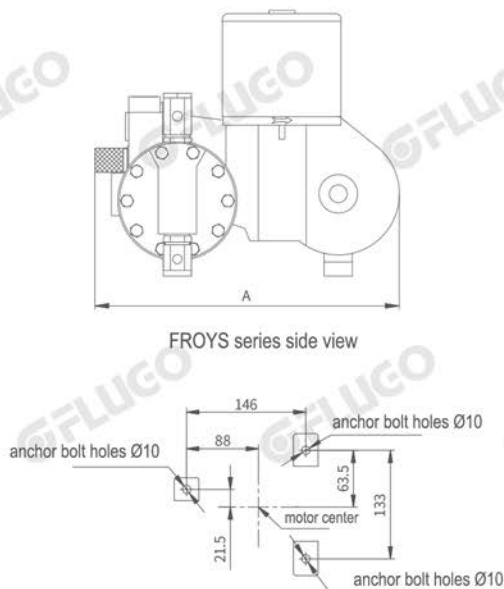
coding	describe	RAS	RBS	RHS	RPS	RTS	RWS
N	no-base	Y	Y	Y	Y	Y	Y
Y	with-base	Y	Y	Y	Y	---	---

Y: standard configuration

Series

coding	describe
RAS	7/16", 5/8", 1-1/16" plunger, low pressure, flow rate up to 116L/h, pressure up to 24bar
RBS	19/32", 7/8", 1-7/16" plunger, flow rate up to 329L/h, pressure up to 103bar
RHS	7/16" plunger, high pressure, flow rate up to 17L/h, pressure up to 124bar
RPS	7/16", 5/8", 1-1/16" plungers, high viscosity applications, flow rate up to 68L/h, pressure up to 24bar
RTS	11/32" plunger, flow rate up to 7.1L/h, pressure up to 211bar
RWS	1/2" plunger, flow rate up to 30L/h, pressure up to 211bar

FROY Series Dimensions



FROY Installation Dimensions

coding	A(mm)	B(mm)	C(mm)
RAS, RHS, RPS, RTS	304	174	392
RBS	481	195	610
RWS	481	195	667



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Authorized Distributor