

## Customer Technical Offer

Customer	PT Intech Pumps Indonesia	Size / Stages	RG 3x2 S-600 / 1
Item number	GA-30-0-02	Pump speed	3648 rpm
Customer reference	PT Cabot Corp Indonesia	Quote number	1832296

## Pump

Qty	Description
1	<p><b>RG 3x2 S-600</b></p> <p><b>General Pump Options</b></p> <p><b>Roto-Jet General Pump Options</b></p> <p>Steel/CA6NM Pump (ASTM - A216/A487)</p> <p>17-4 PH Pitot Tube</p> <p>Viton O-rings</p> <p>Direct drive pump design</p> <p>We reserve the right to add a discharge orifice to meet the specified conditions.</p> <p>Direct drive configurations are limited to 400HP. Please contact factory for direct drive applications that exceed the 400HP limits.</p> <p><b>Seal assembly</b></p> <p><b>Mechanical Seals</b></p> <p>Double Stationary Pusher Carbon Seal - Tungsten Carbide Mating Ring</p> <p>Seal manufacturer - Trillium Standard</p> <p>Stainless steel seal hub/seal plate</p> <p><b>Seal flush plan</b></p> <p>Plan 53A seal flush</p> <p><b>Rotor Assembly</b></p> <p><b>Rotor Assembly</b></p> <p>CA6NM rotor and rotor cover (ASTM - A487)</p> <p><b>Manifold</b></p> <p><b>Manifold Configuration</b></p> <p>Steel Flanged Manifold (ASTM - A216)</p> <p>600 LB x 600 LB RF Flanges</p> <p><b>Bearing Housing</b></p> <p><b>Bearing Housing</b></p> <p>Ductile Iron Bearing Housing</p> <p>Pump case drain - NPT pipe with threaded flange</p> <p><b>Vibration Connections</b></p> <p>No Vibration Connection</p> <p><b>Driver</b></p> <p><b>Motors</b></p> <p>Trillium Supplied Motor: Trillium Supplied Motor</p> <p>132 KW 315L Frame 3000RPM Horizontal TEFC Electric motor</p> <p>All motors are sized and selected in accordance with Hydraulic Institute Grade 2 - 2B performance test acceptance grades and tolerances which adds 8% to the rated horsepower requirement of the pump. This calculation has not changed the rated horsepower or efficiency shown on the Performance Data Sheet. View the link for more information from Hydraulic Institute.</p> <p>Motor manufacturer - Trillium Standard</p> <p><b>Baseplate &amp; Drives</b></p> <p><b>Baseplate Configuration</b></p> <p>Gear drive base for Milwaukee gearbox</p> <p><b>Base design</b></p> <p>Grounding lugs on baseplate only - 2 places</p> <p>API steel base design</p> <p>Horizontal jackscrews on drive train components</p> <p>Base with drip rim, threaded drain connections, leveling screws</p> <p>"Factory Review Required due to selection of API steel base design"</p> <p>Couplings - Trillium Pumps Standard</p> <p>Aluminum coupling guards</p> <p>Milwaukee gearbox 1.2353 ratio</p>

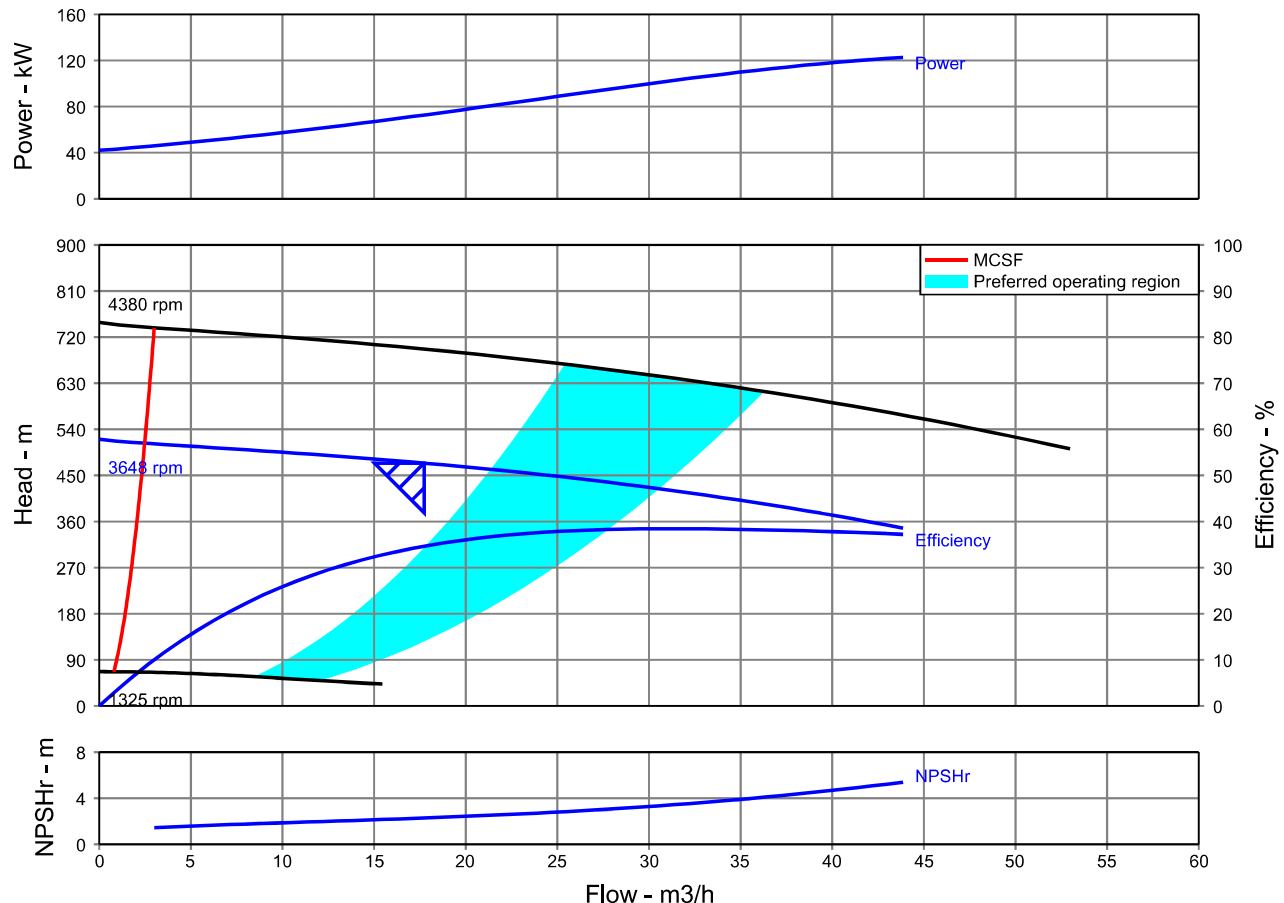
## Pump

Qty	Description
	<p><b>Protective Coatings</b></p> <p><b>Paint type</b></p> <p>Epoxy 2 Coat Paint - Blue (Prime and Top Coat) - Option #8</p> <p>Unless otherwise noted all motors will be supplied with manufacturer's standard coating only</p> <p><b>Boxing and Shipping</b></p> <p><b>Boxing and Shipping</b></p> <p>Export boxing (Complete package)</p> <p><b>Testing &amp; Documentation</b></p> <p><b>Performance Testing</b></p> <p>Non-witnessed 5 point performance test</p> <p>Non-witnessed hydrotest</p> <p>3 point Non-Witnessed NPSH test</p> <p>Non-Witnessed four hour mechanical run test</p> <p>Non-Witnessed sound level test (for reference only)</p> <p>Non-Witnessed vibration test</p> <p>Factory Vibration Testing is done without fully anchoring and grouting the pump and results are not indicative of actual field installed vibration values.</p> <p><b>Inspection</b></p> <p>Material Certificates: No Material Certs</p> <p><b>Documentation</b></p> <p>Installation, Operation &amp; Maintenance manuals (Qty. 1)</p> <p><b>Spare Parts / Accessories</b></p> <p><b>Spare Parts and Accessories Group</b></p> <p>Anchor bolts</p> <p>Commissioning Spare Parts</p> <p>Includes:</p> <ul style="list-style-type: none"> <li>-Pick Up Tube Replacement kit (does NOT include PUT)</li> <li>-Drain plugs x2</li> <li>-O-Ring Kit</li> </ul> <p>Minimum flow bypass orifice union - 1/2" NPT</p> <p><b>Estimated Weights</b></p> <p>Bareshaft Pump: 394.6 kg</p> <p>Baseplate: 0.00 kg</p> <p>Driver: 980.0 kg</p> <p>Gearbox: 192.8 kg</p>

## Pump Performance Datasheet

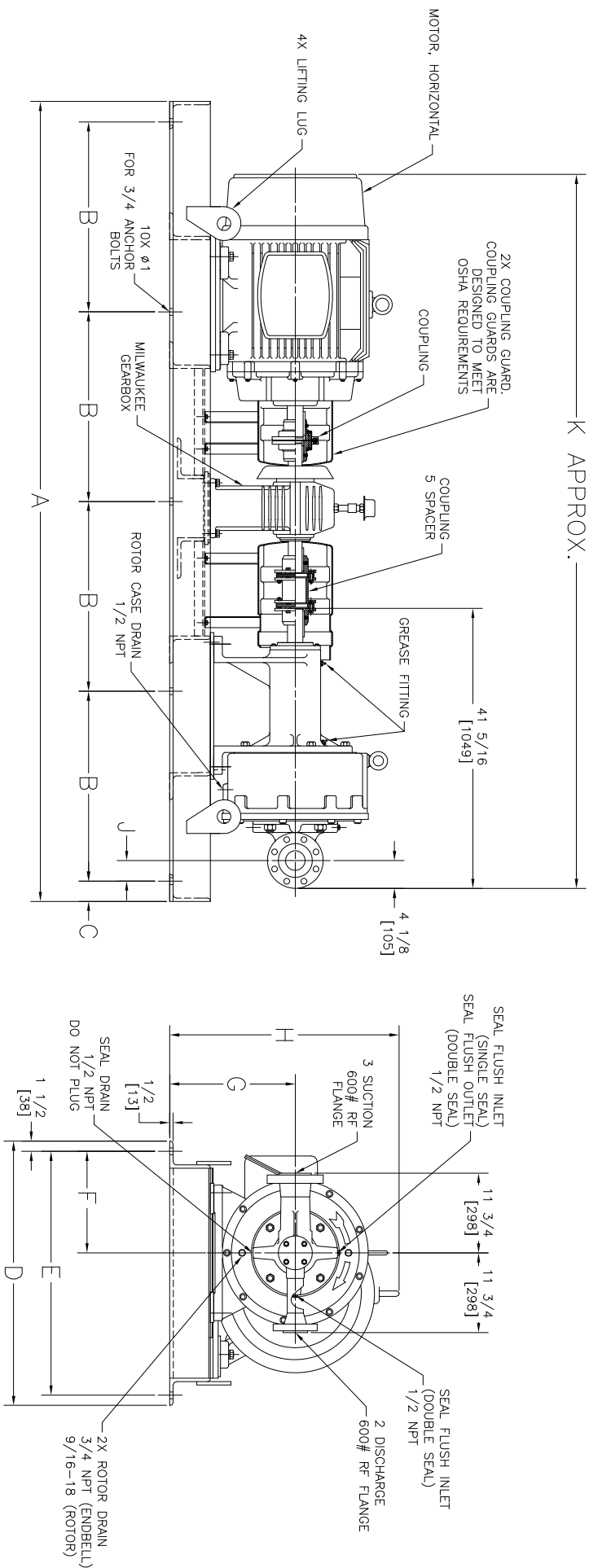
Customer	: PT Intech Pumps Indonesia	Quote number	: 1832296
Customer reference	: PT Cabot Corp Indonesia	Size	: RG 3x2 S-600
Item number	: GA-30-0-02	Stages	: 1
Service	: Primary Feedstock	Based on curve number	: P7015-SI
Quantity	: 1	Date last saved	: 06 Dec 2022 1:49 PM

Operating Conditions		Liquid	
Flow, rated	: 17.73 m <sup>3</sup> /h	Liquid type	: Water
Differential head / pressure, rated (requested)	: 474.1 m	Additional liquid description	: Feedstock
Differential head / pressure, rated (actual)	: 474.0 m	Solids diameter, max	: 0.00 mm
Suction pressure, rated / max	: 1.50 / 1.50 bar.g	Solids concentration, by volume	: 0.00 %
NPSH available, rated	: 6.60 m	Temperature, max	: 90.00 deg C
Site Supply Frequency	: 50 Hz	Fluid density, rated / max	: 1,100.0 / 1,100.0 kg/m <sup>3</sup>
Performance		Viscosity, rated	: 100.0 cP
Speed criteria	: Synchronous	Vapor pressure, rated	: 0.02 bar.a
Speed, rated	: 3648 rpm	Material	
Speed, maximum	: 4380 rpm	Material selected	: Standard
Speed, minimum	: 1325 rpm	Pressure Data	
Efficiency	: 34.65 %	Maximum working pressure	: 57.71 bar.g
NPSH required / margin required	: 2.28 / 0.91 m	Maximum allowable working pressure	: 99.97 bar.g
nq (imp. eye flow) / S (imp. eye flow)	: 4 / 128 Metric units	Maximum allowable suction pressure	: 13.79 bar.g
MCSF	: 2.47 m <sup>3</sup> /h	Hydrostatic test pressure	: 150.0 bar.g
Head maximum, rated speed	: 521.0 m	Driver & Power Data (@Max density)	
Head rise to shutoff	: 9.90 %	Driver sizing specification	: Maximum power
Flow, best eff. point	: 31.37 m <sup>3</sup> /h	Margin over specification	: 0.00 %
Flow ratio, rated / BEP	: 56.52 %	Service factor	: 1.00
Speed ratio (rated / max)	: 83.29 %	Power, hydraulic	: 25.19 kW
Head ratio (rated speed / max speed)	: 68.05 %	Power, rated	: 72.69 kW
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 0.89 / 0.93 / 0.63 / 1.00	Power, maximum, rated diameter	: 123 kW
Selection status	: Acceptable	Minimum recommended motor rating	: 149 kW / 200 hp



## Construction Datasheet

Customer : PT Intech Pumps Indonesia					Quote Number : 1832296	
Project : PT Cabot Corp Indonesia					Model / Size : RG 3x2 S-600	
Item number : GA-30-0-02					Stages : 1	
Service : Primary Feedstock					Pump speed : 3648 rpm	
Quantity of pumps : 1					Date last saved : 06 Dec 2022 1:49 PM	
Construction					Driver Information	
Nozzle	Size	Rating (ANSI)	Face	Pos'n	Manufacturer : Trillium Pumps USA Choice	
Suction	3 in	600 lbs.	RF	Left	Power : 150 kW	
Discharge	2 in	600 lbs.	RF	Right	Service factor : 1.15	
Pump Drive Type : Direct drive					Speed : 3000 rpm	
Pump Orientation : Horizontal					Motor efficiency : Premium	
Bearing Type (Rad/Thr) : Ball/Ball					Orientation / Mounting : Horizontal/Foot	
Bearing Lubrication : Grease					Driver type : -	
Rotation (view from shaft-end) : -					Frame-size : No Frame Size Available	
Materials					Enclosure : -	
Manifold : Steel (ASTM - A216)					Hazardous area class : -	
Rotor Assembly : CA6NM (ASTM - A487)					Explosion rating : -	
Pick-Up Tube : 17-4 PH					Volts / Phase / Hz : / 0 / 50	
Elastomer : Viton					Insulation : -	
Shaft : 4140 carbon steel					Temperature Rise : -	
					Motor mounted by : Trillium Pumps USA	
Baseplate, Connection and Guard					Seal, Gland and Piping	
Baseplate Type : Gear drive					Seal Arrangement : Double	
Baseplate Material : Fabricated steel					Seal Size : N/A	
Orientation : Horizontal					Manufacturer : Trillium Choice	
Connection Type : Direct drive					Seal Hub / Seal Plate Mat'l : Stainless Steel	
Guard : Fiberglass/Polyethylene					Seal Face Mat'l : Carbon seal - tungsten carbide mating ring	
Weights (Approx.)					Throat Bushing : N/A	
Bareshaft pump : 394.6 kg					Seal Flush Plan : Plan 53	
Baseplate : 0.00 kg					Seal Flush Construction : -	
Driver : 980.0 kg						
Gearbox : 192.8 kg						
Total weight : 1,374.6 kg						



MOTOR	A	B	C	D	E	F	G	H	J	K
324TS-326TS	8'-6 3/4 [2610]	23 3/16 [589]	5 [127]	43 [1092]	40 [1016]	17 1/8 [435]	18 7/8 [479]	32 7/16 [824]	-1/16 [-2]	95 3/16 [2418]
364TS-365TS	10' [3048]	26 [660]	8 [203]	39 [991]	36 [914]	15 [381]	19 3/8 [492]	33 [838]	3 1/16 [78]	98 1/16 [2491]
404TS-405TS	8'-6 3/4 [2610]	23 3/16 [589]	5 [127]	43 [1092]	40 [1016]	17 1/8 [435]	18 7/8 [479]	33 [838]	-1/16 [-2]	101 11/16 [2583]
444TS-445TS	9'-10 [2997]	28 [711]	3 [76]	39 [991]	36 [914]	15 [381]	18 1/2 [470]	34 1/8 [867]	3 1/16 [78]	107 5/16 [2726]
447TS-449TS	10'-2 [3099]	29 [737]	3 [76]	39 [991]	36 [914]	15 [381]	18 1/2 [470]	36 [914]	3 1/16 [78]	115 13/16 [2942]

NOTES:

1. BASE MUST BE LEVEL ON FOUNDATION AND ALL CAVITIES UNDER BASE FILLED WITH GROUT BEFORE TIGHTENING ANCHOR BOLTS. SHIM IF REQUIRED.
2. DIMENSIONS ARE NOT FOR INSTALLATION PURPOSES UNLESS CERTIFIED.
3. PUMP SIZE, MODEL AND SERIAL NUMBER MUST BE SPECIFIED WHEN ORDERING SPARE PARTS.
4. SUCTION AND DISCHARGE PORTS MATE WITH STANDARD 600# FLANGES.
5. ALL COMPONENTS ARE TO BE MOUNTED AND SHIPPED INSTALLED.
6. DIMENSIONS: INCHES [MM].

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CERTIFIED FOR CONSTRUCTION

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BY \_\_\_\_\_

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DESCRIPTION
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