

▼ Documentation		
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	
	Type 2.2 certificates (* pressure containing parts only) - only if contracted	
Gold pack (Includes silver pack)	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		
Documentation format	Hard copy	●
	Electronic CD - Adobe (.pdf), ms office (.xls .doc)	

▼ Testing			
Pump test	Test standard	Acceptance criteria	Standard
Hydrostatic	BSEN25199 / ISO5199	BSEN25199 / ISO5199 (1.5 x MAWP)	●
Head & flow	BSEN25199 / ISO5199	ISO9906 Grade 2	
	BSEN25199 / ISO5199	ISO9906 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 / ISO5199	ISO9906 Grade 2	
	BSEN25199 / ISO5199	ISO9906 Grade 1	
NPSH – 4 points	BSEN25199 / ISO5199	ISO9906 Grade 2	
	BSEN25199 / ISO5199	ISO9906 Grade 1	
Noise – single point at 1m	BSEN12639: 2000	Mutual Agreement	
Vibration – single point	BSEN25199 / ISO5199	BSEN25199 / ISO5199	

▼ NDT	
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	Excludes minor components (nuts & bolts etc)
Radiography	Shot plan – critical areas
Hardness report	NACE (certain materials only – please ask for details)
Various motor tests	

* Pressure containing parts include; volute casing, seal housing & mechanical seal. Process wetted parts include additional shaft & impeller. A full range of testing and 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. Amarinth Limited. E&OE.



▼ General Specification	
General description	A range of single stage centrifugal end suction pumps with centreline discharge manufactured in a variety of alloys. All pumps and individual components are fully interchangeable with the equivalent Girdlestone 900 series units.
Construction	Front and back pullout design with metal to metal fits
Design methodology	Advanced computer techniques including 3D modelling, FEA & CFD
Design standards	ISO5199 : 2002 ATEX EC-Directive 94/9/EC
Design pressure rating	16 bar g @ 20°C
Suction pressure rating	3.5 bar g
Temperature rating	-5°C to 120°C
Performance envelope	
Flowrate	Up to 1100m ³ /h
Differential head	Up to 225m
Speed	Up to 3600 rpm
Configurations	Close coupled pump Rotating assembly
Frame sizes	040x025x145 to 250x200x510
Design life	20 years (2 years uninterrupted operation)

▼ Materials		
Materials	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 Dup SS / Super Dup SS	ASTM A890 Gr 5A (UNS J93404)	ASTM A890 Gr 5A (UNS J93404)
Hastelloy B / Hastelloy B	ASTM A949 Gr N-7M	ASTM A949 Gr N-7M
Hastelloy C / Hastelloy C	ASTM A494 GrCW-12MW	ASTM A494 GrCW-12MW
Monel / Monel	ASTM A494 GrM35-1	ASTM A494 GrM35-1
Customer specified	Other alloys available on request including NACE compliant materials	Other alloys available on request including NACE compliant materials

Features	Technical Notes	Benefits	Standard
▼ Casing			
Construction	Two piece casting with removable suction cover and 3mm corrosion allowance	Ease of maintenance, prolonged pump life	●
Flange standard	ISO PN16		●
	ISO PN20 / ANSI 150 / ANSI 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	
	CSF	Matched to site standard	
	Customer specified	Matched to site standard	
Wear ring	Suction side	Prolonged pump life	
Pressure tapping	3/8 " plugged	Aids trouble shooting	●
Drain	1/2 " plugged		●
	1/2 " butt weld flange	Matched to casing	
Jacking screws	Stainless Steel 316	Ease of maintenance	●
Orifice plate	Loose tang type	Match customers requirements	
▼ Impeller			
Construction	One piece casting	Strength & integrity	●
Vanes	Francis type – 4 / 5 off	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		●
	ISO 1940 G 6.3		
	ISO 1940 G 2.5	Prolonged pump life	
▼ Seals & seal housing			
Shaft diameters	25mm, 35mm, 45mm, 60mm		●
Seal types	Single component	Lowest cost	●
	Single cartridge	Ease of maintenance	
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	Match customers requirements	
	Customer specified		
Manufacturers	AES, Burgmann, John Crane or customer specified	Matched to site standard	

Features	Technical Notes	Benefits	Standard
▼ Motor adaptor			
Style	One piece fabrication	Better concentricity, less run out	●
Construction	Heavy duty with machined abutments	Superior motor alignment	●
Materials	Carbon steel		●
	Stainless steel 316		
▼ Shaft & bearings			
Bearings	Uses motor bearings (deep groove ball)	Lowest cost	●
Design bearing life	17,500 – 40,000 hrs dependant upon motor fitted		●
Shaft material	Duplex stainless steel		●
	Customer specified	Material to match casing / fluid	
▼ Baseframe			
Style	Pump support foot	Ease of installation	
	Motor support foot		
	Pump & motor support feet		
	Baseplate - open		
	Baseplate – drain pan	Environmentally friendly	
Construction	Fabricated from formed steel plate	Rugged construction	
Earthing points	2 off M10 screws (baseplate only)		
Material	Carbon steel	Lowest cost	
	SS 304L	Resistance to low temperature	
▼ Driver			
Motor type	Safe area, EExN, EExd, EExde, Exe,	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 Hansen, Loher, Seimens, TECO, WEG, Customer specified	Matched to site standard	
▼ Paint			
Industrial specification	Air drying alkyd - Green Black 233		●
Refinery specification	3 pack epoxy (Min DFT 225µm) topcoat off grey		
Offshore specification	3 pack epoxy (Min DFT 300µm) topcoat off grey		
Customer specification		Matched to site standard	
▼ Packing			
Road	Palletised & cling wrap		●
Seafreight	Wooden box suitable for sea		
	Wooden box with vacuum sealing		
Airfreight	Wooden box suitable for air		

