

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	
	Hydrostatic test certificate	
	Pump HQ performance test certificate	●
	Spare parts list – commissioning	
	Documentation schedule	
	Quality plan	
	Production programme	
Silver Pack (includes bronze pack)	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	
Gold pack (includes silver pack)	Motor Declaration of conformity	
	Motor ATEX Declaration of conformity	
	Manufacturing databook	
	Material traceability	
	Progress reports (monthly)	
	Paint certificate	
	Nameplate drawing	
	Spare parts interchangeability report	
	Spare parts list – insurance & commissioning	
	Documentation format	Electronic CD – Adobe (.pdf), ms office (.xls .doc)
	Hard copy	

NDT			
Pump test	Test standard	Acceptance criteria	Standard
Hydrostatic	API 610 / ISO 13709	API 610 / ISO 13709 (1.5 x MAWP)	●
Head & flow	ISO 9906	API 610 / ISO 13709	●
Mechanical run – 1 hour at rated duty	API 610 / ISO 13709	API 610 / ISO 13709	
Mechanical run – 4 hours at rated duty	API 610 / ISO 13709	API 610 / ISO 13709	
NPSH – 4 point	ISO 9906	API 610 / ISO 13709	
Noise – single point at 1m	API 610 / ISO 13709	Customer datasheet	●
Vibration – FFT spectrum at each test point	API 610 / ISO 13709	API 610 / ISO 13709	●
Bearing bracket resonance	API 610 / ISO 13709	Mutual agreement	

NDE		
Visual examination of cast surfaces	ASME V Article 9 / MSS SP55 (pressure containing castings only)	●
Dye penetrant of machined surfaces	Pressure containing castings only	
Dye penetrant of cast surfaces	Pressure containing castings only	
Dye penetrant of welds	Drain & seal pipework (if fitted)	
Positive Material Identification	Process wetted (excludes minor components e.g. fasteners)	
Radiography	Welds (pressure pipework) Castings – 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, impeller, wear rings, impeller hub cap, lockwasher & screw. A full range of documentation can be tailored to suit your exact requirements. Amaranth reserves the right to alter any information within this document without prior notification. © Copyright 2005-2017. Amaranth Limited. E&OE.

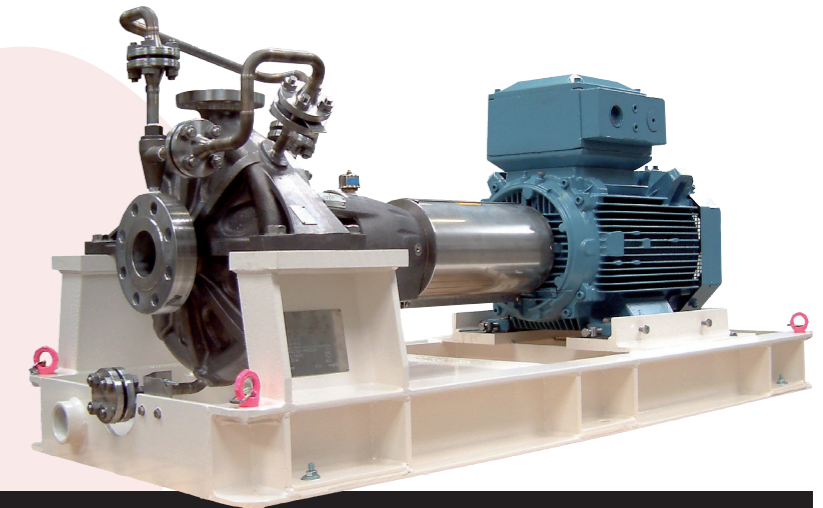
## A Series – OH2 Petrochemical pumps

(API 610 11th: 2010)

technical specification



# Amarinth



### General specification

<b>General description</b>	A range of OH2 single stage, centreline mounted centrifugal end suction pumps with centreline discharge manufactured in a variety of alloys.
<b>Construction</b>	Back pullout design with metal to metal fits
<b>Design methodology</b>	Advanced computer techniques including 3D modelling, FEA & CFD
<b>Design standards</b>	API 610 11th : 2010 / ISO 13709 : 2010 ATEX EC-Directive 94/9/EC
<b>Design pressure rating</b>	51.8 bar g @ 38°C
<b>Suction pressure rating</b>	20 barg (standard construction) 40 barg (heavy duty construction)
<b>Temperature rating</b>	-40°C to 200°C (standard construction) -40°C to 370°C (with cooling)
<b>Performance envelope</b>	
<b>Flowrate</b>	Up to 1500 m <sup>3</sup> /h
<b>Differential head</b>	Up to 300 m
<b>Speed</b>	Up to 3600 rpm
<b>Configurations</b>	Long coupled pump Bareshaft pump Rotating assembly
<b>Frame sizes</b>	040x025x145 to 300x200x510
<b>Design life</b>	30 years (3 years uninterrupted operation)

Material options	Casing	Impeller
A8 SS 316L / SS 316L	ASTM A351 CF 3M	ASTM A351 CF 3M
I1 Cast Iron / Cast Iron	ASTM A278 Class 30	ASTM A278 Class 30
S8 Carbon steel / SS 316L	ASTM A216 WCB	ASTM A351 CF 3M
S6 Carbon steel / 12% Cr SS	ASTM A216 WCB	ASTM A217 Gr CA15
D1 Duplex SS / Duplex SS	ASTM A890 Gr 4A (UNS J92205)	ASTM A890 Gr 4A (UNS J92205)
D2 Super Duplex SS / Super Duplex SS	ASTM A890 Gr 5A (UNS J93404)	ASTM A890 Gr 5A (UNS J93404)
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
Titanium / Titanium	ASTM B367 Gr C2	ASTM B367 Gr C2
<b>Customer specified</b>	Other alloys available on request including NACE compliant materials	Other alloys available on request including NACE compliant materials

Features	Technical notes	Benefits	Standard
<b>▼ Casing</b>			
Construction	One piece casting with integral suction cover and 3 mm corrosion allowance	Minimal leakage path, prolonged pump life	●
Flange standard	ASME Class 300 / Class 250		●
Nozzle loading	As defined in API 610	Rugged construction	●
Fasteners	ASTM320 Gr B8MX	Strength & corrosion resistance	●
Gasket	Spiral wound with graphite filler Customer specified	Covers most fluids Matched to application	●
Wear rings	Suction & drive side (shrouded impeller only)	Prolonged pump life	●
Drain	1/2 / 3/4 " butt weld flange 1/2 / 3/4 " plugged (I1 material only) No drain	Minimal leakage path	●
Jacking screws	SS 316	Ease of maintenance	●
<b>▼ Impeller</b>			
Construction	One piece casting	Strength & integrity	●
Vanes	Francis type	Low NPSHr & stable H / Q curve	●
Style	Shrouded Semi open	Optimum efficiency Handles solids content in fluid	●
Fixing	Keyed with retention screw & lock washer	Ease of maintenance	●
Wear rings	Suction & drive side (shrouded only)	Prolonged pump life	●
Hydraulic balancing	Balance hub / holes (shrouded only)		●
Dynamic balancing	ISO 1940 G2.5 ISO 1940 G1.0	Prolonged pump life Matched to customer requirement	●
<b>▼ Mechanical seal &amp; seal housing</b>			
Shaft diameters	30mm, 40mm, 50mm, 60mm, 70mm		●
Seal type	API 682 single cartridge API 682 double cartridge	Ease of maintenance Reduced emissions	●
Seal plan	Plan 11 / 61 Any other API 682 plan Customer specified	Optimum seal environment Matched to customer requirement	●
Manufacturers	Eagle Burgmann, John Crane or customer specified	Matched to site standard	
<b>▼ Bearing bracket</b>			
Style	One piece casting	Better concentricity, less run out	●
Construction	Heavy duty casting with machined abutments	Superior bearing alignment	●
Bearings	Dual angular contact (axial) plus deep groove ball (radial)	Long life	●
Design bearing life	25,000 hours (L10) @ standard duties		●
Bearing seals	John Crane non contacting isolators Customer specified	Minimal wear, long life Matched to site standard	●
Lubrication	Oil Grease	Higher operating temperatures Cost benefit	●
Cooling	Cast fins Fan Water cooled heat exchanger	Dissipates heat Extended temperature range Constant cooling	●
Running temperature	API compliant	Long life	●

Features	Technical notes	Benefits	Standard
Monitoring	Vibration monitoring points Temperature monitoring points	Assist planned maintenance	●
Bearing bracket material	Carbon steel Stainless steel 316	Matched to application requirement	●
Shaft material	Duplex stainless steel Customer specified	Matched to application	●
<b>▼ Coupling &amp; guard</b>			
Coupling style	Spacer type with metal membranes. DBSE 140 / 180	Ease of maintenance	●
Construction	Bored & keywayed with extraction holes Low temperature	Ease of removal Match to environment	●
Balancing	Inherent by design ISO 1940 G 2.5	Low vibration Prolonged pump life	●
Manufacturers	John Crane Customer specified	Matched to site standard	●
Standards	ATEX		
Guard	Two piece wrap around in brass	Non sparking	●
<b>▼ Baseplate</b>			
Style	Drain pan with grout holes Drain pan without grout holes	Suit site standard Cost benefit, ease of installation	●
Drain	2" ASME Class 150 flange	Ease of connection	●
Construction	Fabricated from rolled steel sections with 4 lifting eye bolts	Rugged construction	●
Standards	API 610, ISO13709:2010		●
Earthing point	2 off M10 studs / nuts / washers		●
Alignment screws (Up to 132 frame)	Transverse & axial	Matched to customer requirement	
Alignment screws (160 frame and above)	Transverse & axial	Ease of alignment	●
Material	Carbon steel Stainless steel 304L	Cost benefit Resistance to low temperature	●
<b>▼ Driver</b>			
Motor type	Safe Area, Exna, Exe, Exde, Exd	Matched to area requirements	
Standards	ISO frames NEMA frames ATEX	Matched to site standard Hazardous area requirement	●
Supply	380 – 440 / 3 / 50, 440 – 460 / 3 / 60	Matched to site standard	
Manufacturers	ABB, Loher, Siemens or customer specified	Matched to site standard	
<b>▼ Paint</b>			
Refinery specification	3 coat system (Min DFT 225µm) – RAL 7030 (grey)		●
Offshore specification	4 coat system (Min DFT 300µm) – RAL 7030 (grey) Customer specification	Matched to site standard	
<b>▼ Packing</b>			
Flange blanking	Metal closures with rubber gaskets		●
Road	Palletised & cling wrap		●
Seafreight / airfreight	Wooden box paper lined Wooden box with vacuum sealed bag	Long term storage Moisture free	