

WOMA[®] HIGH-PRESSURE PUMPS

Reliable and powerful plunger pumps up to 3,000 bar.

WATER AS A TOOL

WOMA is a leading manufacturer of high-pressure plunger pumps, ultra high-pressure units and water tools for cleaning and removal in industrial applications. WOMA has been supplying high-pressure technology to customers all over the world for over 60 years. Through consistent research and development, we now handle systems with operating pressures of up to 4,000 bar. As part of the Kärcher Group, we reach a growing international target group with the international dealer and service network of the world market leader for cleaning technology. Using the mechanical effect of flowing water sensibly, sustainably and efficiently is the basic idea that has driven us since our foundation in 1962.

INDUSTRIES

WOMA high-pressure technology is tailored to maintenance tasks and all industrial cleaning applications and is preferably used in the following industries and applications:

- Construction industry
- Chemical industry
- Energy industry
- Oil and gas industry
- Shipbuilding industry & shipyards
- Steel industry
- Cement industry

APPLICATIONS

Our products are mainly developed for the following waterjetting applications:

- General parts and surface cleaning
- Concrete refurbishment
- Decontamination
- Offshore cleaning and maintenance
- Cleaning and paint removal of ships and bouys
- Cleaning of form work
- Cleaning of rotary kilns
- Pipe cleaning
- Sieve and filter cleaning
- Tank cleaning

Further applications:

- Hydromechanical descaling
- Pumping and injection of fluids



HIGH-PRESSURE PLUNGER PUMPS

Our series

UPDATE



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M/MX-SERIES (3,000 BAR)

Plunger pumps with extremely high pressures.

In combination with the wide range of WOMA water tools, the M/MX-series high-pressure plunger pump with its operating pressures of up to 3,000 bar is the right choice for cutting, dismantling or decoating work.



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Z-SERIES (1,500 BAR)

Plunger pumps for industrial cleaning.

Energy efficiency and resource protection are challenges in industrial cleaning that can be successfully mastered by the Z-series.

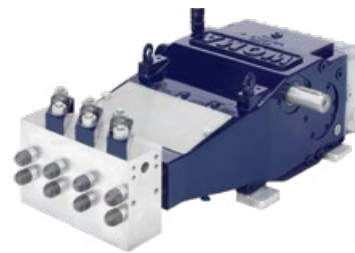


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Y-SERIES (1,000 BAR)

Plunger pumps for compact systems.

The high-pressure pump from the Y-series is very compact. The small size and low weight makes it especially suitable for use in mobile high-pressure units.



Page 8

2-SERIES (750 BAR)

Plunger pumps for harsh environments.

The robust, yet inexpensive high-pressure pumps from the 2-series generate up to 750 bar. This makes them the preferred choice in particular for cleaning pipes, tube bundles and vessels.

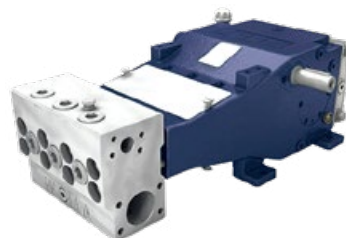


Page 9

ARP-SERIES (400 BAR)

Plunger pumps for high flow rates and contaminated water.

In descaling or sewer cleaning, the water is often contaminated. The ARP (Abrasive Resistant Pump) series has been specially developed for pumping water contaminated with granular or fibrous solids.



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3-SERIES (250 BAR)

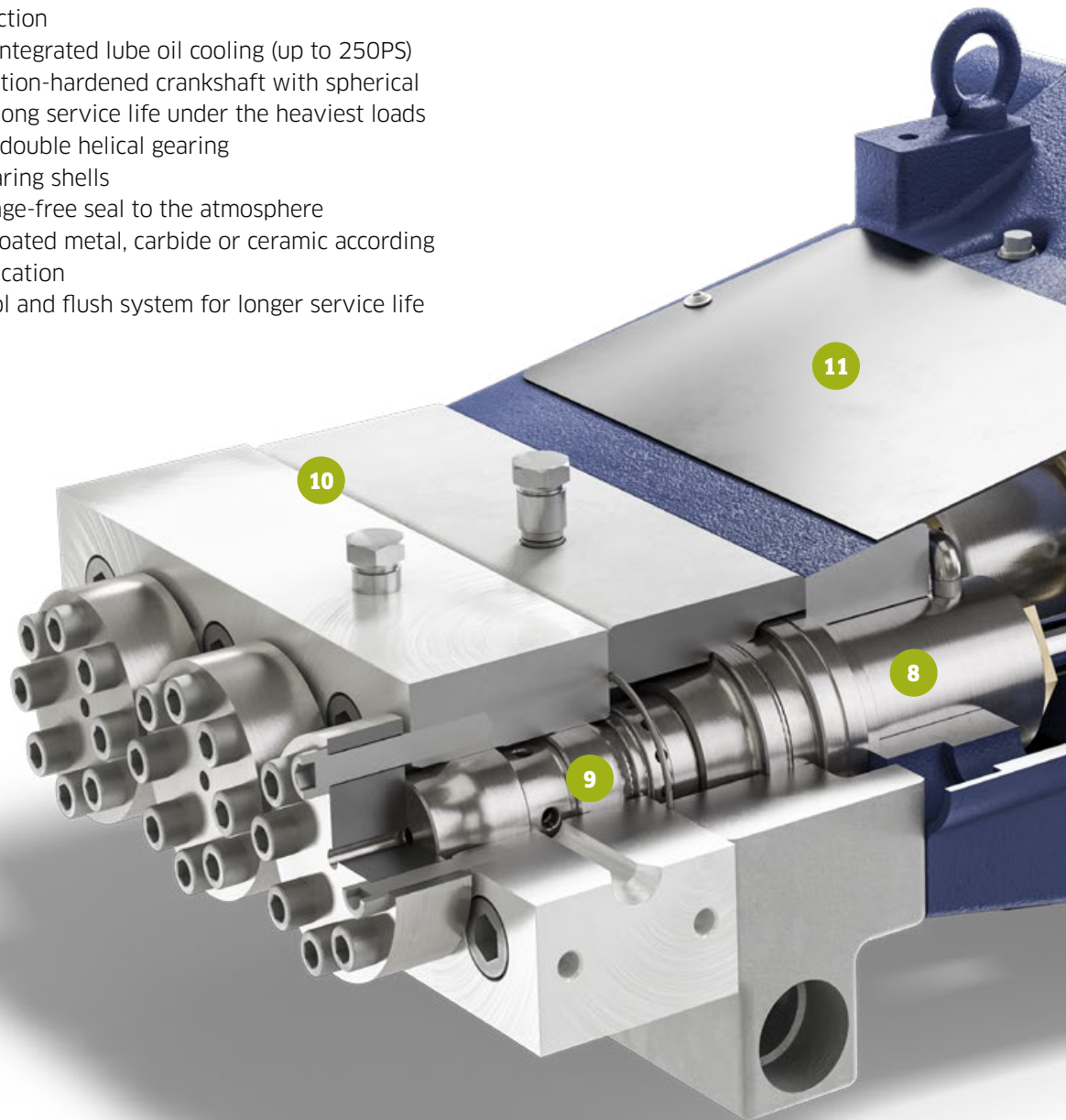
Plunger pumps for cleaning and flushing.

A low price, inexpensive servicing, durable and service-friendly. With these characteristics, the 3-series is well suited for sewer and pipe cleaning applications.

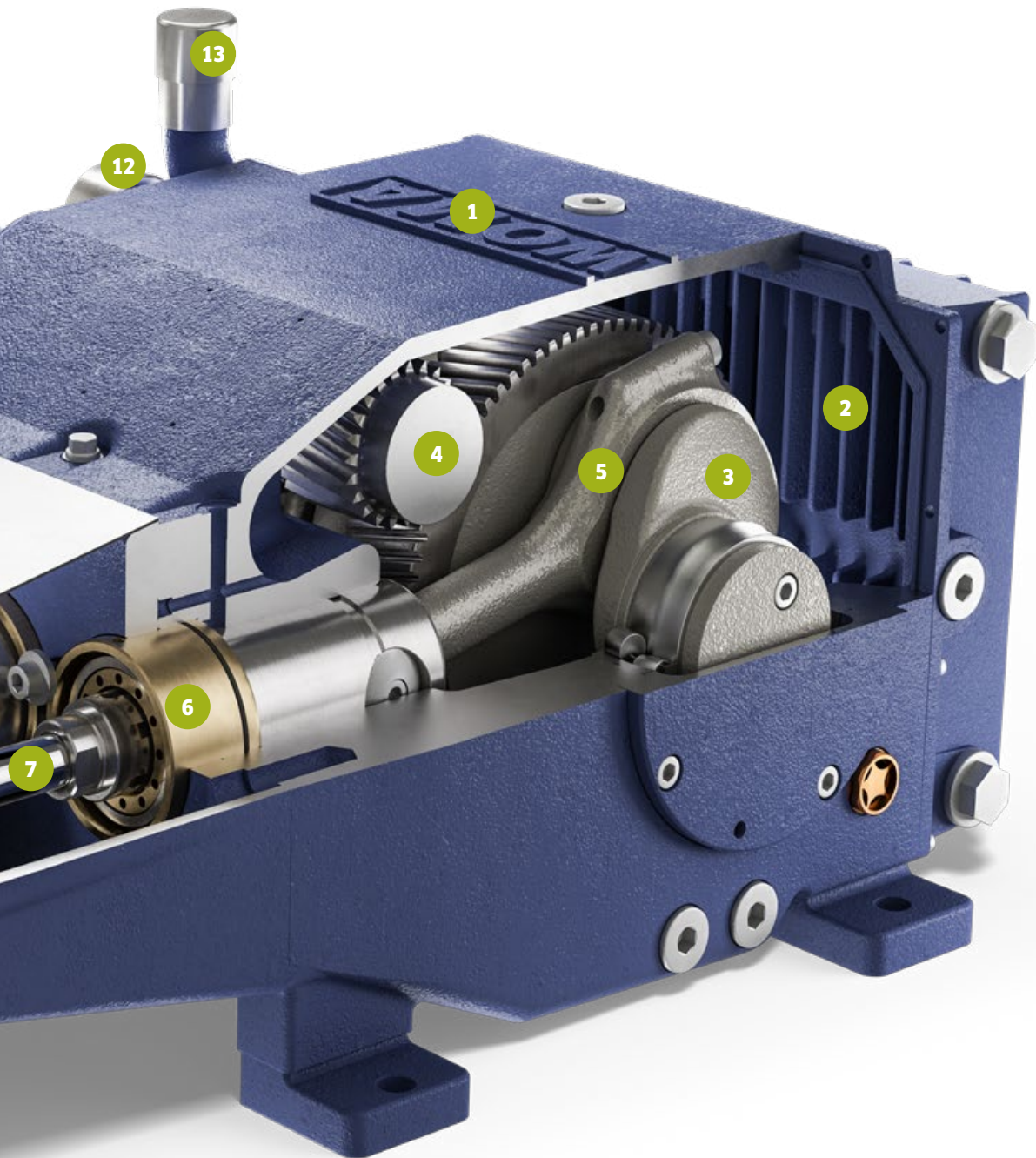
WOMA PLUNGER PUMPS TECHNOLOGY

Engineered and made in Germany – since 1962!

1. Gearbox housing made of high-strength cast iron as a vibration-damping construction
2. Gearbox cover with integrated lube oil cooling (up to 250PS)
3. Die-forged and induction-hardened crankshaft with spherical roller bearings for a long service life under the heaviest loads
4. Integrated gear with double helical gearing
5. Coated, lead-free bearing shells
6. Crosshead with leakage-free seal to the atmosphere
7. Plunger made from coated metal, carbide or ceramic according to pressure and application
8. Stuffing box with cool and flush system for longer service life



9. Inline valve design for Z and M pump heads with strength-increasing surface treatment
10. Liquid end
11. Cradle cover
12. Flanged lube oil pump
13. Breather



Characteristics

Design and manufacture of gear ends and fluid ends according to the highest quality standards

Horizontal and vertical installation of the pump possible

Stuffing box

Conversion kit

Spare parts security

Benefits

Robust construction throughout ensures long service life of the pump: Low-wear, reliable and durable, manufactured for the toughest user requirements and operating conditions.

Selected WOMA pumps can be installed horizontally or vertically in systems and units - even in confined spaces.

WOMA high-pressure packings and low-pressure seals with sealing water system for flushing and cooling guarantee long and leakage-free operation with constant litre output over the lifetime.

High flexibility for changing requirements: different pressure/flow capacities can be realised by exchanging selected conversion kits.

High operational reliability due to fast availability of spare parts for scheduled maintenance and unscheduled breakdowns - directly from the factory or via our global partners.

M/MX-SERIES

Technical Data

3,000
BAR

Performance data 70M



Pinion shaft		Crankshaft	P10			P12				
750 1/min	825 1/min		3,000 bar			2,500 bar				
Gear ratio		1/min	kW		l/min		kW		l/min	
1.00		825	33		6.0		45		9.8	
		750	30		5.5		41		8.9	

Performance data 150M



Pinion shaft		Crankshaft	P12		P14		P16		P18	
1,500 1/min	1,800 1/min		3,000 bar		2,500 bar		2,000 bar		1,500 bar	
Gear ratio		1/min	kW		l/min		kW		l/min	
2.96		507	69		12		83		17	
		488	67		12		80		17	
3.69		407	56		10		67		14	
		394	54		9		64		14	
4.57		328	45		8		54		11	
							62		16	
									60	
									22	

Performance data 190MX



Pinion shaft		Crankshaft	P16		P18		P20			
1,500 1/min	1,800 1/min		3,000 bar		2,750 bar		2,200 bar			
Gear ratio		1/min	kW		l/min		kW		l/min	
4.25		424	104		20.5		123		26.5	
		353	87		17.0		103		22.0	
									127	
									33.5	
									106	
									28.0	

Performance data 250MX



Pinion shaft		Crankshaft	P16		P18		P20			
1,500 1/min	1,800 1/min		3,000 bar		2,750 bar		2,200 bar			
Gear ratio		1/min	kW		l/min		kW		l/min	
3.57		504	124		24.5		147		31.5	
		493	121		24.0		144		30.5	
3.04		420	103		20.5		122		26.0	
									126	
									33.5	

Performance data 330MX



Pinion shaft		Crankshaft	P18		P20		P22			
1,500 1/min	1,800 1/min		3,000 bar		2,500 bar		2,100 bar			
Gear ratio		1/min	kW		l/min		kW		l/min	
4.23		426	187		37.0		200		46.5	
		355	156		31.0		166		39.0	
									209	
									57.5	
									174	
									48.0	

Performance data 400MX



Pinion shaft		Crankshaft	P18		P20		P22			
1,500 1/min	1,800 1/min		3,000 bar		2,500 bar		2,100 bar			
Gear ratio		1/min	kW		l/min		kW		l/min	
3.60		500	220		43.5		234		55.0	
		417	183		36.0		195		45.5	
2.96		507	223		44.0		238		55.5	
		500	220		43.5		234		55.0	
3.60		417	183		36.0		195		45.5	
									248	
									68.5	
									245	
									67.5	
									204	
									56.5	

Performance data 550MX



Pinion shaft		Crankshaft	P22		P24		P26		P28	
1,500 1/min	1,800 1/min		3,000 bar		2,800 bar		2,500 bar		2,100 bar	
Gear ratio		1/min	kW		l/min		kW		l/min	
3.96		455	321		63.5		362		76.5	
		391	277		55.0		312		66.0	
3.60		379	268		53.0		302		63.5	
		326	231		45.5		260		55.0	
3.96		379	268		53.0		302		63.5	
		326	231		45.5		260		55.0	
4.60		326	231		45.5		260		55.0	
									387	
									91.0	
									388	
									107.5	
									334	
									92.5	
									324	
									89.5	
									279	
									77.0	

Performance data 150Z



Pinion shaft		Crankshaft	P19		P20		P22		P26		P30		P35	
1,500 1/min	1,800 1/min		1,500 bar		1,250 bar		1,000 bar		750 bar		570 bar		420 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
2.96		507	103	37	97	42	95	52	101	73	103	99	104	136
	3.69	488	100	36	93	40	91	50	97	71	99	95	100	130
3.69		407	83	30	78	34	76	41	81	59	83	79	83	109
	4.57	394	80	29	75	33	74	40	78	57	80	77	81	105
4.57		328	67	24	63	27	62	33	65	47	67	64	67	88

Performance data 190Z



Pinion shaft		Crankshaft	P24		P26		P28		P30		P35	
1,500 1/min	1,800 1/min		1,500 bar		1,300 bar		1,150 bar		1,000 bar		720 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
	4.25	424	138	50	142	59	146	70	147	81	147	112
4.25		353	115	42	118	49	122	58	123	67	122	93

Performance data 250Z



Pinion shaft		Crankshaft	P24		P26		P28		P30		P35	
1,500 1/min	1,800 1/min		1,500 bar		1,300 bar		1,150 bar		1,000 bar		720 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
	3.57	504	164	60	168	71	174	83	175	96	174	133
3.04		493	160	58	165	69	170	81	171	94	171	130
3.57		420	137	50	140	59	145	69	146	80	145	111

Performance data 330Z



Pinion shaft		Crankshaft	P26		P28		P30		P35		P45		P50	
1,500 1/min	1,800 1/min		1,500 bar		1,300 bar		1,150 bar		850 bar		500 bar		400 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
	4.23	426	222	81	225	95	231	110	236	152	234	257	232	319
4.23		355	185	67	188	79	192	92	197	127	195	214	193	266

Performance data 400Z



Pinion shaft		Crankshaft	P26		P28		P30		P35		P45		P50	
1,500 1/min	1,800 1/min		1,500 bar		1,300 bar		1,150 bar		850 bar		500 bar		400 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
2.96		507	264	97	268	113	275	131	281	182	278	306	276	380
	3.60	500	261	95	265	112	271	129	277	179	274	302	272	375
3.60		417	217	79	221	93	226	108	231	149	229	252	227	312

Performance data 550Z



Pinion shaft		Crankshaft	P30		P35		P40		P45		P50	
1,500 1/min	1,800 1/min		1,500 bar		1,300 bar		1,000 bar		800 bar		650 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
	3.96	455	340	124	405	171	413	227	423	291	428	362
	4.60	391	293	107	349	147	356	196	364	250	368	312
3.96		379	283	104	337	143	344	189	352	242	356	302
4.60		326	244	89	291	123	297	163	303	209	307	260

Performance data 700Z



Pinion shaft		Crankshaft	P30		P35		P40		P45		P50	
1,500 1/min	1,800 1/min		1,500 bar		1,300 bar		1,000 bar		800 bar		650 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
	3.30	545	408	149	486	206	496	273	507	349	513	435
	3.45	522	390	143	465	197	474	261	485	334	491	416
3.30		455	340	124	405	171	413	227	423	291	428	362

Y-SERIES

Technical Data

1,000
BAR

Performance data 70Y



Pinion shaft		Crankshaft	P15		P16		P18		P20	
750 1/min	1,000 1/min		1,000 bar		1,000 bar		850 bar		700 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
1.00		1,000	41	22	47	25	50	32	52	40
1.00		750	31	16	35	19	38	24	39	30

2-SERIES

Technical Data

750
BAR

Performance data 702



Pinion shaft		Crankshaft	P20		P24		P26		P30		P35		P40		P45	
750 1/min	1,000 1/min		650 bar		450 bar		400 bar		300 bar		220 bar		170 bar		135 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
1.00		1,000	48	39	49	57	51	68	51	91	52	125	52	165	53	209
1.00		750	36	29	37	43	38	51	39	69	39	94	39	124	40	157

Performance data 1002



Pinion shaft		Crankshaft	P22		P26		P35		P40		P45	
1,500 1/min	1,800 1/min		750 bar		550 bar		300 bar		230 bar		180 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
3.00		500	54	38	56	54	57	102	58	134	57	171
3.63		496	54	38	56	54	57	101	57	133	57	169
3.63		413	45	31	47	45	47	84	48	111	48	141

Performance data 1502



Pinion shaft		Crankshaft	P26		P30		P35		P40		P45	
1,500 1/min	1,800 1/min		750 bar		565 bar		415 bar		320 bar		250 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
2.96		507	99	70	101	96	103	133	105	175	104	224
3.69		488	95	68	97	92	99	128	101	169	100	215
3.69		407	79	56	81	77	83	106	84	140	84	179
4.57		394	77	55	79	74	80	103	81	136	81	174
4.57		328	64	45	66	62	67	86	68	113	68	145

Performance data 1902



Pinion shaft		Crankshaft	P30		P35		P40		P45	
1,500 1/min	1,800 1/min		750 bar		650 bar		500 bar		400 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
4.25		424	110	78	131	108	134	144	137	184
4.25		353	92	65	109	90	112	120	114	153

Performance data 2502



Pinion shaft		Crankshaft	P30		P35		P40		P45	
1,500 1/min	1,800 1/min		750 bar		650 bar		500 bar		400 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
3.57		504	131	94	156	129	159	171	163	219
3.04		493	128	91	153	126	156	167	159	214
3.57		420	109	78	130	107	133	143	136	182

Performance data 150ARP



Pinion shaft		Crankshaft	P40		P45		P50		P55		P60		P65	
1,500 1/min	1,800 1/min		320 bar		250 bar		200 bar		170 bar		140 bar		120 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
2.96		507	105	175	104	224	103	277	107	337	105	402	105	473
	3.69	488	101	169	100	215	100	267	103	324	101	387	101	455
3.69		407	84	140	84	179	83	222	86	270	84	323	84	379
	4.57	394	81	136	81	174	80	216	83	262	82	312	81	368
4.57		328	68	113	68	145	67	180	69	218	68	260	68	306

Performance data 190ARP



Pinion shaft		Crankshaft	P50		P55		P60		P65	
1,500 1/min	1,800 1/min		320 bar		250 bar		250 bar		210 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
	4.25	424	136	229	130	279	155	332	153	392
4.25		353	114	191	108	233	129	277	128	326

Performance data 250ARP



Pinion shaft		Crankshaft	P50		P55		P60		P65	
1,500 1/min	1,800 1/min		320 bar		250 bar		250 bar		210 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
	3.57	504	162	273	155	332	184	396	182	466
3.04		493	159	267	151	325	180	387	178	456
3.57		420	135	227	129	277	153	330	152	389

Performance data 330ARP



Pinion shaft		Crankshaft	P55		P65	
1,500 1/min	1,800 1/min		340 bar		240 bar	
Gear ratio		1/min	kW	l/min	kW	l/min
	4.23	426	240	380	239	537
4.23		355	200	317	200	447

Performance data 400ARP



Pinion shaft		Crankshaft	P55		P65	
1,500 1/min	1,800 1/min		340 bar		240 bar	
Gear ratio		1/min	kW	l/min	kW	l/min
2.96		507*	286	453	285	640
	3.60	500	282	447	281	631
3.60		417	235	372	234	526

Performance data 550ARP



Pinion shaft		Crankshaft	P60		P65		P70		P75	
1,500 1/min	1,800 1/min		400 bar		400 bar		330 bar		290 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min	kW	l/min
3.30	3.96	455	384	518	451	608	435	710	440	819
	4.60	391	331	446	388	523	374	611	379	705
3.96		379	320	431	376	506	362	592	367	682
4.60		326	276	371	324	436	312	509	316	587

Performance data 1003

Pinion shaft		Crankshaft	P50		P55	
1,500 1/min	1,800 1/min		150 bar		125 bar	
Gear ratio		1/min	kW	l/min	kW	l/min
3.00		500	59	211	60	257
	3.63	496	59	210	59	254
3.63		413	49	175	49	212

Performance data 1503

Pinion shaft		Crankshaft	P50		P55		P60	
1,500 1/min	1,800 1/min		200 bar		170 bar		140 bar	
Gear ratio		1/min	kW	l/min	kW	l/min	kW	l/min
2.96		507	103	277	107	337	105	402
	3.69	488	100	267	103	324	101	387
3.69		407	83	222	86	270	84	323
	4.57	394	80	216	83	262	82	312
4.57		328	67	180	69	218	68	260

Performance data 1903

Pinion shaft		Crankshaft	P50		P55	
1,500 1/min	1,800 1/min		250 bar		250 bar	
Gear ratio		1/min	kW	l/min	kW	l/min
	4.25	424	107	231	130	279
4.25		353	90	192	108	233

Performance data 2503

Pinion shaft		Crankshaft	P50		P55	
1,500 1/min	1,800 1/min		250 bar		250 bar	
Gear ratio		1/min	kW	l/min	kW	l/min
	3.57	504	128	275	155	332
3.04		493	125	269	151	325
3.57		420	107	229	129	277



Additional technical specifications for all WOMA plunger pumps

The drive powers and volume flows listed in the performance data are for intermittent operation with water at standard conditions. Volumetric and mechanical efficiencies are already taken into account in the data. Applicable performance data for deviating pumped media and operating modes are available on request.

The permissible speed range of the pump and the inlet pressure required for safe operation depend on the pump type and the operating conditions.

Certain pump models are available on request for operation in potentially explosive atmospheres (ATEX, IECEx).

We reserve the right to make technical changes. All specifications are considered non-binding.

Conversions

1 bar = 14.504 psi | 1 l/min = 0.26417 gal/min (US) = 0.22 gal/min (UK) | 1 kW = 1.341 hp



You need more than just a single high-pressure pump?

We also have suitable system solutions, tools and accessories for every application:

Cleaning

WOMA high-pressure cleaning solutions are used in the chemical and process industries around the world. Our high-pressure guns and TankMaster cleaning heads will completely remove all paint residues, impurities, resins and caking from tanks and vessels. We also offer suitable products and solutions for pipe and heat exchanger cleaning that deliver perfect results.

Removal

For ultra-high-pressure removal, we offer the right solutions for a wide range of industries and applications. For the removal of paints, rust products and anti-corrosion coatings with manual and remote controlled water tools, the right products are available for your tasks. In addition, WOMA high-pressure solutions can be used for emission-free decontamination and selective removal of concrete.

Cutting

WOMA cutting tools are widely used in the construction industry. The cutting of reinforced concrete, steels or ceramics takes place with construction site-suitable abrasive tools. It is also easy to cut containers, technical systems or building constructions into pieces. The water tools generate no heat at the cutting edges and work dust-free and with low vibrations.

With our experience to the right solution

You need advice and support for your application? Our application engineers have decades of cross-industry experience and will find the most appropriate water tool with the right parameters for your task.



WHATEVER THE TASK. WE HAVE THE SOLUTION.

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