WOMA®

Water as a tool
for a clean environment

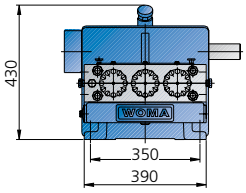
Ultra-High Pressure Plunger Pumps

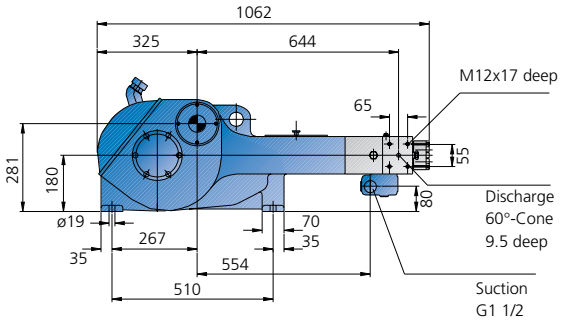
Z-Line (up to 2000 bar)

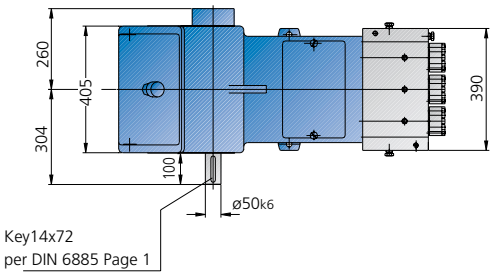
150 Z
180 Z
225 Z
325 Z

Technical Data

High-Pressure Plunger Pump Type 150 Z







All dimensions in mm
Thread "M" as per DIN 13/ISO 261
Thread "G" as per DIN ISO 228/1

Performance Chart Pump Type 150 Z-2000

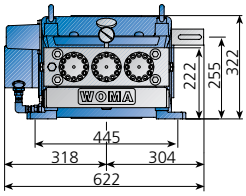
Plunger diameter (mm)	Gear ratio Pinion shaft (Rpm) 1,500	1,800	2,100	Crank shaft (Rpm)	Required drive (kW)	Nominal flow rate USG pm	IMPG pm	l/min	Max. permissible operating pressure (psi/bar)
P12		4.57		393	41	2.9	2.4	11	29,000/2,000
	3.69			406	42	2.9	2.4	11	
	4.57			328	34	2.4	2.0	9	
P14		4.57		393	56	3.9	3.3	15	29,000/2,000
	3.69			406	58	4.2	3.5	16	
	4.57			328	46	3.4	2.8	13	
P16		4.57		393	73	5.3	4.4	20	29,000/2,000
	3.69			406	75	5.5	4.6	21	
	4.57			328	61	4.2	3.5	16	
P18			4.57	460	87	7.9	6.6	30	22,800/1,570
		3.69		487	92	8.4	7.1	32	
		4.57		393	74	6.8	5.7	26	
	2.96			506	96	8.7	7.2	33	
	3.69			406	77	7.1	5.9	27	
	4.57			328	62	5.5	4.6	21	
P19			4.57	460	88	8.9	7.5	34	20,300/1,400
		3.69		487	93	9.5	7.9	36	
		4.57		393	75	7.6	6.4	29	
	2.96			506	97	10.0	8.3	38	
	3.69			406	77	7.9	6.6	30	
	4.57			328	62	6.3	5.3	24	
P20			4.57	460	88	10.0	8.3	38	18,100/1,250
		3.69		487	94	10.5	8.8	40	
		4.57		393	76	8.7	7.2	33	
	2.96			506	97	11.1	9.2	42	
	3.69			406	78	8.9	7.5	34	
	4.57			328	63	7.1	5.9	27	
P22			4.57	460	89	12.4	10.3	47	15,200/1,050
		3.69		487	95	13.2	11.0	50	
		4.57		393	77	10.5	8.8	40	
	2.96			506	99	13.7	11.4	52	
	3.69			406	79	10.8	9.0	41	
	4.57			328	64	8.7	7.2	33	

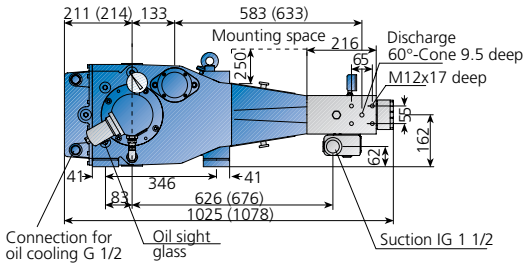
Technical data:

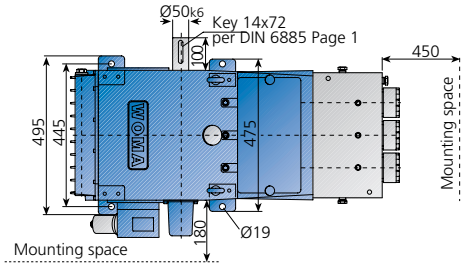
- Oil capacity: approx. 10 l
- Weight: approx. 315 kg net
- Stroke: 95 mm/3.74 inch
- Inlet pressure required: 3 – 5 bar/45 – 75 psi
- Rod force: 40 kN

Technical Data

High-Pressure Plunger Pump Type 180 Z







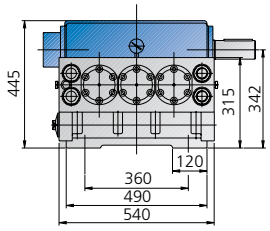
Dimensions: horizontal (vertical)
All dimensions in mm
Thread "M" as per DIN 13/ISO 261
Thread "G" as per DIN ISO 228/1

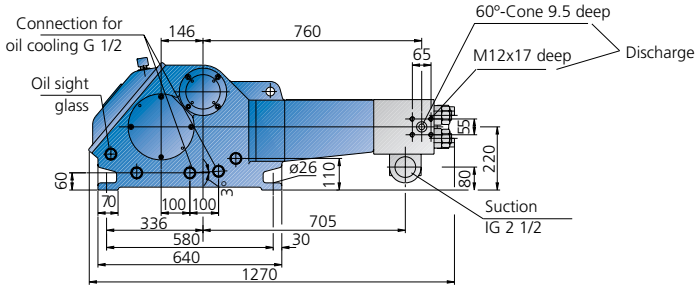
Performance Chart Pump Type 180 Z-2000									
Plunger diameter (mm)	Gear ratio Pinion shaft (Rpm) 1,500	1,800	2,100	Crank shaft (Rpm)	Required drive (kW)	Nominal flow rate USG pm	IMPG pm	l/min	Max. permissible operating pressure (psi/bar)
P 12	3.57 4.52	4.52		398 420 331	41 44 34	2.9 3.2 2.4	2.4 2.6 2.0	11 12 9	29,000/2,000
P 14	3.57 4.52	4.52		398 420 331	56 60 47	4.0 4.3 3.5	3.3 3.5 2.8	15 16 13	29,000/2,000
P 16	3.57 4.52	4.52		398 420 331	74 78 62	5.3 5.6 4.5	4.4 4.7 3.8	20 21 17	29,000/2,000
P 18	3.57 4.52	4.52		398 420 331	94 99 78	6.9 7.2 5.6	5.7 6.0 4.7	26 27 21	29,000/2,000
P 19	3.57 4.52	4.52	4.52	464 398 420 331	111 95 100 79	9.0 7.7 8.0 6.4	7.5 6.4 6.6 5.3	34 29 30 24	26,100/1,800
P 20	3.04 3.57 4.52	3.57 4.52	4.52	464 504 398 493 420 331	111 120 95 118 100 79	10.0 10.8 8.5 10.6 9.0 7.2	8.4 9.0 7.1 8.8 7.5 6.0	38 41 32 40 34 27	23,200/1,600
P 22	3.04 3.57 4.52	3.57 4.52	4.52	464 504 398 493 420 331	119 129 102 126 108 85	12.4 13.2 10.6 13.0 11.1 8.8	10.2 11.0 8.8 10.8 9.3 7.3	46 50 40 49 42 33	20,300/1,400

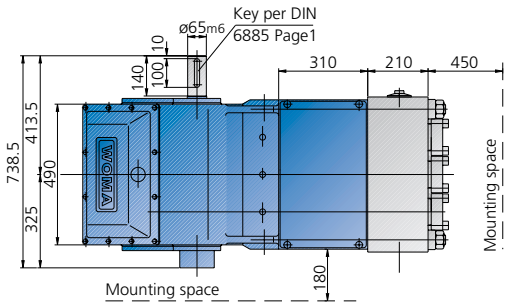
Technical data:

- Oil capacity: approx. 8 l (horizontal)/approx. 5,5 l (vertical)
- Weight: approx. 370 kg net
- Stroke: 95 mm/3.74 inch
- Inlet pressure required: 3 – 5 bar/45 – 75 psi
- Rod force: 51 kN

High-Pressure Plunger Pump Type 225 Z







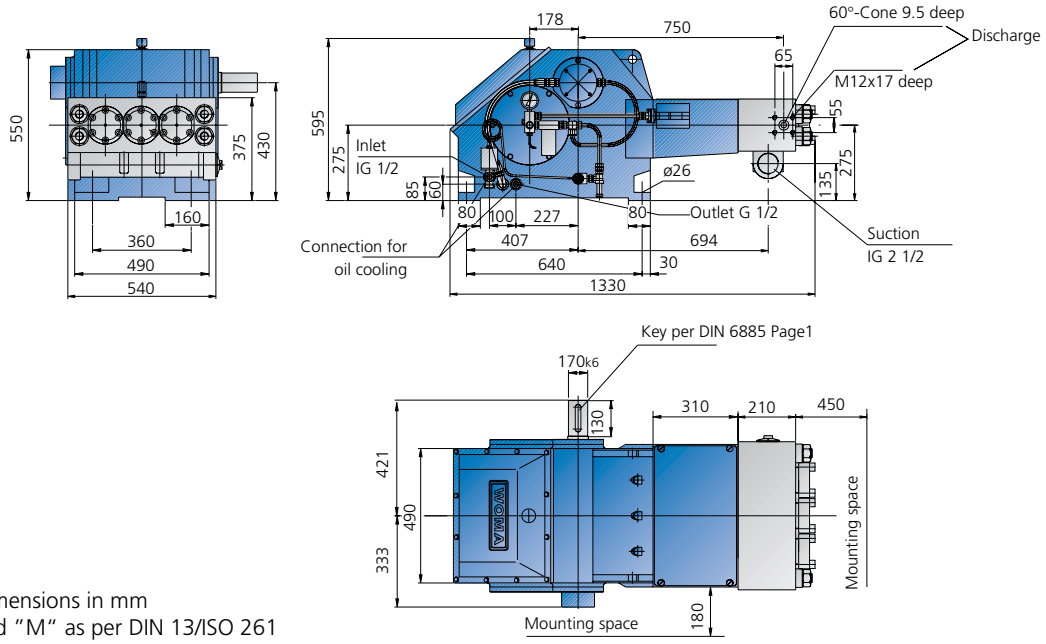
All dimensions in mm
Thread "M" as per DIN 13/ISO 261
Thread "G" as per DIN ISO 228/1

Performance Chart Pump Type 225 Z-2000								
Plunger diameter (mm)	Gear ratio Pinion shaft (Rpm) 1,500	1,800	Crank shaft (Rpm)	Required drive (kW)	Nominal flow rate USG pm	IMPG pm	l/min	Max. permissible operating pressure (psi/bar)
P 18	3.46	4.10	439	125	9.2	7.7	35	29,000/2,000
	4.10		433	123	9.0	7.5	34	
			365	104	7.7	6.4	29	
P 20	3.46	4.10	439	133	11.4	9.5	43	24,700/1,700
	4.10		433	129	11.1	9.2	42	
			365	110	9.5	7.9	36	
P 22	3.46	4.10	439	136	14.0	11.7	53	20,300/1,400
	4.10		433	132	13.7	11.4	52	
			365	111	11.6	9.7	44	

Technical data:

- Oil capacity: approx. 18 l
- Weight: approx. 650 kg net
- Stroke: 115 mm/4.5 inch
- Inlet pressure required: 3 – 5 bar/45 – 75 psi
- Rod force: 53.5 kN

High-Pressure Plunger Pump Type 325 Z



All dimensions in mm
Thread "M" as per DIN 13/ISO 261
Thread "G" as per DIN ISO 228/1

Performance Chart Pump Type 325 Z-2000

Plunger diameter (mm)	Gear ratio Pinion shaft (Rpm) 1,500	1,800	Crank shaft (Rpm)	Required drive (kW)	Nominal flow rate USG pm	IMPG pm	l/min	Max. permissible operating pressure (psi/bar)
P 18		4.23	425	137	10.0	8.3	38	29,000/2,000
	3.60		416	134	9.8	8.1	37	
	4.23		354	114	8.2	6.8	31	
P 20		4.23	425	206	12.1	10.1	46	29,000/2,000
	3.60		416	202	11.8	9.9	45	
	4.23		354	172	10.2	8.5	39	
P 22		4.23	425	206	15.0	12.5	57	26,700/1,840
	3.60		416	201	14.7	12.1	56	
	4.23		354	171	12.4	10.3	47	
P 24		4.23	425	194	18.2	15.2	69	22,500/1,550
	3.60		416	190	17.9	15.0	68	
	4.23		354	161	15.3	12.8	58	
P 30		3.60	500	234	34.6	28.8	131	14,500/1,000
		4.23	425	199	29.3	24.4	111	
	2.96		506	237	34.9	29.0	132	
	3.60		416	195	28.8	24.0	109	
	4.23		354	167	24.3	20.2	92	

Technical data:

- Oil capacity: approx. 30 l
- Weight: approx. 980 kg net
- Stroke: 130 mm/5.1 inch
- Inlet pressure required: 3 – 5 bar/45 – 75 psi
- Rod force: 70 kN

Technical Characteristics

Pump Gear

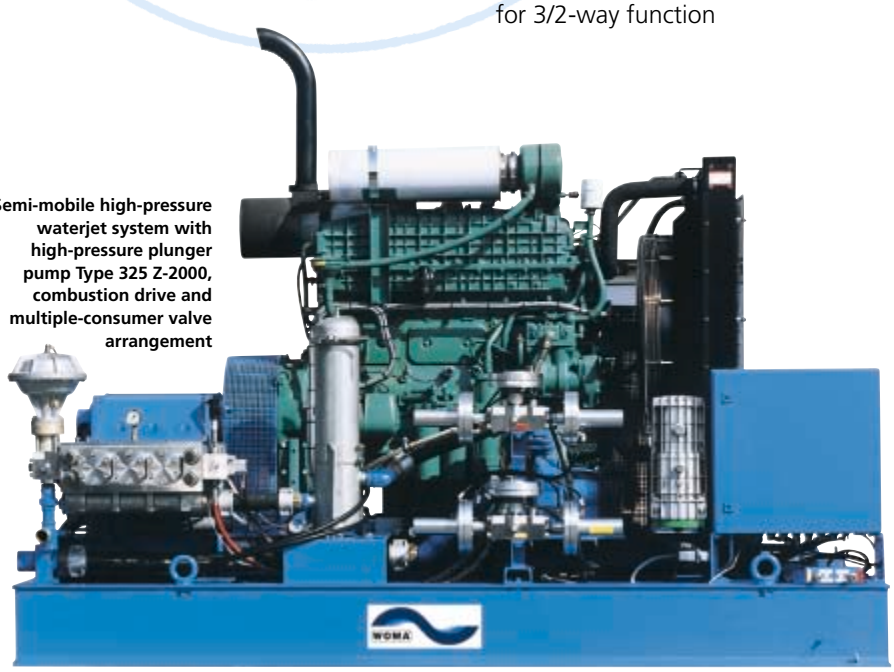
- Proven pump gear with forced lubrication and variable gear ratio

Pump Head

- Pump head with coaxially arranged valves and free of alternating stresses
- Hydrostatically armoured pressure sleeves
- Conversion set with hard metal plungers and dynamic sealing system
- High volumetric efficiency due to minimized "dead volume"
- Minimum pressure fluctuations due to optimized valve kinematics
- High service life of all pump head components achieved by using superior materials
- Easy maintenance due to simple assembly and good accessibility

Additional Equipment

- Pneumatically operated pressure regulation valve
- Pneumatically operated 2/2-way switch valve
- Pneumatically operated check valve for 3/2-way function



Semi-mobile high-pressure waterjet system with high-pressure plunger pump Type 325 Z-2000, combustion drive and multiple-consumer valve arrangement

Stationary high-pressure cleaning system with electrically driven plunger pump Type 150 Z-2000

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