

since 1952



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HR - HRV **Series**



PUMP TYPE	TWIN SCREW PUMPS – EXTERNAL TIMING GEA	ARS					
Pump Series	HR Series:		HRV Series :				
Installation Options:	Horizontal	Vertical					
Executions:	High Capacity						
	Standard & API 676 with deviations - Timing Gears - External Gears and Bearings						
Optimized for Applications in:	Oil&Gas Downstream, Petrochemical, Chemi	cal, Marine & Shipbuilding, General Industry	/				
Suitable to Fluid having the following properties:	Abrasive and not Abrasive						
p	Corrosive (Alkaline / Acid / Aggressive) and not	Corrosive					
	Low / Medium / High / Very High Viscosities						
	Not Lubricating or Lubricating						
	Medium / High percentage of Gas or Air dissol	Medium / High percentage of Gas or Air dissolved in Liquid					
	Slightly Dirty (small soft particles)						
Advantages of the Operating Principle:	Capability of handling a Wide Range of viscosit = one pump for many types of fluids and many						
	High Suction Lift Capability – the pump NPSH b	peing very low - down to 1,5 meters.					
	Self Priming without any auxiliary devices.						
	Capable to pump very viscous fluids thanks to	its smooth axial and low-pulsation movemen	t.				
	Pulsations are minimized and flow rate is uniform and sensitive to shear stresses or turbulences,						
	High Rotating Speeds are possible thanks to th	ne low inertia of the screws.					
	Screws are contact-less so wear-out is minimiz	red and Pump Life is extended.					
	Flow rate is constant even when pressure char	nges.					
	Reversible at Low Speeds / Pressure.						
	Capability of Dry Running for a limited period	and in particular conditions.					
	Low noise level & Low vibration.						
Pump Series	HR Series:						
Maximum design pressure:	14 bar (standard) [204 psig]						
Flow rates:	up to 3500 m3/h [15400 GPM]						
Viscosity of the pumped fluid:	up to 35.000 cSt						
Pipe Nominal Size DN:	from 50 to 750 [from 2" up to 30"]						
Rotation speed:	from 200 up to 2200 rpm						
Temperature range:	-46 / +300 °C [-51 / +572 °F] - ON REQUEST -60°C						
Pulsations:	Minimized (almost zero)						
Bearing types:	External Bearings and Gears in oil bath / greas	e	1				
Standard Materials:	Casing / Liner	Screws	Shafts				
	Cast Iron, Ductile Cast Iron	Ductile Cast Iron	High Strenght Low Alloy Steel				
	Carbon Steel (Cast or Fabricated)	High Strenght Low Alloy Steel	Stainless Steel AISI 420				
	Low Temperature Carbon Steel (Cast or Fabricated)	Stainless Steel AISI 420	Stainless Steel 17-4 PH				
	12% Cr Stainless Steel	Stainless Steel AISI S316/S316L	Stainless Steel XM-19				
	Stainless Steel AISI S316/S316L (Cast or Fabricated)	Stainless Steel 17-4 PH or AISI 431	Duplex & Super Duplex St. Steel				
	Bronze, Nickel Aluminium Bronze	Duplex & Super Duplex St. Steel	HVOF Spray Coating /Tungsten Carbide Coating				
		HVOF Spray Coating /Tungsten Carbide Coating	Chromium Plating				
		Nitriding	Nitriding				
Customized materials:	Other Alloys and Material Combinations are	available on request					
Castornized materials.	NORSOK Compliant Materials are available on	<u> </u>					
	110/1001 Compilation Waterials are available off						
Main Application Fields:	HR / HRV Series						
man Application Ficius.	OIL & GAS DOWNSTREAM: Tank Storages / Ter	minals Oil Pinelines					
	PETROCHEMICAL: Refinery, Petrochemical Cor		r Plants				
	CHEMICAL: Resin Production, Paint Production		Tiuno				
			Platforms Hulls				
	MARINE & SHIPBUILDING: Tankers, Barges, Ca		riatio(IIIS Hulls				
	POWER GENERATION: Heavy Fuel Oil Power Pl	ants, Lube Oil Systems					



HD - HDL - HDV **Series**



PUMP TYPE	TWIN SCREW PUMPS - EXTERNAL TIMING O	GEARS			
Pump Series	HD Series:	HDL Series:	HDV Series :		
Installation Options:	Horizontal (Cast Casing)	Horizontal (Fabricated Steel Casing, with Replaceable Liner)	Vertical		
Executions:	Standard & API 676 - Timing Gears - External Gears and Bearings				
Optimized for Applications in:	Oil&Gas, Petrochemical, Chemical, Marine				
Suitable to Fluid having the following properties:	Abrasive and not Abrasive				
8 P.	Corrosive (Alkaline / Acid / Aggressive) and	not Corrosive			
	Low / Medium / High / Very High Viscosities				
	Not Lubricating or Lubricating				
	Medium / High percentage of Gas or Air dissolved in Liquid (Multiphase versions available)				
	Slightly Dirty (small particles)	de Constitution of the Con			
	ong. my a may (a man parabase)				
Advantages of the Operating Principle:	Capability of handling a Wide Range of viscosities and pressures = one pump for many types of fluids and many flow rates!				
	High Suction Lift Capability – the pump NPS	H being very low - down to 1,5 meters.			
	Self Priming without any auxiliary devices.				
	Capable to pump very viscous fluids thanks	to its smooth axial and low-pulsation moven	nent.		
		niform, allowing to handle fluids that are very			
	High Rotating Speeds are possible thanks to	thanks to the low Internal velocities given by t	THE SCIEWS HIOVEITICITE.		
	Screws are contact-less so wear-out is minii Flow rate is constant even when pressure c	·			
	· · · · · · · · · · · · · · · · · · ·	nanges.			
	Reversible at Low Speeds / Pressure.	ad and in particular conditions			
	Capability of Dry Running for a limited period	ou and in particular conditions.			
	Low noise level & Low vibration.				
Duman Caving	IID IIDI IIDV Coricor				
Pump Series	HD, HDL, HDV Series:				
Maximum design pressure:	20 bar (standard) [300 psig]				
Flow rates:	up to 3500 m3/h [15400 psig]				
Viscosity of the pumped fluid: Pipe Nominal Size DN:	up to 35.000 cSt				
'	from 50 to 750 [from 2" up to 30"]				
Rotation speed:	from 200 up to 2200 rpm	5000			
Temperature range: Pulsations:	-46 / +350 °C [-51 / +662 °F] - ON REQUEST Minimized (almost zero)	-00 C			
	, ,				
Bearing types: Standard Materials:	External Bearings and Gears in oil bath Casing / Liner	Screws	Shafts		
Standard Materials.	Cast Iron, Ductile Cast Iron	Ductile Cast Iron	High Strenght Low Alloy Steel		
	Carbon Steel (Cast or Fabricated)	High Strenght Low Alloy Steel	Stainless Steel AISI 420		
	Low Temperature Carbon Steel (Cast or	Stainless Steel AISI 420	Stainless Steel 17-4 PH		
	Fabricated)				
	12% Cr Stainless Steel	Stainless Steel AISI S316/S316L	Stainless Steel XM-19		
	Stainless Steel AISI S316/S316L (Cast or Fabricated)	Stainless Steel 17-4 PH or AISI 431	Duplex & Super Duplex St. Steel		
	Bronze, Nickel Aluminium Bronze	Duplex & Super Duplex St. Steel	Monel, Inconel® , Hastelloy		
	Duplex & Super Duplex St. Steel	Monel, Inconel® , Hastelloy	HVOF Spray Coating /Tungsten Carbide Coating		
	Inconel Weld Overlay (cladding)	HVOF Spray Coating /Tungsten Carbide Coating	Chromium Plating		
	Monel, Inconel® , Hastelloy	CRA Weld Overlaid	CRA Weld Overlaid		
	Ni-Resist	Nitriding	Nitriding		
Customized materials:	Other Alloys and Material Combinations a	<u> </u>			
	NORSOK Compliant Materials are available	on request			
	UD (UD) (UD)				
Main Application Fields:	HD / HDL / HDV Series OIL & GAS UPSTREAM / MIDSTREAM / DOW Storages / Terminals	NSTREAM: FPSOs, Offshore Platforms, Oil Fie	lds, Oil Pipelines, Gathering Stations, Tank		
		Complex Lubricants Plants Ritumen/Acabalts	/Tar Plants		
	PETROCHEMICAL: Refinery, Petrochemical Complex, Lubricants Plants, Bitumen/Asphalt/Tar Plants CHEMICAL: Resin Production, Paint Production, Green Fuels, Polymeric Suspensions				
			re Platforms Hulls		
	POWER GENERATION: Heavy Fuel Oil Power	Cargo Ships, Support Vessels, FPSOs, Offsho	re riduomis nulls		
	1 O.VER GENERATION. Fleavy Fuel Oil Power	Tidilia, Edde Oil Systems			



UD - UDL/JDL - UDV/JDV Series



PUMPTYPE	TWIN SCREW PUMPS - EXTERNAL TIMING GEARS					
Pump Series	UD Series:	UD Series: UDL Series & JDL Series:				
Installation Options:	Horizontal (Cast Casing)	Horizontal (Fab Replaceable Lin	ricated Steel Casing, with er)	Vertical		
Executions:	Standard & API 676 - Timing Gears	s - External Gears	and Bearings			
Optimized for Applications in:	Oil&Gas Upstream / Midstream,	Petrochemical, Ch	nemical, Shipbuilding			
Suitable to Fluid having the following properties:	Abrasive and not Abrasive	Abrasive and not Abrasive				
	Corrosive (Alkaline / Acid / Aggress	sive) and not Corre	osive			
	Low / Medium / High / Very High \	/iscosities				
	Not Lubricating or Lubricating					
	Medium / High percentage of Gas	or Air dissolved in	Liquid (Multiphase versions av	railable)		
	Slightly Dirty (small particles)					
Advantages of the Operating Principle:	Capability of handling a Wide Ran = one pump for many types of flui					
	High Suction Lift Capability – the p					
	Self Priming without any auxiliary		.,			
	Capable to pump very viscous flui		nooth axial and low-pulsation m	novement.		
	Pulsations are minimized and flow					
	sensitive to shear stresses or turb	ulences, thanks to	the low Internal velocities give			
	High Rotating Speeds are possible					
	Screws are contact-less so wear-o		nd Pump Life is extended.			
	Flow rate is constant even when p	ressure changes.				
	Reversible at Low Speeds / Pressu					
	Capability of Dry Running for a lim	nited period and ir	n particular conditions.			
	Low noise level & Low vibration.					
Pump Series	UD, UDL Series:		JD, JDL Series:			
Maximum design pressure:	50 barg [730 psig]		149 barg [2170 psig]			
			max ANSI 900 rating			
Flow rates:	up to 1000 m3/h [4000 GPM]	up to 1000 m3/h [4000 GPM]				
Viscosity of the pumped fluid:	up to 35.000 cSt up to 35.000 cSt					
Pipe Nominal Size DN:	from 50 to 400 – from 2" to 16"		from 50 to 400 - from 2" to 16	5"		
Rotation speed:	from 200 up to 2200 rpm		from 200 up to 2200 rpm			
Temperature range:	-46 / +350 °C [-51 / +662 °F] - ON	REQUEST -60°C	-46 / +350 °C [-51 / +662 °F] -	ON REQUEST -60°C		
Pulsations:	Minimized (almost zero)		Minimized (almost zero)			
Bearing types:	External Bearings and Gears in oil	bath	External Bearings and Gears i	n oil bath		
Standard Materials:	Casing / Liner	Screws	'	Shafts		
	Cast Iron, Ductile Cast Iron	Ductile Cast Iron	1	High Strenght Low Alloy Steel		
	Carbon Steel (Cast or Fabricated)	High Strenght Lo	ow Alloy Steel	Stainless Steel AISI 420		
	Low Temperature Carbon Steel	Stainless Steel	AISI 420	Stainless Steel 17-4 PH		
	(Cast or Fabricated) 12% Cr Stainless Steel	Stainless Steel	AISI \$316/\$316I	Stainless Steel XM-19		
	Stainless Steel AISI S316/S316L		17-4 PH or AISI 431	Duplex & Super Duplex St. Steel		
	(Cast or Fabricated)					
	Bronze, Nickel Aluminium Bronze	Duplex & Super	Duplex St. Steel	Monel, Inconel® , Hastelloy		
	Duplex & Super Duplex St. Steel	Monel, Inconel®	, Hastelloy	HVOF Spray Coating /Tungsten Carbide Coating		
	Inconel Weld Overlay (cladding)	HVOF Spray Coa Coating	ating /Tungsten Carbide	Chromium Plating		
	Monel, Inconel® , Hastelloy	CRA Weld Overla	aid	CRA Weld Overlaid		
	Ni-Resist	Nitriding		Nitriding		
Customized materials:	Other Alloys and Material Combi	nations are availa	able on request			
	NORSOK Compliant Materials are	available on requ	est			
	Up (Up) (Up)					
Main Application Fields:	UD / UDL / UDV / JDL / JDV Series					
	OIL & GAS UPSTREAM / MIDSTREA	M: FPSOs, Offsho	re Platforms, Oil Fields, Oil Pipe	lines, Gathering Stations		
	PETROCHEMICAL: Refinery, Petroc	chemical Complex	, Bitumen/Asphalt/Tar Plants			
	CHEMICAL: Resin Production, Gree	en Fuels, Polymeri	c Suspensions			
	MARINE & SHIPBUILDING: Tankers	s, FPSOs, Offshore	Platforms Hulls			
	POWER GENERATION: Heavy Fuel	Oil Power Plants				



SR / SD / SDL / SRV / SDV Series



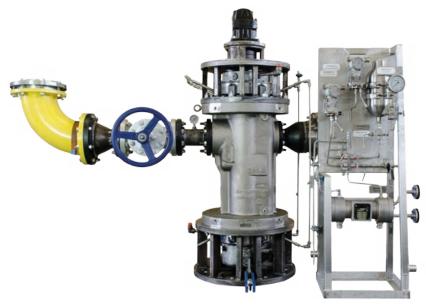
PUMP TYPE	TWIN SCREW PUMPS - INTERNAL TIMING GEARS						
Pump Series	SR Series:	SD Series: SDL Series:		SRV Series & SDV Series:			
Installation Options:	Horizontal (Cast Casing)	Horizontal (Cast Casing)	Horizontal (Fabricated Steel Casing, with Replaceable Liner)	Vertical			
Executions:	Standard & API 676 - Internal Gears and	Bearings (Wetted and cooled by the Pumped	Fluid)				
Optimized for Applications in:	Oil&Gas, Petrochemical, Chemical, Mar	ine & Shipbuilding, Power Generation					
Suitable to Fluid having the following properties:	Not Abrasive	Not Abrasive					
	Not Corrosive / Slightly Corrosive						
	Medium / High Viscosities						
	Lubricating / Slightly Lubricating						
	Small percentage of Gas or Air dissolved	in Liquid					
	Clean, with Minimal Impurities (Small An	nount of Solid Particles)					
Advantages of the Operating Principle:	Capability of handling a Wide Range of v = one pump for many types of fluids and						
	High Suction Lift Capability – the pump N	IPSH being very low - down to 1,5 meters.					
	Self Priming without any auxiliary device	S.					
	Capable to pump very viscous fluids than	nks to its smooth axial and low-pulsation mov	ement.				
	Pulsations are minimized and flow rate i turbulences, thanks to the low Internal v High Rotating Speeds are possible thank		ery viscous and sensitive to shear	stresses or			
	Screws are contact-less so wear-out is m						
	Flow rate is constant even when pressur	e changes.					
	Reversible at Low Speeds / Pressure.						
	Capability of Dry Running for a limited po	eriod and in particular conditions.					
	Low noise level & Low vibration.						
Pump Series	SR, SRV Series:	SD Series:	SDL, SDV Series:				
Maximum design pressure:	14 bar (standard) [204 psig]	20 bar (standard) [300 psig]	50 barg [730 psig]				
Flow rates:	up to 1200 m3/h [5280 GPM]	up to 1200 m3/h [5280 GPM]	up to 1200 m3/h [5280 GPM]				
Viscosity of the pumped fluid:	up to 2.000 cSt	up to 2.000 cSt	up to 2.000 cSt				
Pipe Nominal Size DN:	from 50 to 400 – from 2" to 16"	from 50 to 400 – from 2" to 16"	from 50 to 400 – from 2" to 16"				
Rotation speed:	from 200 up to 2200 rpm	from 200 up to 2200 rpm	from 200 up to 2200 rpm				
Temperature range:	-46 / +300 °C [-51 / +572 °F] - ON REQUEST -60°C	-46 / +300 °C [-51 / +572 °F] - ON REQUEST -60°C	-46 / +350 °C [-51 / +662 °F] - ON REQUEST -60°C				
Pulsations:	Minimized (almost zero)	Minimized (almost zero)	Minimized (almost zero)				
Bearing types: Standard Materials:	Internal Bearings and Gears, wetted and cooled by the Pumped Fluid Casing / Liner	Internal Bearings and Gears, wetted and cooled by the Pumped Fluid Screws	Internal Bearings and Gears, we cooled by the Pumped Fluid Shafts	tted and			
Standard Materials.	_	Ductile Cast Iron	High Strenght Low Alloy Steel				
	Cast Iron, Ductile Cast Iron Carbon Steel (Cast or Fabricated)	High Strenght Low Alloy Steel	Stainless Steel AISI 420				
	Low Temperature Carbon Steel (Cast or	Stainless Steel AISI 420	Stainless Steel 17-4 PH				
	Fabricated)	5.555 5.66171151-720	5.0				
	12% Cr Stainless Steel	Stainless Steel AISI S316/S316L	Stainless Steel XM-19				
	Stainless Steel AISI S316/S316L (Cast or Fabricated)	Stainless Steel 17-4 PH or AISI 431	Nitriding				
		Nitriding					
Customized materials:	Other Alloys and Material Combination						
	NORSOK Compliant Materials are availab	ole on request					
Main Application Fields:	SR / SD / SDL / SRV / SDV Series						
	OIL & GAS MIDSTREAM / DOWNSTREAM: Tank Storages / Terminals, Oil Pipelines						
		PETROCHEMICAL: Refinery, Petrochemical Complex, Lubricants Plants					
	PETROCHEMICAL: Refinery, Petrochemic	al Complex, Lubricants Plants					
	CHEMICAL: Green Fuels, Clean Chemical:	5					
	· · · · · · · · · · · · · · · · · · ·	s es, Cargo Ships, Support Vessels					



HM/HM-V **Series**



РИМР ТҮРЕ	SCREW PUMPS - TIMING EXTERNAL GEARS				
Pump Series	HM Series:	HM-V Series:			
Installation Options:	Horizontal	Vertical			
Executions:	Standard & API 676 - Timing Gears - Externa	l Gears and Bearings			
Optimized for Applications in:	Oil&Gas, Petrochemical, Chemical, Marine	& Shipbuilding, Power Generation, General Ir	ndustry		
Suitable to Fluid having the following	Abrasive and not Abrasive				
properties:	Corrosive (Alkaline / Acid / Aggressive) and r	not Corrosive			
	Low / Medium / High Viscosities				
	Not Lubricating or Lubricating				
	Medium percentage of Gas or Air dissolved	in Liquid			
	Slightly Dirty (small particles)	· ·			
Advantages of the Operating Principle:	Capability of handling a Wide Range of visco	sities and pressures			
	= one pump for many types of fluids and ma				
	High Suction Lift Capability – the pump NPS	H being very low - down to 1,5 meters.			
	Self Priming without any auxiliary devices.				
	Capable to pump very viscous fluids thanks	to its smooth axial and low-pulsation moveme	nt.		
		niform, allowing to handle fluids that are very volume low Internal velocities given by the screws mo			
	High Rotating Speeds are possible thanks to	the low inertia of the screws.			
	Screws are contact-less so wear-out is minir	nized and Pump Life is extended.			
	Flow rate is constant even when pressure ch	nanges.			
	Reversible at Low Speeds / Pressure.				
	Capability of Dry Running for a limited period	d and in particular conditions.			
	Low noise level & Low vibration.				
Pump Series	HM Series:				
Maximum design pressure:	20 bar (standard)				
Flow rates:	up to 80 m3/h [353 GPM]				
Viscosity of the pumped fluid:	up to 35.000 cSt				
Pipe Nominal Size DN:	from 40 to 100 [from 1.1/2" to 4"]				
Rotation speed:	from 200 up to 3600 rpm				
Temperature range:	-46 / +300 °C [-51 / +572 °F] - ON REQUEST	-60°C			
Pulsations:	Minimized (almost zero)				
Bearing types:	External Bearings and Gears in oil bath				
Standard Materials:	Casing / Liner	Screws	Shafts		
	Cast Iron, Ductile Cast Iron	Ductile Cast Iron	High Strenght Low Alloy Steel		
	Carbon Steel (Cast or Fabricated) High Strenght Low Alloy Steel	High Strenght Low Alloy Steel	Stainless Steel AISI 420		
	Low Temperature Carbon Steel (Cast or Fabricated) Stainless Steel AISI 420	Stainless Steel AISI 420	Stainless Steel 17-4 PH		
	12% Cr Stainless Steel Stainless Steel AISI S316/S316L	Stainless Steel AISI S316/S316L	Stainless Steel XM-19		
	Stainless Steel AISI S316/S316L (Cast or Fabricated) Stainless Steel 17-4 PH or AISI 431	Stainless Steel 17-4 PH or AISI 431	Duplex & Super Duplex St. Steel		
	Bronze, Nickel Aluminium Bronze Duplex & Super Duplex St. Steel	Duplex & Super Duplex St. Steel	Monel, Inconel® , Hastelloy		
	Duplex & Super Duplex St. Steel Monel, Inconel® , Hastelloy	Monel, Inconel® , Hastelloy	HVOF Spray Coating /Tungsten Carbide Coating		
	Inconel Weld Overlay (cladding) HVOF Spray Coating /Tungsten Carbide Coating	HVOF Spray Coating /Tungsten Carbide Coating	Chromium Plating		
	Monel, Inconel® , Hastelloy CRA Weld Overlaid	CRA Weld Overlaid	CRA Weld Overlaid		
	Ni-Resist Nitriding	Nitriding	Nitriding		
Customized materials:	Other Alloys and Material Combinations are				
	NORSOK Compliant Materials are available	on request			
Main Application Fields:	HM / HMV Series				
	OIL & GAS UPSTREAM / MIDSTREAM / DOWI	NSTREAM: FPSOs, Offshore Platforms, Oil Fields	s, Oil Pipelines, Gathering Stations		
	PETROCHEMICAL: Refinery, Petrochemical C	complex, Lubricants Plants, Bitumen/Asphalt/Ta	ar Plants		
	CHEMICAL: Resin Production, Paint Production, Green Fuels, Polymeric Suspensions				
	MARINE & SHIPBUILDING: Tankers, Barges, Cargo Ships, Support Vessels, FPSOs, Offshore Platforms Hulls				
	POWER GENERATION: Heavy Fuel Oil Power Plants, Lube Oil Systems				



VDC **Series**



= one pump for many types of fluids and many flow rates! High Suction Lift Capability – the pump NPSH being very low - down to 1,5 meters. Self Priming without any auxiliary devices. Capable to pump very viscous fluids thanks to its smooth axial and low-pulsation movement. Pulsations are minimized and flow rate is uniform, allowing to handle fluids that are very viscous and sensitive to shear stresses or turbulences, thanks to the low Internal velocities given by the screws movement. High Rotating Speeds are possible thanks to the low inertia of the screws. Screws are contact-less so wear-out is minimized and Pump Life is extended. Flow rate is constant even when pressure changes. Reversible at Low Speeds / Pressure. Capability of Dry Running for a limited period and in particular conditions. Low noise level & Low vibration. Pump Series VDC Series: Maximum design pressure: 50 barg [730 psig] Flow rates: up to 600 m3/h [2650 GPM] Viscosity of the pumped fluid: up to 35.000 cSt Pipe Nominal Size DN: from 50 to 400 – from 2" to 16" Rotation speed: from 200 up to 2200 rpm	PUMP TYPE	VERTICAL TWIN SCREW PUMPS					
Standard & All Politics Terring (Search Scheme) Gearm and Bearings	Pump Series	VDC Series:					
Optionized for Applications Inc. Obtion: Need Proceedings of the Common (Cambridge Shippenine) Authorities on Authorities of Common (Cambridge Shippenine) Advantages of the Operating Principles Capability of handling a Wiles Reage of Miscosine and pressures Advantages of the Operating Principles Capability of handling a Wiles Reage of Miscosine and pressures Might Storing (Section III. Capability) of the pump MPSI being eye to be down to 1.5 meters. Self Princip without any apullarly decision Advantages of the Operating Principles Capability of handling a Wiles Reage of Miscosine and pressures Advantages of the Operating Principles Capability of handling a Wiles Reage of Miscosine and pressures Advantages of the Operating Principles Capability of handling a Wiles Reage of Miscosine and pressures Might Storing (Section III. Capability of the pump MPSI being eye by the down to 1.5 meters. Self Princip without any apullarly decision Advantages of the Operating Principles Capability of the pump were of the operation of the Miscosine and the Principle of the Operating Principles Advantages of the Operating Principles Principles of the Operating Principles Advantages of the Operating Principles Principles of the Operating Principles Advantages of the Operating Principles Principles of the Operating Principles Advantages of the Operating Principles Advantages of the Operating Principles Principles of the Operating Principles Principles of the Operating Principles Advantages of the Operating Principles Principles of the Operating Principles Advantages of th	Installation Options:	Vertical - Submerged					
Suitable to Fluid having the following properties Compose (Allahire / Add / Aggressiste) and not Compose Low / Medium / Fligh / New ying (Viscoilles) Not Unbridging or Lubricating Medium / Fligh reverting of Viscoilles Not Unbridging or Lubricating Medium / Fligh reverting of Viscoilles Not Unbridging or Lubricating Capability of Investigating of Add / Aggressiste) and not Compose Selfy Priming without principle Capability of Investigating of Add / Aggressiste) and pressures - one guing for image years of fusicial and many floor rates Advantages of the Operating Principle: Capability of Investigating Aggress of Aggressistes and many floor rates Aggressistes on Aggressistes Ag	Executions:	Standard & API 676 - Timing Gears - Extern	al Gears and Bearings				
Corrosione (Alkaliner / Add A Agreessed) and not Corrosive Law / Medium / High Price yilly (Nory high Visconties) Medium / High Price price of Class or Air dissolved in Liquid (Multiphase versions available) Signify Driver (and particles) Advantages of the Operating Principie: Coppoliting of honding a Wide Sange of visconties and pressures = non jump for money (pipe of fitures and mony filters rated Advantages of the Operating Principie: Self Princip exhibits any auditory devoids. Coppoliting of honding a Wide Sange of visconties and pressures = non jump for money (pipe of fitures and mony filters rated Algh Sararian (Lapabety). The pump High Nation (and Fig. 1) and the pulsation movement. Pulsation as an imministed and flow self is uniform, albeits and love pulsation movement. Pulsation as an imministed and flow self is uniform, albeits and love pulsation movement. Algh Rasarian (Self as posses) in terms to the fore filters for brivers. Servers are centrate lines as were not in minimized and flow self and servers. Servers are centrate lines as were not in minimized and flow self and servers. Servers are centrate lines as were not in minimized and flow self and servers. Servers are centrate lines as were not in minimized and flow self and servers. Reversible at Low Speeds / Pressure. Capability of Dry Rumming for a limited period and in particular conditions. Low mose lined 8. Low vibration. Pump Servers Wide Servers Washing for the pumped fluid. Vol. Servers Marinimized (Servers) Vol. Servers Washing for the pumped fluid. Vol. Servers Marinimized (Servers) All Ask 2015 CF (Servers) A	Optimized for Applications in:	Oil&Gas, Petrochemical, Marine & Shipbu	illding				
Low / Medium / High / Nery High Viscosites Nat Lubricating or Lubricating National Control (1997) Redurn / High precentage of Gas of Air dissolved in Liquid (Multiphase versions available) Signity (prity simil particles) Advantages of the Operating Principle: Capability of heading a Wide Barage of viscosities and pressures enoprupe from many Speas of flux and many Roy rates High Suction Lift Capability - the pump APOH being very low-ridown to 1,5 meters. Self Princing without any audility devices. Capability of pump very viscos fluxible transis to its smooth axial and low-pulsation movement. Publishers are commissioned and flow are as uniform, plasmage to handle that site or very viscos and sensitive to their arressors or the low internal visiones, plants of the low internal visiones, plants of the low internal visiones, plants of the low internal visione, plants of the low inte	Suitable to Fluid having the following properties:	Abrasive and not Abrasive					
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Maximum design pressure: So barg [730 psig]	Pump Series	VDC Series:					
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Customized materials: Other Alloys and Material Combinations are available on request NORSOK Compliant Materials are available on request Main Application Fields: VDC Series OIL & GAS UPSTREAM / MIDSTREAM / DOWNSTREAM: Tank Storages, Gathering Stations PETROCHEMICAL: Refinery, Petrochemical Complex		-					
NORSOK Compliant Materials are available on request Main Application Fields: VDC Series OIL & GAS UPSTREAM / MIDSTREAM / DOWNSTREAM: Tank Storages, Gathering Stations PETROCHEMICAL: Refinery, Petrochemical Complex	Customized materials:			Initriaing			
Main Application Fields: VDC Series OIL & GAS UPSTREAM / MIDSTREAM / DOWNSTREAM: Tank Storages, Gathering Stations PETROCHEMICAL: Refinery, Petrochemical Complex	Customized materials:						
OIL & GAS UPSTREAM / MIDSTREAM / DOWNSTREAM: Tank Storages, Gathering Stations PETROCHEMICAL: Refinery, Petrochemical Complex		NORSON COMpliant Materials are available	romrequest				
OIL & GAS UPSTREAM / MIDSTREAM / DOWNSTREAM: Tank Storages, Gathering Stations PETROCHEMICAL: Refinery, Petrochemical Complex	Main Application Fields:	VDC Series					
PETROCHEMICAL: Refinery, Petrochemical Complex		OIL & GAS UPSTREAM / MIDSTREAM / DOW	/NSTREAM: Tank Storages, Gathering Stations	S			
MARINE & SHIPBUILDING: Tankers, Barges, FPSOs							



MP Series



РИМР ТҮРЕ	MULTIPHASE TWIN SCREW PUMPS				
Pump Series MAX GVF (Gas Void Fraction)	MP Series: up to 60% GVF				
Installation Options:	Horizontal				
Executions:	Standard & API 676 - External Timing Gear	rs and Bearings			
Optimized for Applications in:	Oil&Gas				
Suitable to Fluid having the following properties:	Abrasive and not Abrasive				
	Corrosive (Alkaline / Acid / Aggressive) and	d not Corrosive			
	Low / Medium / High Viscosities				
	Not Lubricating or Lubricating				
	Up to 60% of Gas Void Fraction				
	Slightly Dirty (small sand particles) Special Hardening available (Tungsten Carbide Coating)				
Advantages of the Operating Principle:	Capability of handling a Wide Range of vi = one pump for many types of fluids and				
	High Suction Lift Capability – the pump NF	PSH being very low - down to 1,5 meters.			
	Self Priming without any auxiliary devices.				
	Capable to pump very viscous fluids thank	ks to its smooth axial and low-pulsation move	ement.		
		uniform, allowing to handle fluids that are ve , thanks to the low Internal velocities given by			
	High Rotating Speeds are possible thanks	to the low inertia of the screws.			
	Screws are contact-less so wear-out is mir	nimized and Pump Life is extended.			
	Flow rate is constant even when pressure	changes.			
	Capable of Pumping Gas mixed with Liquid	d.			
	Capability of Dry Running for a limited per	riod and in particular conditions.			
	Low noise level & Low vibration.				
Pump Series	MP Series:				
Maximum design pressure:	149 barg [2170 psig]				
	max ANSI 900 rating				
Flow rates (liquid equivalent):	up to 3500 m3/h [15400 psig]				
Viscosity of the pumped fluid:	up to 5.000 cSt				
Pipe Nominal Size DN:	from 50 to 750 [from 2" up to 30"]				
Rotation speed:	from 200 up to 2200 rpm				
Temperature range:	-46 / +350 °C [-51 / +662 °F] - ON REQUEST -60°C				
Pulsations:	Minimized (almost zero)				
Bearing types:	External Bearings and Gears in oil bath				
Liquid Recirculation Options:	- No Recirculation - Internal Liquid Recirculation Valve				
Standard Materials:	Casing / Liner	Screws	Shafts		
Standard Materials.	Carbon Steel (Cast or Fabricated)	Ductile Cast Iron	High Strenght Low Alloy Steel		
	Low Temperature Carbon Steel (Cast or	High Strenght Low Alloy Steel	Stainless Steel AISI 420		
	Fabricated)	g			
	12% Cr Stainless Steel	Stainless Steel AISI 420	Stainless Steel 17-4 PH		
	Stainless Steel AISI S316/S316L (Cast or Fabricated)	Stainless Steel AISI S316/S316L	Stainless Steel XM-19		
	Stainless Steel AISI S316/S316L (Cast or Fabricated)	Stainless Steel 17-4 PH or AISI 431	Duplex & Super Duplex St. Steel		
	Duplex & Super Duplex St. Steel	Duplex & Super Duplex St. Steel	Monel, Inconel® , Hastelloy		
	Inconel Weld Overlay (cladding)	Monel, Inconel® , Hastelloy	HVOF Spray Coating /Tungsten Carbide Coating		
	Monel, Inconel® , Hastelloy	HVOF Spray Coating /Tungsten Carbide Coating	Chromium Plating		
	Ni-Resist	CRA Weld Overlaid	CRA Weld Overlaid		
		Nitriding	Nitriding		
Customized materials:	Other Alloys and Material Combinations are available on request NORSOK Compliant Materials are available on request				
Main Application Fields:	MP SERIES				
		Os, Offshore Platforms, Oil Fields, Oil Pipeli	nes, Gathering Stations		



M Series



M & D Hollow Rotary Disk Pump **Series**



PUMP TYPE	HOLLOW DISK PUMPS	HOLLOW DISK PUMPS					
Executions:	Standard & API 676						
Advantages:	Self Priming without any auxiliary device	es - just fill out the cavity wit	th liquid before start-up				
	Low operating speeds - capable of handling very viscous and fluids shear-sensitive - less wear and higher reliab						
	Reverse flow by operating in reverse ro	tation while keeping consta	nt capacity				
	Elasticity of the disk, with self-recover of	of the worn out parts and of	the thermal expansions, all	owing the passage of solid par-			
	ticles in the fluid	ticles in the fluid					
ump Series	M Series:		D Series:				
Maximum differential pressure:	7 bar (option 9 bar)		7 bar (option 9 bar)				
Flow rates:	from 0,3 to 100 m3/h [from 1.3 to 440	GPM]	from 20 to 210 m3/h [f	rom 88 to 925 GPM]			
/iscosity of the pumped fluid:	up to 200.000 cSt (from medium to ven		up to 200.000 cSt (from				
Pipe Nominal Size DN:	from 25 to 150	, , ,	from 100 to 200	nedidin to very mgm			
Rotation speed:	up to 500 rpm		up to 400 rpm				
emperature range:	-20 / +280 °C [-4 / 536 °F]	<u> </u>	-20 / +280 °C [-4 / 536 °	 PFI			
Handling Solid Particles & Dirty Fluids:	Yes		Yes	·•			
landling Aggressive Fluids:	Yes		Yes				
rulsations:	Yes		Very low				
Posing capability:	Good	150)	Good	AL DAIAC O. ANICLATO)			
langed connections:	Available (UNI PN10 - DIN PN16 & ANSI	150)	Available (UNI PN10 - DI	N PN16 & ANSI 150)			
tandard Materials:	The Hollow Rotary Disk Pump can be so	upplied with the following co	ombined materials:				
	Casing and Cover	Impeller Disk		Shaft			
	Cast Iron G25	Carbon Steel C40		Carbon Steel C40			
	Cast Iron, Nickel Plated	Stainless Steel AISI 31		Stainless Steel AISI 316			
	Cast Iron, Chrome plated	Nickel Plated Carbon		Nitrided Carbon Steel C40 Duplex Stainless Steel			
	Stainless Steel AISI 316	Chrome plated Carbo	Chrome plated Carbon Steel C40				
	Bronze B10	Duplex Stainless Stee	l Hardened				
pecial Materials:	Duplex Stainless Steel	Super Duplex		Super Duplex			
pecial Materials.							
	Super Duplex	Hastelloy		Hastelloy			
	Inconel	Titanium		Titanium Monel			
	Titanium	Monel	Worler				
	Nickel-Aluminium Bronze						
	Alloy 20						
	Hastelloy						
Complete Units:	We supply the complete unit: Pump, Re	oduction Goar or Variable Sp	and Driva Motor Resonlate	<u> </u>			
	Please see our website www.3pprinz.co						
On Request	sories	om for further imormation a	bout our wide range or cus	tornization, options and acces-			
Certifications & Executions	Pump		Electrical group	Other Motors			
	CE Standard		CE Standard	Diesel Engine on request			
	ATEX on request		ATEX on request	Hydraulic Motor on reques			
	API 676 on request		UL / NEMA on request				
	CE 1935 / 2004 (food contact) on reque	st					
DDI ICATION EIELDS							
APPLICATION FIELDS Dil & Gas	Hydrocarbons (light and heavy)	All types of Oils	Bitumen and Tar	Crude Oil (also Sour)			
JII & GdS	Hydrocarbons (light and fleavy)	All types of Oils	Bitumen and Tar	Crude Oil (also sour)			
	Chemical Products	Muds					
etrochemical Industry:	Light and Heavy Hydrocarbons	Lubricating Oil	Bitumen and Tar	Diesel			
	3 3						
	Petrochemical Products	Gasoline	Fuel Oil	All types of Oils			
	Fluids from the Refinery Process	Phenol	Crude Oil	Benzene and Toluene			
Marine & Shipbuilding:	Transfer of Tanker Fluids	Fuel Oil	Diesel	Bilge Water			
	Cargo Load and Offload	Mud, Sludge, Ooze	Seawater	Recycled Oil			
	Service Fluids and Water	Waste Oil	Sewage	Residues			



CN Rotary Vane Pump **Series**



Pump type	ROTARY VANE PUMP -	CN Series			
Executions:	Standard & API 676				
Advantages:	Self Priming				
	High Suction Lift				
	Self-adjustment of Wear Out				
	Capable of Pumping Lo	ow Viscosity Fluids at Ou	utstanding Performances	;	
	Lower Power Consum	otion and Higher Capaci	ty compared to other Po	sitive Displacement Pun	nps
	Interchangeable ports	dimensions with other	Major Rotary Vane Supp	liers	
	Accurate Selection of V	anes Materials for allov	ving very low friction and	l minimal wear-out	
	Easy and Fast Mainten	ance (no need to disass	embly from main line)		
	Versions for Reversible	Operation (Double Sha	aft) are available for Load	ling and Unloading	
	Suitable to a wide rang	ge of Temperatures			
	PTO driven versions ar	e available			
CN Series Pump Model	CN30	CN40	CN50	CN60	CN70
Suction Flange Ø	1.1/2" Threaded (Side)	2" (Side)	2,5" (Side)	3" (Side)	4" (Side)
Discharge Flange Ø	1.1/2" Threaded	2" (Top)	2,5" (Top)	3" (Top)	4" (Top)
Max Rotation speed:	(Side) 1450 rpm (flow = 15 m3/h)	980 rpm	980 rpm	650 rpm	500 rpm
Flow rate (@ 980 rpm) – 1 cSt	10,5 m3/h	26 m3/h	44 m3/h	-	-
Flow rate (@ 780 rpm) – 1 cSt	8,5 m3/h	20 m3/h	35 m3/h	-	-
Flow rate (@ 640 rpm) – 22 cSt	6,9 m3/h	16 m3/h	28 m3/h	62 m3/h	115 m3/h @500 rpm
Flow rate (@ 400 rpm) – up to 1100 cSt	4,3 m3/h	10 m3/h	18 m3/h	40 m3/h	92 m3/h
Differential pressures [bar]	10 bar	7 bar	7 bar	7 bar	7 bar
Max. pressures [barg]	15 barg	10 barg	10 barg	10 barg	10 barg
Temperature range:	-20/+150 °C [-4/ -20/+150 °C -20/+150 °C 302 °F] [-4/302 °F] [-4/302 °F]		-20 / +150 °C [-4 / 302 °F]	-20 / +150 °C [-4 / 302 °F]	-20 / +150 °C [-4 / 302 °F]
Viscosity of the pumped fluid:	From 0,3 cSt up to 500	cSt; special executions	for viscosities higher that	an 500 cSt are available o	on request
Handling Solid Particles & Dirty Fluids:	Yes (small solids and limited amount)				
Handling Aggressive Fluids:	Yes				
Pulsations:	Very low				
Flanged Adapters:	Available on request: U	JNI PN10 - DIN PN16 & A	ANSI 150		
Standard Materials:	Casing and Cover		Vanes	Rotor	Shaft
	Ductile Cast Iron GJS-4	00	Polimeric Fiber	Ductile Cast Iron	Carbon Steel AISI4140
	Cast Steel (ASTM A216	WCB)	Bronze	Carbon Steel	Stainless Steel AISI 316
	Stainless Steel AISI 316	i	PEEK	Stainless Steel AISI 316	Stainless Steel 17-4PH
Special Materials:	Duplex Stainless Stee		Self Lubricating Alloys	Duplex Stainless Stee	
	Super Duplex St. Stee			Super Duplex St. Steel	
	Inconel			Inconel	Inconel
	Titanium			Titanium	Titanium
	Nickel-Aluminium Bro	nze		Monel	Monel
	Alloy 20			Hastelloy	Hastelloy
	Hastelloy				
Complete Units:	We supply the comple	te unit: Pump, Reduction	n Gear or Variable Speed		
Certifications & Executions	Pump		Electrical group	Other Motors	
	CE Standard		CE Standard	Diesel Engine on request	
	ATEX on request Hydraulic Motor on request Hydraulic Motor on request				
	API 676 on request		UL / NEMA on request	PTO Power Take-Off	
APPLICATION FIELDS					
Oil & Gas	Light Hydrocarbons	Medium Hydrocarbons	Oils	Light Crude Oil	Solvents
Marine & Shipbuilding:	Transfer of Tanker Fluids Cargo Load and Offload	Light Fuel Oil Seawater	Lube Oil Naptha	Diesel	Recycled Oil











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