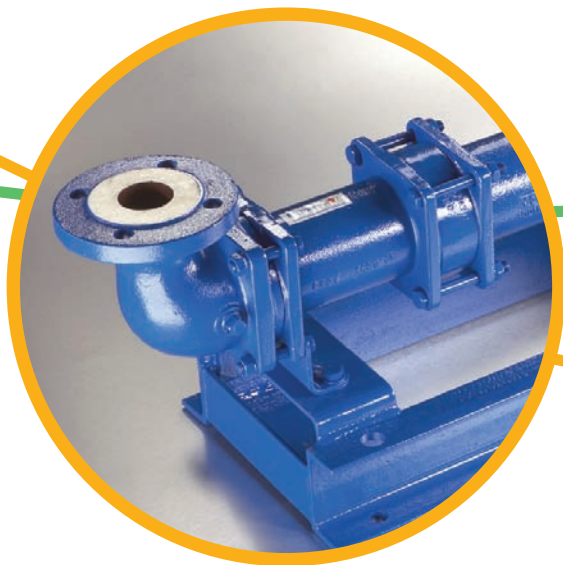
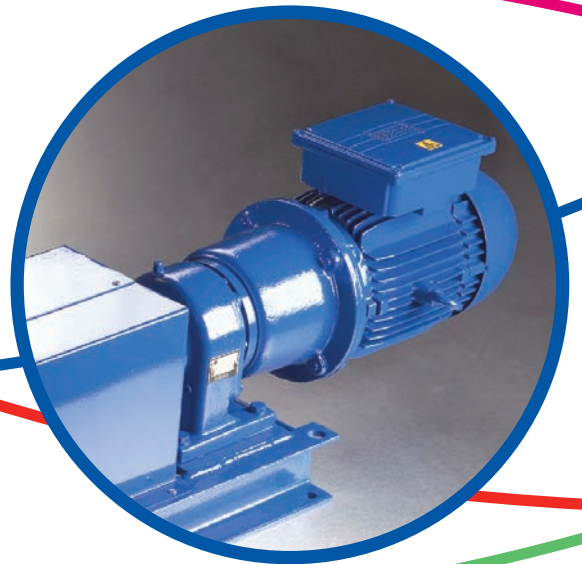
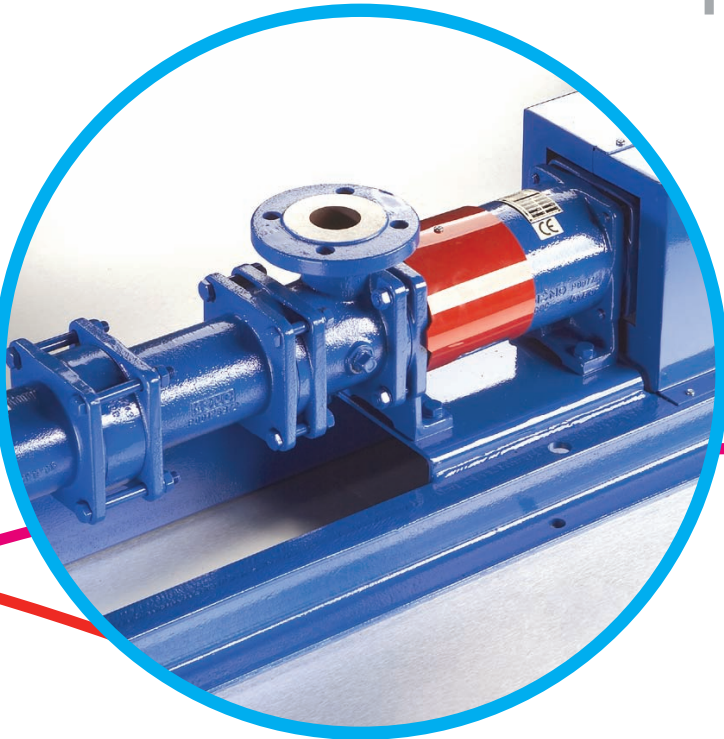


# Merlin Industrial Range



**Mono**<sup>®</sup> **NOV**

One Company, Unlimited Solutions



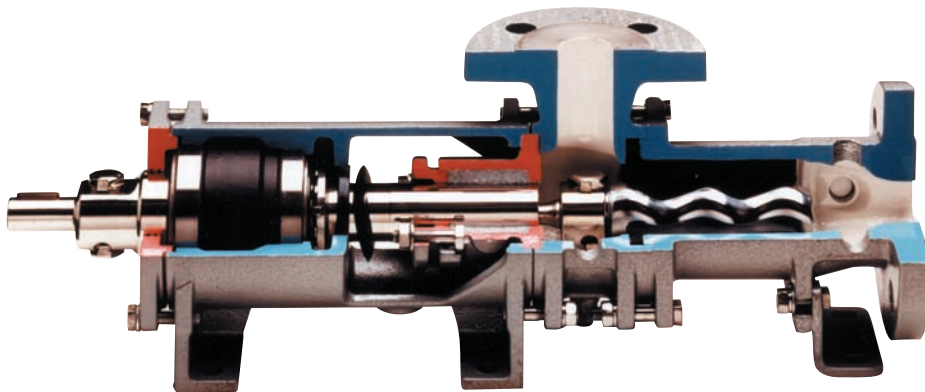
# Introduction

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The Merlin Industrial range has 20 models available in both cast iron and stainless steel construction.

This range of pumps has a considerable degree of flexibility achieved through the availability of free moulded and moulded to metal stators.

The Merlin pump is capable of handling applications up to 10 bar and capacities up to 60m<sup>3</sup>/h and is based on the popular and well proven pin joint design.



## The Mono Pedigree

Mono have been at the forefront of progressing cavity pump design since 1935. With the experience gained from over 70 years we are able to reflect the varying needs of our extensive customer base worldwide. And an all round efficiency and quality which our customers demand, and to which we are committed.

A long term commitment which is underlined by our attainment of ISO 9001:2000.

The Merlin Industrial Pump Range has been developed out of this commitment.

With such a broad choice the Merlin range is the ideal selection for many different duties.

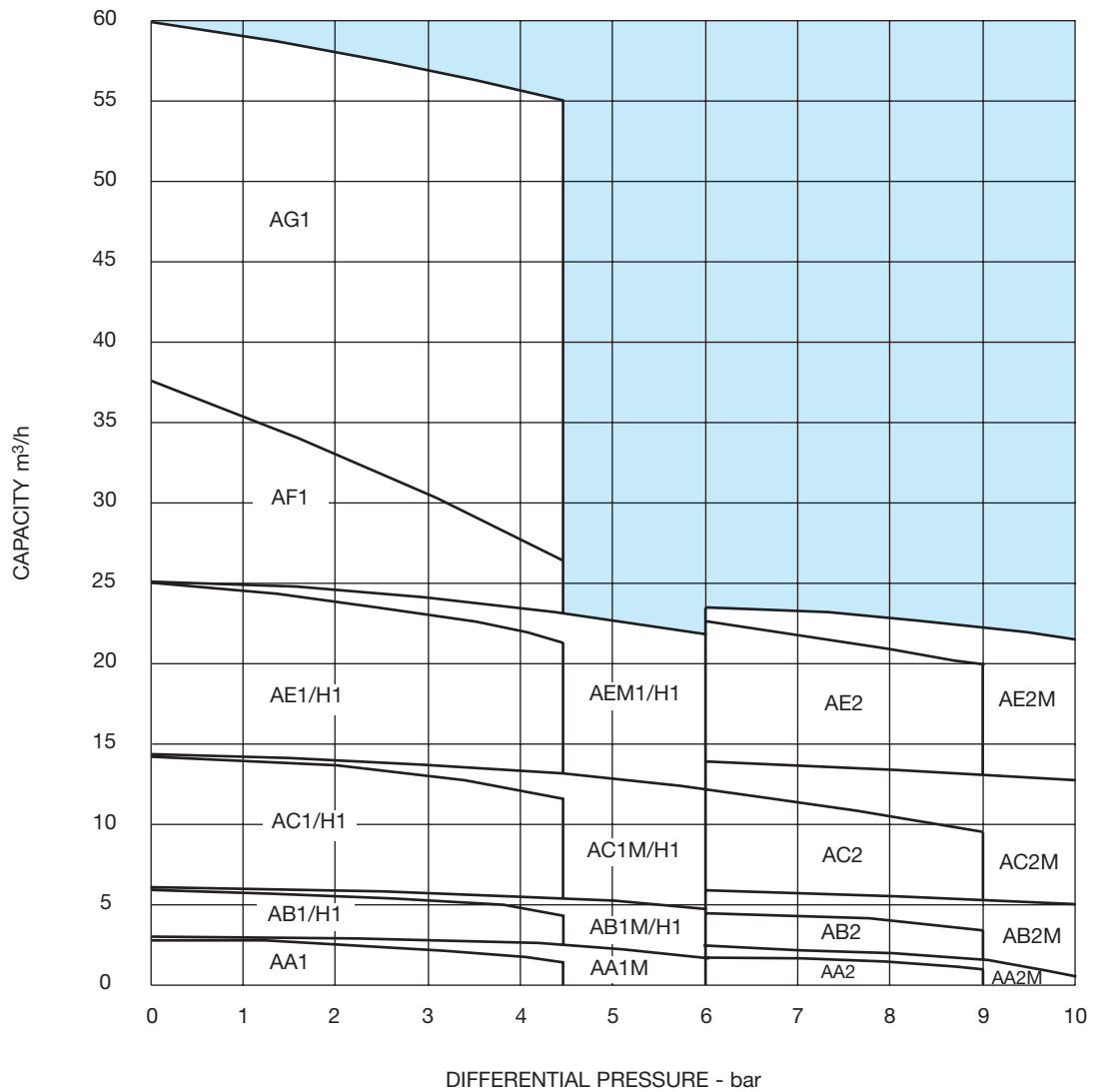
The normal operating characteristics associated with PC pumps are also applicable to the Mono Merlin pump. They are capable of self priming, can operate in either rotation and have a gentle, smooth pumping action which maintains the product integrity. This simple construction results in a pump range that is extremely reliable and easy to maintain.

They can be utilised to handle abrasive, shear sensitive and viscous materials, solids in suspension and air/liquid/solids mixtures.



# Performance Data

## Cast Iron and Stainless Steel Models



### NOTES:

1. Performance Data is typical only on water at 20°C.
2. All curves extend to ZERO.
3. Ref M in pump models above indicates moulded to metal stators.

# Pump Performance

## Cast Iron and Stainless Steel Models

PUMP MODEL NO.	PRESSURE - bar													
	0		2		3		4		6		9		10	
	m <sup>3</sup> /h	ABS Power kW	m <sup>3</sup> /h	ABS Power kW	m <sup>3</sup> /h	ABS Power kW	m <sup>3</sup> /h	ABS Power kW	m <sup>3</sup> /h	ABS Power kW	m <sup>3</sup> /h	ABS Power kW	m <sup>3</sup> /h	ABS Power kW
AA1H	2.25	0.20	2.10	0.34	2.00	0.40	1.70	0.50	--	--	--	--	--	--
AA1M	2.30	0.24	2.20	0.39	2.15	0.45	2.10	0.54	1.85	0.66	--	--	--	--
AA2H	2.40	0.36	2.25	0.47	2.18	0.53	2.05	0.62	1.95	0.70	1.75	0.90	--	--
AA2M	2.35	0.40	2.28	0.52	2.25	0.57	2.22	0.68	2.20	0.75	2.00	0.94	1.94	1.00
AB1H	5.80	0.45	5.40	0.85	5.10	1.10	4.40	1.35	--	--	--	--	--	--
AB1M	6.00	0.50	5.80	0.77	5.60	0.93	5.30	1.18	5.00	1.40	--	--	--	--
AB2H	6.00	0.48	5.70	0.80	5.50	1.00	5.20	1.25	4.90	1.45	4.10	1.95	--	--
AB2M	5.70	0.65	5.60	1.00	5.55	1.15	5.50	1.40	5.00	1.60	5.45	2.10	5.40	2.20
AC1H	14.60	0.70	13.60	1.50	12.90	1.95	11.60	2.60	--	--	--	--	--	--
AC1M	16.00	0.90	15.60	1.70	15.00	2.20	14.60	2.80	14.30	3.40	--	--	--	--
AC2H	15.20	0.90	15.00	1.70	14.80	2.20	14.30	2.70	13.40	3.40	12.00	4.60	--	--
AC2M	15.10	1.10	14.80	2.00	14.60	2.60	14.20	3.30	14.00	3.90	13.00	5.10	14.80	5.60
AE1H	25.50	0.80	23.70	2.20	22.50	3.00	20.00	4.00	--	--	--	--	--	--
AE1M	24.70	1.00	24.00	2.40	23.50	3.20	23.00	4.20	21.40	5.20	--	--	--	--
AE2H	26.00	1.70	25.50	3.00	25.20	4.00	24.50	4.80	23.00	5.40	20.00	8.00	--	--
AE2M	26.00	1.20	25.60	2.50	25.30	4.00	25.00	5.00	24.00	5.60	22.50	7.80	21.00	8.60
AF1	37.00	1.00	35.00	2.80	32.50	4.00	29.00	5.40	--	--	--	--	--	--
AG1	61.00	3.00	58.00	6.80	57.00	8.60	55.00	11.20	--	--	--	--	--	--

### NOTES

1. The tabulated performance data is based upon handling clean water at 20°C using a natural rubber stator grade A.
2. ABS kW = Absorbed power on pump operation.
3. For guidance in selecting a pump for use with other fluids of varying abrasion and viscosity refer to Mono Pumps Ltd., Audenshaw, Manchester.
4. For F & G Builds use H performance details under Model No.



# Mono Merlin Pump Coding

FEATURES	DESCRIPTION	BASIC PUMP CODING								
		1	2	3	4	5	6	7	8	9
BODY MATERIALS	Cast Iron	C								
	Stainless Steel	S								
PUMP DESIGN	Industrial Standard		A							
PUMP DISPLACEMENT	2.3 m <sup>3</sup> /h @ 1450 rpm			A						
	6.0 m <sup>3</sup> /h @ 1450 rpm			B						
	16.0 m <sup>3</sup> /h @ 1450 rpm			C						
	25.5 m <sup>3</sup> /h @ 960 rpm			E						
	37.0 m <sup>3</sup> /h @ 960 rpm			F						
	61.0 m <sup>3</sup> /h @ 720 rpm			G						
PUMP STAGES	One				1					
	Two				2					
DRIVE ARRANGEMENT	Standard - All Pumps					2				
STATOR TYPE INCLUDING END COVER	MTM Stator & Str. Thro' End Cover						M			
	MTM Stator & 90° End Cover						N			
	FM Stator & Comb. Barrel & Str.Thro'EC						F			
	FM Stator & Sep. Barrel & 90° EC						G			
	FM Stator & Sep. Str. Thro' EC						H			
MARK NUMBER	1983							1		
STATOR MATERIALS	Natural Rubber 69-75 IRHD									A
	Natural Rubber 59-65 IRHD									B
	Natural Rubber White Food Quality									D
	Hypalon Chlorosulphonated Rubber									H
	High Nitrile									J
	Cast Urethane									K
	Neoprene White Food Quality									M
	Industrial Nitrile 65-72 IRHD									R
	Viton 75-80 IRHD									V
	Nitrile White Food Quality									W
ROTATING PART MATERIALS ROTOR/SHAFT/ COUPLING ROD	905M31R Nitralloy Rotor - 220M07 HCP Mild Steel Shaft									2
	316S16 HCP Stainless Steel Rotor - 220M07 HCP Mild Steel Shaft									3
	BD3 HCP Tool Steel Rotor - 220M07 HCP Mild Steel Shaft									4
	316S16 Stainless Steel Rotor - 316S16 Stainless Steel Shaft									5
	316S16 HCP Stainless Steel Rotor - 316S16 Stainless Steel Shaft									8
Example of Typical Coding As Seen on Pump Nameplate	C	A	C	1	2	M	1	R	3	

For options not detailed above please refer to Mono Pumps Ltd., Audenshaw, Manchester.

# Bareshaft Pump Dimensions

PUMP SIZE	A	A1	B	C	D	E	E1	F	F1	F2	G	G1	H	J	K	L	Wt. kg
AA1H AA1M	521	50	192	329	32	10	8	118	155	129	75	75	80	175	19	140	20
AA2H AA2M	612	158	283	329	32	10	8	118	155	219	75	75	80	175	19	140	23
AB1H/H1 AB1M/H1	610	150	232	378	40	10	10	152	160	164	92	100	90	195	24	150	33
AB2H AB2M	745	220	367	378	40	10	10	152	160	299	92	100	90	195	24	150	40
AC1H/H1 AC1M/H1	843	240	362	481	50	12	12	200	200	297	110	113	112	237	38	165	56
AC2H AC2M	1061	396	580	481	50	12	12	200	200	516	110	113	112	237	38	165	55
AE1H/H1 AE1M/H1	1047	300	454	593	80	16	16	232	245	370	140	145	132	282	38	200	114
AE2H AE2M	1327	490	734	593	80	16	16	232	245	650	140	145	132	282	38	200	130
AA1F	521	110	192	329	32	10	8	118	155	147	75	55	80	175	19	140	118
AA2F	612	158	283	329	32	10	8	118	155	238	75	55	80	175	19	140	20
AB1F/H1	610	150	232	378	40	10	10	152	160	181	92	70	90	195	24	150	30
AB2F	745	220	367	378	40	10	10	152	160	316	92	70	90	195	24	150	33
AC1F/H1	843	240	362	481	50	12	12	200	200	315	110	74	112	237	38	165	50
AC2F	1061	396	580	481	50	12	12	200	200	533	110	74	112	237	38	165	66
AE1F/H1	1047	300	454	593	80	16	12	232	245	413	140	110	132	282	38	200	105
AE2F	1327	490	734	593	80	16	12	232	245	693	140	110	132	282	38	200	117
AA1G AA1N	574	30	175	329	32	10	8	118	155	129	75	75	80	175	19	140	20
AA2G AA2N	665	100	266	329	32	10	8	118	155	219	75	75	80	175	19	140	23
AB1G/H1 AB1N/H1	696	35	243	378	40	10	10	152	160	164	92	100	90	195	24	150	33
AB2G AB2N	831	150	378	378	40	10	10	152	160	299	92	100	90	195	24	150	40
AC1G/H1 AC1N/H1	929	60	365	481	50	12	12	200	200	297	110	113	112	237	38	165	56
AC2G AC2N	1148	285	584	481	50	12	12	200	200	516	110	113	112	237	38	165	55
AE1G/H1 AE1N/H1	1163	60	470	593	80	16	16	232	245	370	140	145	132	282	38	200	114
AE2G AE2N	1446	360	753	593	80	16	16	232	245	650	140	145	132	282	38	200	130
AF1H	1047	300	454	593	80	16	16	232	245	508	140	145	132	282	38	200	120
AF1G	1163	60	470	593	80	16	16	232	245	508	140	145	132	282	38	200	120
AG1M	1342	300	560	782	100	20	20	325	315	640	150	170	180	360	55	220	150
AG1N	1430	180	538	782	100	20	20	325	315	645	150	170	180	360	55	220	160



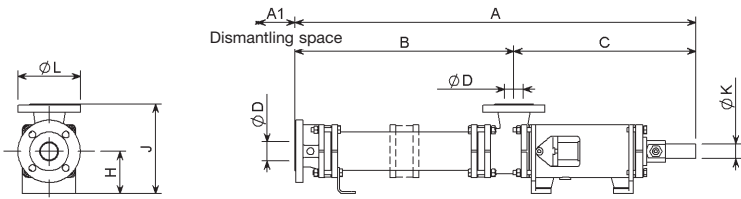


Diagram 1. Models AA, AB, AC & AE.  
Typical Builds H and M.  
Cast Iron and Stainless Steel

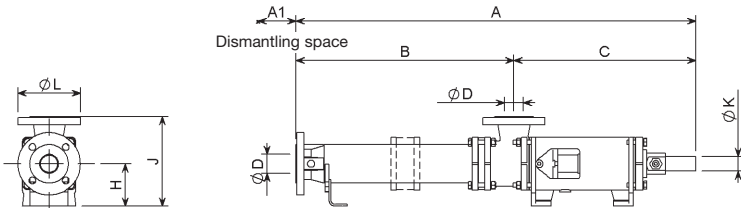


Diagram 2. Models AA, AB, AC & AE.  
Typical Build F.  
Cast Iron only.

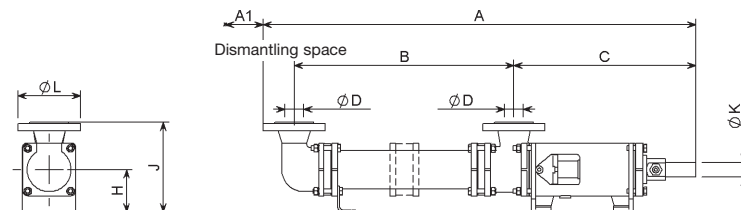


Diagram 3. Models AA, AB, AC & AE.  
Typical Builds G and N.  
Cast Iron only

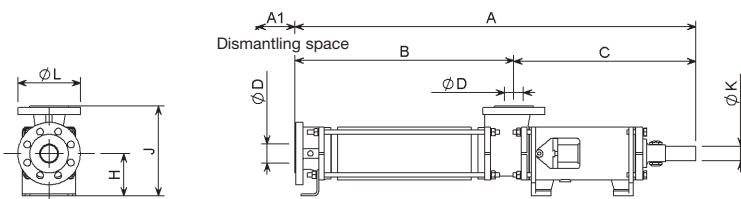


Diagram 4. Models AF, Build H and AG Build M.  
Cast Iron and Stainless Steel.

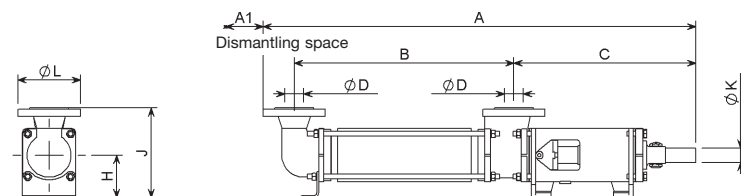
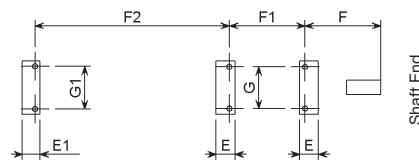


Diagram 5. Models AF, Build G and AG Build N.  
Cast Iron only.



Foundation Fixing Details

NOTES:

1. All dimensions are in millimetres unless otherwise stated and are for guidance only. For full certified drawings refer to Mono Pumps Ltd.
2. On models AA AB AC AE and AF cast iron flanges are to BS EN 1092 25/11 and stainless steel flanges are to BS EN 1092 25/1. On models AG only cast iron flanges are to BS 4505 16/11 and stainless steel flanges are to BS EN 1092 16/1.
3. Shaft diameters are to BS 4506: 1970 and keyways to BS 4234 Part No. 1/ISO R773.
4. SOG refers to pump suction at the gland or drive end of the pump. DOG refers to pump delivery at the gland or drive end of the pump.
5. E & E1 refer to hold down bolt sizes.

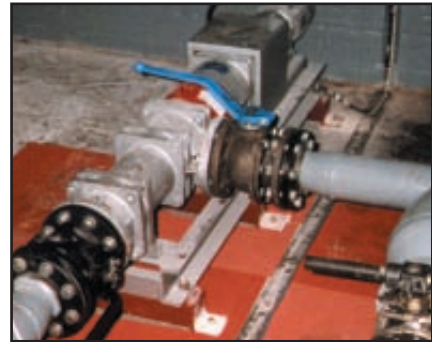


# Applications

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## Liquid PVC

A CAE12H193 pump installed on a tile production line to pump liquid PVC backing at 300 kg/h from storage vessels to the coating heads. The low speed Merlin pump has a gentle conveying action to ensure the integrity of the shear sensitive PVC coating and enable the liquid PVC to be delivered to the coating heads at a constant flow rate, crucial to obtaining an even coating.



## Chemicals

A manufacturer of industrial hygiene cleaning products is using a Merlin pump for chemical transfer and tanker loading duties. As some chemicals can have a viscosity as high as 2,000 cP and be shear sensitive, the progressing cavity pumping principle produces a low shear pumping action to maintain product integrity and prevent foaming.



## Raw Sewage

The combination of a Merlin pump and Mono macerator provides a highly effective pumping and macerating system. This unit is installed in a rural outhouse to transfer sewage at a capacity of 15m<sup>3</sup>/h to the main sewage system. Situated above a well that collects raw sewage from local cottages, the suction of the Merlin pump lifts the sewage from the well and into the macerating chamber. The positive displacement action offers the benefits of blockage-free operation and smooth transfer of the sewage through small bore pipes into the main sewer.



## Cattle Slurry

This CAB22H1R3 pump is part of a system to distribute the liquid from cattle slurry over farm fields. Handling a capacity of 3000 l/h, the pump is connected to pulser devices situated in various fields up to 1000m away. The pulser is fitted with a bladder accumulator, which discharges the liquid when the pressure reaches 7½ bar.





# Service and Technology

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## Applications

Mono progressing cavity pumps are used throughout the many sectors of industry.

Indicated below are just a few of the many fluids handled.

### 1. The Paper and Ceramics Industry

clay slurry, titanium dioxide, bentonite slurry, latex, coating, starch, ceramic slip.

### 2. The Chemical Industry

phosphoric acid, alum, caustic solutions, petroleum spirit, diesel fuel oil, ferric chloride, ethylene glycol.

### 3. The Food Industry

molasses, sauces, cooking oil, whey, jellies, fruit juices, yoghurt, pet food.

### 4. Mining

waste water, grouting mixtures, cavity filling mixes, coal slurries, nuisance water.

### 5. Sewage & Waste Water Treatment

polyelectrolyte, lime, acids, carbon slurries, chlorine, digested sewage sludge, filter pressed sludges, aluminium sulphate.

## Total Quality - Guaranteed

It is the policy of Mono Pumps Ltd. to achieve Total Quality performance in every aspect of customer service.

This commitment to quality, which has been recognised by our attainment of ISO 9001:2000 of Lloyds Register of Quality Assurance, can be seen in the high standards of pre and post sales support which we offer.

We use the very latest technology, including computer based flexible manufacturing systems, computerised bar stores and information systems.

These control systems are supported by advanced manufacturing facilities, like our comprehensive stator manufacturing plant, to ensure that we always produce pumps and parts to a consistently high standard.

And by using only genuine Mono spares you automatically reduce the risk of pump breakdown and preserve the full Mono guarantee. Mono spares result in lower fitting costs, greater efficiency, reduced running costs and longer pump life. Not to mention guaranteed quality and value for money.

What's more, genuine Mono spare parts are available 24 hours a day, 365 days a year thanks to our international distributor network. And we also offer a full back-up service to provide technical advice and support.

As you can see, the Mono service is comprehensive, dedicated and totally committed to giving the customer the quality they require.



## Europe

Mono Pumps Ltd, Martin Street, Audenshaw  
Manchester, M34 5JA, England  
T. +44 (0)161 339 9000  
E. [info@mono-pumps.com](mailto:info@mono-pumps.com)

D.M.I EST, 56, rue du Pont  
88300 Rebeuville, France  
T. +33 (0)3 29 94 26 88  
E. [dmi-est@dmi-est.fr](mailto:dmi-est@dmi-est.fr)

## Americas

Monoflo NOV, 9700 West Gulf Bank  
Houston, Texas 77040, USA  
T. +1 281 272 7700  
E. [inquire@monoflo.com](mailto:inquire@monoflo.com)

Monoflo S.A., Ing Huergo 2239  
(1842) Monte Grande  
Pcia. de Buenos Aires, Argentina  
T. +54 11 4290 9940/50  
E. [info@monoflo.com.ar](mailto:info@monoflo.com.ar)

## Australasia

Mono Pumps (Australia) Pty Ltd  
Mono House, 338-348 Lower Dandenong Road  
Mordialloc, Victoria 3195, Australia  
T. 1800 333 138  
E. [ozsales@mono-pumps.com](mailto:ozsales@mono-pumps.com)

Mono Pumps (New Zealand) Ltd  
PO Box 71-021, Fremlin Place, Avondale  
Auckland 7, New Zealand  
T. +64 (0)9 829 0333  
E. [info@mono-pumps.co.nz](mailto:info@mono-pumps.co.nz)

## Asia

Mono Pumps Ltd, No. 500 YaGang Road  
Lujia Village, Malu, Jiading District  
Shanghai 201801, P.R. China  
T. +86 (0)21 5915 7168  
E. [monoshanghai@nov.com](mailto:monoshanghai@nov.com)

[www.mono-pumps.com](http://www.mono-pumps.com)



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