

N Series – Chemical pumps (long coupled) (ISO 5199 : 2002)

Documentation packs		
Documentation pack	Inclusive documents	Standard
Bronze pack	Order acknowledgement (electronic)	●
	Installation, Operating & Maintenance manual	●
	Declaration of conformity	●
	ATEX Declaration of conformity – only if contracted	
Silver Pack (Includes bronze pack)	Standard pump GA drawing	
	Hydrostatic test certificate	
	Pump HQ performance test certificate	
	Spare parts list – commissioning	
Gold pack (Includes silver pack)	Type 2.2 certificates (* pressure containing parts only) – only if contracted	
	Quality plan	
	Progress reports (monthly)	
	Spare parts list – operating	
	Customer specific pump GA drawing	
	Pump SA & parts list	
	Type 3.1 certificates (* pressure containing + process wetted parts only) – only if contracted	
	Pump HQ performance test curve	
	Certification databook	
	Pump datasheet	
	Motor type test certificate	
	Motor GA drawing	
	Motor datasheet	
	Motor Declaration of conformity	
Motor ATEX Declaration of conformity – only if contracted		
Documentation format	Electronic CD – Adobe (.pdf), ms office (.xls .doc)	●
	Hard copy	

NDT			
Pump test	Test standard	Acceptance criteria	Standard
Hydrostatic	BSEN25199 / ISO 5199	BSEN25199 / ISO 5199 (1.5 x MAWP)	●
Head & flow	BSEN25199 / ISO 5199	ISO 9906 Grade 2	
	BSEN25199 / ISO 5199	ISO 9906 Grade 1	
Mechanical run – 1 hour at rated duty	Amarinth procedure	Amarinth procedure	
Mechanical run – 4 hours at rated duty	Amarinth procedure	Amarinth procedure	
NPSH – single point	BSEN25199 / ISO 5199	ISO 9906 Grade 2	
	BSEN25199 / ISO 5199	ISO 9906 Grade 1	
NPSH – 4 points	BSEN25199 / ISO 5199		
	BSEN25199 / ISO 5199		
Noise – single point at 1m	BSEN12639 : 2000	Mutual agreement	
Vibration – single point	BSEN25199 / ISO 5199	BSEN25199 / ISO 5199	

NDE	
Dyepenetrant of machined surfaces	Pressure containing castings only
Dyepenetrant of cast surfaces	Pressure containing castings only
Dyepenetrant of welds	Drain & seal pipework (if fitted)
Positive Material Identification	Process wetted (excludes minor components e.g. fastners)
Radiography	Shot plan – critical areas
Hardness report	NACE (compliant material only) MR0175 / ISO 15156
Various motor tests	

*Pressure containing parts include; volute casing, casing cover, & mechanical seal. Process wetted parts include shaft and impeller. A full range of documentation can be tailored to suit your exact requirements. Amarinth reserves the right to alter any information within this document without prior notification. © Copyright 2005-2017. Amarinth Limited. E&OE.



Bentwaters Parks, Rendlesham, Woodbridge, Suffolk, IP12 2TW. United Kingdom
 tel: +44 (0)1394 462 120 fax: +44 (0)1394 462 130 email: enquiries@amarinth.com web: www.amarinth.com

N Series – Chemical pumps (long coupled)

(ISO 5199 : 2002)

technical specification



General Specification	
General description	A range of single stage centrifugal end suction pumps with centreline discharge manufactured in a variety of alloys and interchangeable with Girdlestone 910 series pumps.
Construction	Back pullout design with metal to metal fits
Design methodology	Advanced computer techniques including 3D modelling, FEA & CFD
Design standards	ISO 5199 : 2002 ATEX EC-Directive 94/9/EC
Design pressure rating	16 bar g @ 20°C
Suction pressure rating	16 bar g
Temperature rating	-40°C to 200°C (standard construction) -40°C to 250°C (with cooling)
Performance envelope	
Flowrate	Up to 1100m ³ /h
Differential head	Up to 225m
Speed	Up to 3600 rpm
Configurations	Long coupled Bareshaft Rotating assembly
Frame sizes	040x025x145 to 250x0200x510
Design life	20 years (2 years uninterrupted operation)

Material Options		
Material Options	Casing	Impeller
SS 316 / SS 316	ASTM A744 CF 8M	ASTM A744 CF 8M
Cast Iron / Cast Iron	BS EN 1561 Gr EN GJL 250	BS EN 1561 Gr EN GJL 250
Cast Iron / SS 316	BS EN 1561 Gr EN GJL 250	ASTM A744 CF 8M
SG Iron / SS 316	BS EN 1563 Gr EN GJS 400 18 LT	ASTM A744 CF 8M
Carbon Steel / SS 316	ASTM A216 WCB	ASTM A744 CF 8M
Carbon steel / 12% Cr SS	ASTM A216 WCB	ASTM A217 Gr CA 15
Duplex SS / Duplex SS	ASTM A890 Gr 1B CD 4MCuN	ASTM A890 Gr 1B CD 4MCuN
Super Duplex SS / Super Duplex SS	ASTM A890 Gr 6A (UNS J93380)	ASTM A890 Gr 6A (UNS J93380)
Hastelloy B / Hastelloy B	ASTM A494 Gr N 7M	ASTM A494 Gr N 7M
Hastelloy C / Hastelloy C	ASTM A494 Gr CW 12MW	ASTM A494 Gr CW 12MW
Monel / Monel	ASTM A494 Gr M35 1	ASTM A494 Gr M35 1
Customer specified	Other alloys available on request including NACE compliant materials	Other alloys available on request including NACE compliant materials

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MP2510-340 REV E (Nov 17)

Features	Technical notes	Benefits	Standard
▼ Casing			
Construction	Twp piece casting with removable suction cover and 3mm corrosion allowance	Minimal leakage path, prolonged pump life	●
Flange standard	EN1092 PN16		●
	ASME class 150 / 125	Matched to site standard	
Fasteners	High tensile SS 316	Strength & corrosion resistance	●
Gasket	Reinforced graphite	Covers most fluids	●
	Expanded PTFE	Covers certain acid duties	
	Customer specified	Matched to site standard	
Wear ring	Suction side	Prolonged pump life	
Pressure tapping	3/8 " plugged (not 25mm pumps)	Aids trouble shooting	●
Drain	1/2 " plugged		●
	1/2 " butt weld flange	Matched to customer requirement	
Jacking screws	Stainless steel 316	Ease of maintenance	●
▼ Impeller			
Construction	One piece casting	Strength & integrity	●
Vanes	Francis type	Low NPSHr & stable H/Q curve	●
Style	Shrouded	Optimum efficiency	●
	Semi open	Handles solids content in fluid	
Fixing	Keyed with retention nut	Easy maintenance	●
Wear ring	Suction side	Prolonged pump life	
Hydraulic balancing	Backvanes	Low NPSHr	●
Dynamic balancing	Static balance		●
▼ Seals & seal housing			
	ISO 1940 G 2.5	Prolonged pump life	
Shaft diameters	25mm, 35mm, 45mm, 60mm		●
Seal types	Single component	Cost efficiency	●
	Single cartridge	Easymaintenance	
	Double cartridge	Reduced	
Seal housing	Bell type with anti vortex device & metal to metal fits	Optimum seal environment	●
	Parallel box type		
Seal piping arrangements	Code 01	Optimum seal environment	●
	Code 02, 04, 07, 09,10,11	Matched to customers requirement	
	Customer specified		
▼ Bearing bracket			
	or customer specified		
Style	Two piece casting / fabrication	Maximised modularity & interchangeability	●
Construction	Heavy duty with machined abutments	Long life	●
Bearings	Dual angular contact (axial) plus deep groove ball (radial)	Long life	●
Design bearing life	25,000 hours (L10) @ standard duties		●
Bearing seals	Lip seals	Cost benefit	●
	Non contacting bearing isolators	Minimal wear, long life, ATEX	
	Bearing protectors (Magtecta)	Hermetically sealed, ATEX	
Lubrication	Grease (fluid -20°C to 120°C)	Cost benefit	●
	Oil (fluid -40°C to 250°C)	Higher operating temperatures	

Features	Technical notes	Benefits	Standard
Cooling	Stainless steel 304 fan	Extended temperature range	
Running temperature	Less than 40°C above ambient	Long life	●
Monitoring	Vibration monitoring points	Assist planned maintenance	
	Temperature sensor location points		
Bearing bracket materials	SG Iron		●
	Stainless steel 316		
Shaft materials	Duplex stainless steel		●
	Customer specified	Material to match application	
▼ Coupling & guard			
Coupling style	Spacer type with metal membranes	Easy maintenance	●
	Customer specified	Matched to site standard	
Construction	Bored & keywayed	Easy removal	●
Balancing	Inherent by design	Low vibration	●
Dynamic	Hubs up to ISO 1940 G 2.5	Prolonged pump life	
Manufacturers	Autoguard, John Crane		●
	Customer specified	Matched to site standard	
Standards	ATEX		
Guard	Two piece wrap around in SS 304L	Non sparking / ATEX compliant	●
▼ Baseplate			
Style	Open	Cost benefit, ease of grouting	●
	Drain pan	Environmentally friendly	
	Extended	Pump & motor contained	
Construction	Fabricated from rolled steel sections with 4 lifting points	Rugged construction	●
Standards	ANSI/HI 3-2000, ISO 3661		●
Earthing points	2 off M10 screws		●
Motor alignment screws	Transverse & axial	Easier alignment	
Material	Carbon steel	Cost benefit	●
	SS 304L	Resistance to low temperature	
▼ Drive			
Motor type	Safe area, Exna, Exe, Exde, Exd	Matched to area requirements	
Standards	ISO frames	Matched to site standard	●
	NEMA frames		
	ATEX	Hazardous area requirement	
Supply	380 – 440 / 3 / 50, 440 – 460 / 3 / 60	Matched to site standard	
Manufacturers	ABB, Brook Crompton, Hansen, Loher, Seimens, TECO, WEG or Customer specified	Matched to site standard	
▼ Paint			
Industrial specification	Air drying alkyd – Green Black 233		●
Refinery specification	3 coat system (Min DFT 225µm) – RAL7030 (grey)		
Offshore specification	4 coat system (Min DFT 300µm) – RAL7030 (grey)		
Customer specification		Matched to site standard	
▼ Packing			
Road	Palletised & cling wrap		●
Seafreight / airfreight	Wooden box paper lined	Long term storage	
	Wooden box with vacuum sealed bag	Moisture free	