

C Series – Chemical pumps (close coupled) (ISO5199 : 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	
	Type 2.2 certificates (* pressure containing parts only) - only if contracted	
	Type 3.1 certificates (* pressure containing + process wetted 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	
	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	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.



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(ISO5199 : 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.	
Construction	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	20 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 250x0200x510	
Design life	20 years (2 years uninterrupted operation)	
▼ Material options		
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 Duplex SS / Super Duplex 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

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Features	Technical Notes	Benefits	Standard
▼ Casing			
Construction	One piece casting with integral suction cover and 3mm corrosion allowance	Minimal leakage path, 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	
	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 casing	
Jacking screws	Stainless steel 316	Ease of maintenance	●
Orifice plate	Loose tang type	Matched to customer requirement	
▼ 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	
	Compact double cartridge	Environmentally safer	
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		
Manufacturers	AES, Burgmann, John Crane or customer specified	Matched to site standard	

Features	Technical Notes	Benefits	Standard
▼ Motor adaptor			
Style	One piece casting	Better concentricity, less run out	●
Construction	Heavy duty casting with machined abutments	Superior motor alignment	●
Materials	SG Iron		●
	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 alkylid - 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		