

PETROLEUM 8

2" x 2" Self Priming Centrifugal Pump

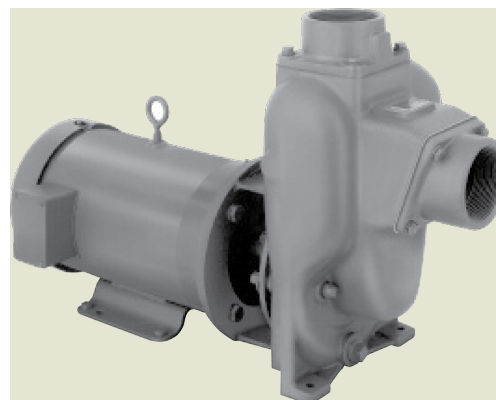
Petroleum 8 self-priming centrifugal pumps are capable of creating vacuum sufficient to lift liquids from heights up to 25 feet above the source. To handle many different fuels, the Petroleum 8 is available in three distinct models: PO, PG and PE 8.

A Petroleum 8 PumPAK® is a fully assembled and run tested pump end that can be easily coupled to a number of drivers such as hydraulic motors, 56C and 145TC frame motors and gas engines. A bearing pedestal is also available for T-frame motor or belt drive.

Standard features include SS drive sleeve, SS fasteners, renewable wear plate, and a semi-open dynamically balanced impeller.

SPECIFICATIONS:

Suction and Discharge	.. 2" x 2" NPT
Flow	 Up to 150 GPM
Head Feet	 Up to 100'
Impeller	 PE 8 - semi-open cast iron, 316 SS (optional) PG 8 - semi-open cast iron, aluminum (optional) PO 8 - semi-open cast iron
Motor	 Up to 3 HP
Drive Options	 Close coupled 145TC Close coupled 56C Engine mount 5.5 HP Engine mount 6.5 HP Hydraulic motor .22 cu. in. Hydraulic motor .37 cu. in. Hydraulic motor .45 cu. in. Pedestal PumPAK® (without motor)
Seal	 PE 8 - carbon / silicon carbide / Viton PG 8 - carbon / silicon carbide / Viton PO 8 - carbon / Ni-Resist / Viton



Application:

- Agricultural
- Industrial
- Marine
- OEM

Compatible For:

- PE 8 - ethanol, E 85
- PG 8 - gasoline, avgas, kerosene, jet A/8
- PO 8 - biodiesel, fuel oil, diesel

Features:

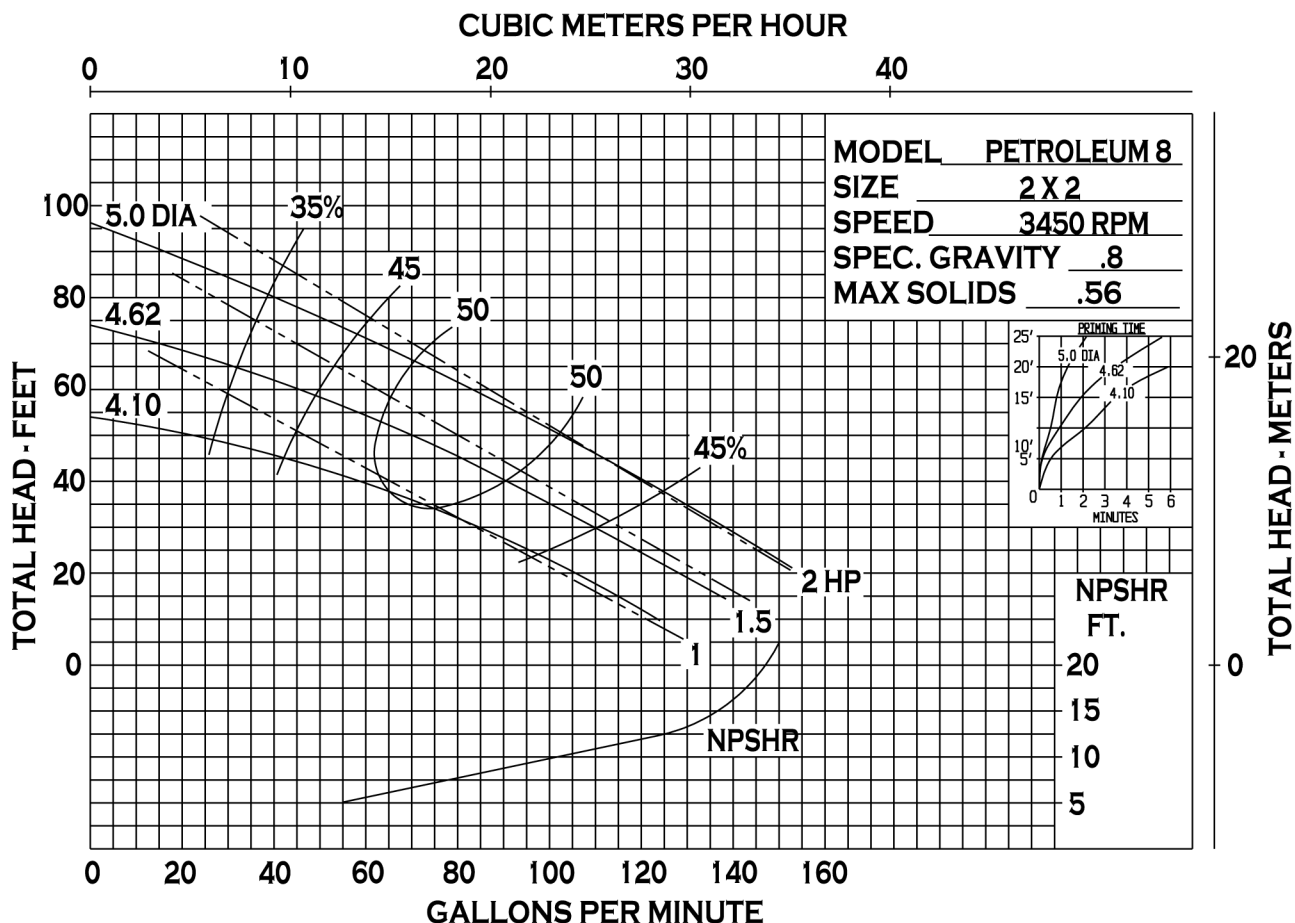
- Gas engine for diesel fuel transfer
- Non-spark clamp (on some models)
- Renewable wear plate
- Stainless steel drive sleeve
- Stainless steel fasteners
- Up to a 25' suction lift

Mounting Options:

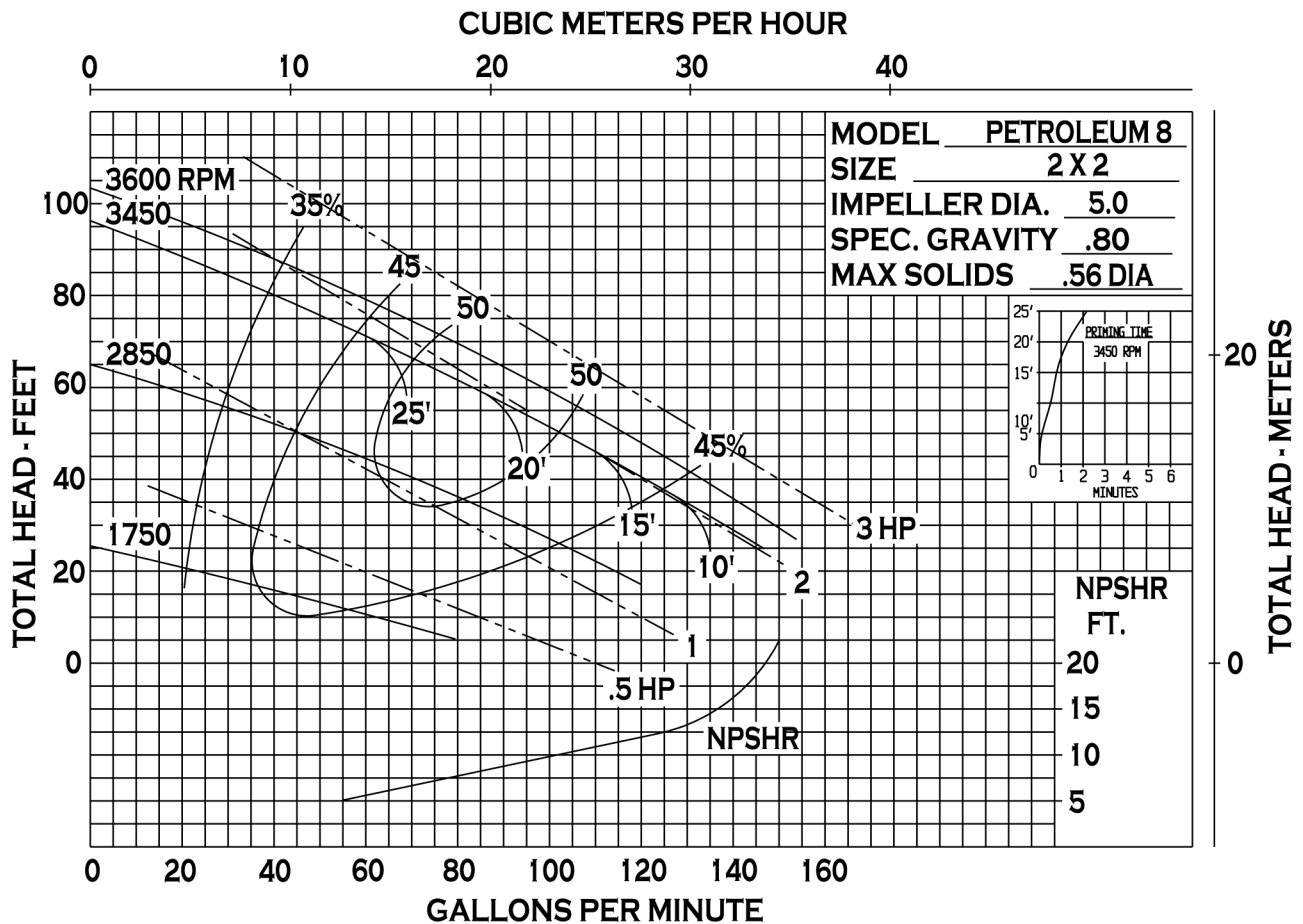
- PE 8 - explosion proof, class 1, group D
- PG 8 - explosion proof, class 1, group D
- PO 8 - TEFC

Options:

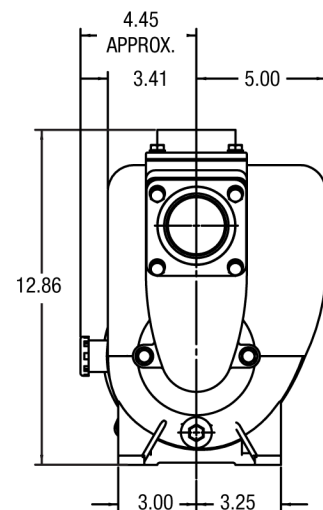
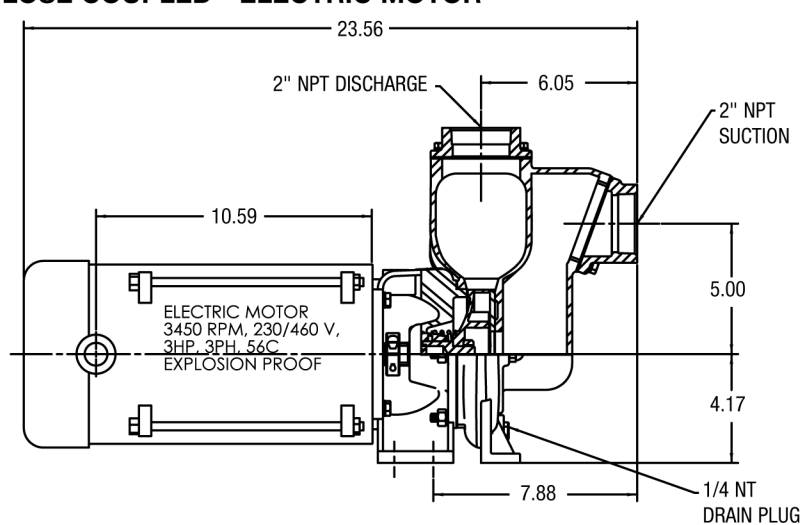
- 5 blade impeller available for higher flows



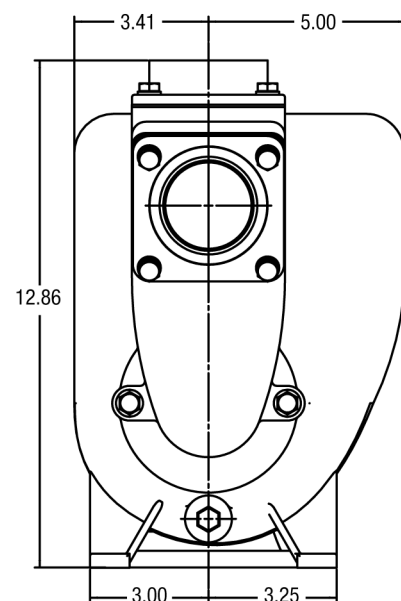
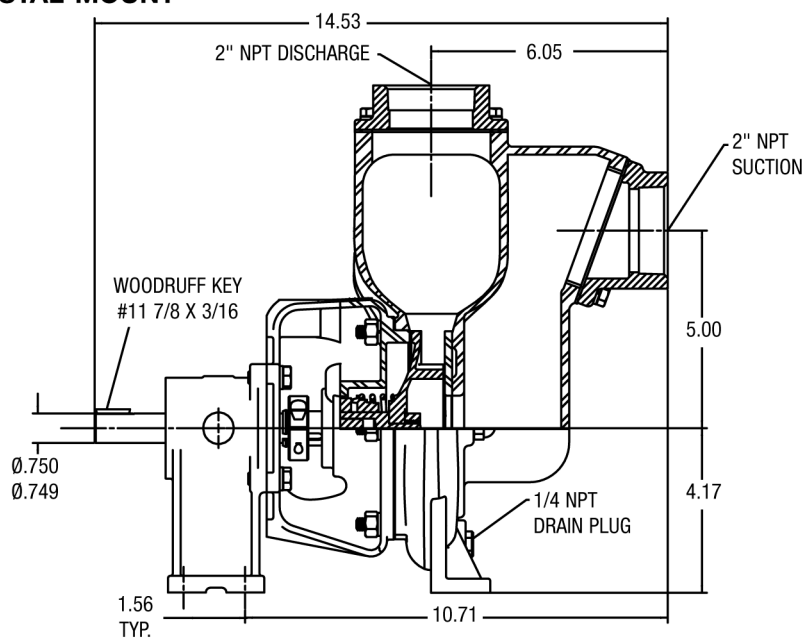
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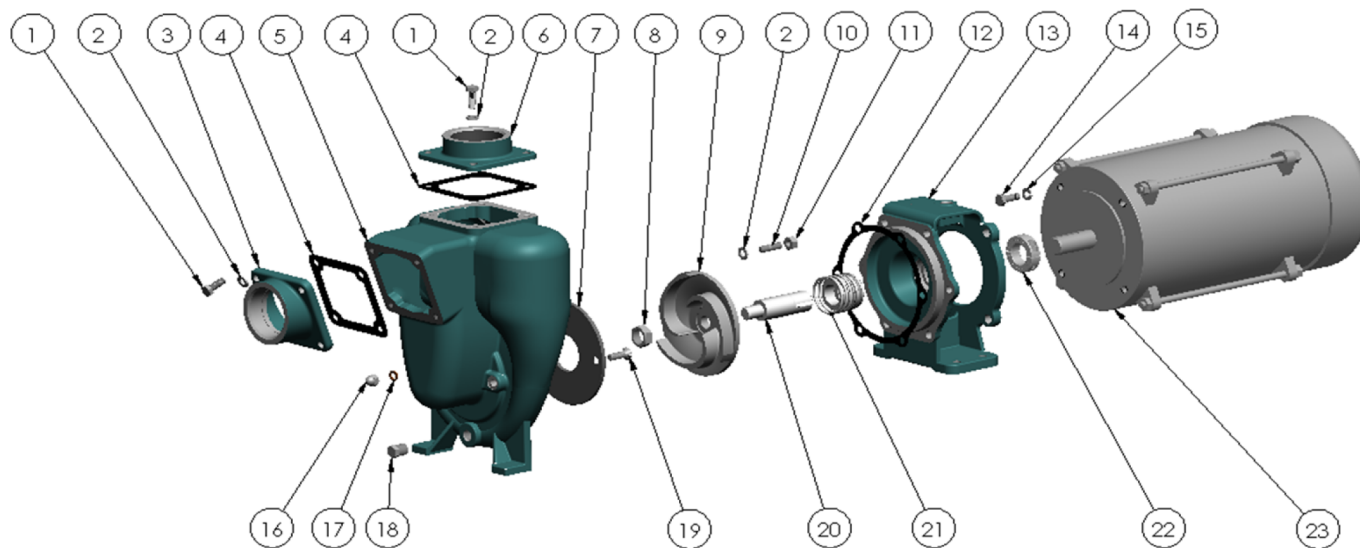
CLOSE COUPLED - ELECTRIC MOTOR



PEDESTAL-MOUNT



35639



PART NO.	ITEM NO.	DESCRIPTION	QTY.		PART NO.	ITEM NO.	DESCRIPTION	QTY.
21242	1	CAPSCREW - 5/16"-18 X 7/8"	8		21266	15	LOCKWASHER SS: 3/8	4
21238	2	LOCKWASHER 5/16	14		21237	16	ACORN NUT - 5/16"-18	2
35614	3	SUCTION FLANGE D - 2" NPT	1	*	21248	17	GASKET - 1/2 X 5/16 X 1/16	2
* 35609	4	GASKET CORK/BUNA	2		21267	18	PIPE PLUG SS 1/4 NPT	1
35604	5	HOUSING DUCTILE	1		21249	19	SCREW SS 5/16-18X1	2
35615	6	DISCHARGE FLANGE D - 2" NPT	1		25664	20	DRIVE SLEEVE SS: 7/8 SL	1
* 22258	7	WEAR PLATE ALUMINUM	1	*	35610	21	SEAL 1" T-2 CAR/SIC/VIT	1
22655	8	JAM NUT - 5/8"-18	1		35613	22	CLAMP B: 7/8 SL	1
22293	9	IMPELLER C 5" DIA.	1		26027	23	EL MTR: 3-3 145TC 3450 230/460	1
30321	10	STUD - 5/16"-18 X 1.13"	6				EXPLOSION PROOF	
21284	11	HEXNUT - 5/16"-18	6					
* 35722	12	GASKET C-4433	1					
35608	13	ADAPTOR DUCTILE	1					
21251	14	CAPSCREW 3/8-16 X 7/8	4					

* SUGGESTED REPLACEMENT PARTS

** COMPATIBLE FOR KEROSENE, JET A/8 & GASOLINE



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DATA SHEET



Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W22Xdb Flameproof - Standard Efficiency IE1 Multivoltage Product code : 15557934

Frame	: 112M	Cooling method	: TEFC-XP
Insulation class	: F	Mounting	: B3L(D)
Duty cycle	: S1	Direct of rotation ¹	: Both
Ambient temperature	: -20 °C to +40 °C	Starting method	: Direct On Line
Altitude	: 1000 m.a.s.l	Approx. weight ³	: 70.4 kg
Degree of protection	: IP56	Moment of inertia (J)	: 0.0081 kgm ²
Design	: N		

Output	4 kW	4 kW	4 kW
Poles	2	2	2
Frequency	50 Hz	50 Hz	50 Hz
Rated voltage	380/660 V	400/690 V	415 V
Rated current	8.08/4.65 A	7.81/4.53 A	7.72 A
L. R. Amperes	54.9/31.6 A	53.1/30.8 A	52.5 A
LRC (p.u.)	6.8	6.8	6.8
No load current	2.60/1.50 A	2.80/1.62 A	3.10 A
Rated speed	2885 rpm	2900 rpm	2910 rpm
Slip	3.83 %	3.33 %	3.00 %
Rated torque	13.2 Nm	13.2 Nm	13.1 Nm
Locked rotor torque	210 %	240 %	260 %
Breakdown torque	260 %	300 %	320 %
Service factor	1.00	1.00	1.00
Noise level ²	64.0 dB(A)	64.0 dB(A)	64.0 dB(A)
Locked rotor time	9 s (hot) 16 s (cold)	9 s (hot) 16 s (cold)	9 s (hot) 16 s (cold)
Efficiency (%)	50%	83.0	82.0
	75%	84.2	84.0
	100%	84.5	85.0
Power factor	Start	0.58	0.58
	50%	0.77	0.71
	75%	0.86	0.82
	100%	0.89	0.87

	<u>Drive end</u>	<u>Non drive end</u>	Foundation loads
Bearing type	6207-ZZ	6206-ZZ	Maximum traction : 540 N
Lubrication interval	-	-	Maximum compression : 1230 N
Lubricant amount	-	-	
Lubricant type	MOBIL POLYREX EM		

This revision replaces and cancels the previous one, which must be eliminated.

- (1) When viewed from the drive end.
 (2) Measured at 1m and with tolerance of +3dB(A).
 (3) Approximate weight subject to changes after manufacturing process.
 (4) At the rated point.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in IEC 60034-1.

Rev.	Summary of changes		Performed	Checked	Date
Performed by	airtonlj				255020/2020-A
Checked by	AUTOMATICO				Page Revision
Date	21/07/2020				1/7 0

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DATA SHEET



Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W22Xdb Flameproof - Standard Efficiency IE1 Multivoltage Product code : 15557934

Thermal protection

ID	Application	Type	Quantity	Switching temperature
01	Winding	Thermistor - 2 Wires	1 x Phase	150 °C

Space heater information

Voltage: 200-240 V

Output: 18-26 W

Standards	Specification : IEC 60034-1	Vibration : IEC 60034-14
	Tests : IEC 60034-2	Tolerance : IEC 60034-1
	Noise : IEC 60034-9	

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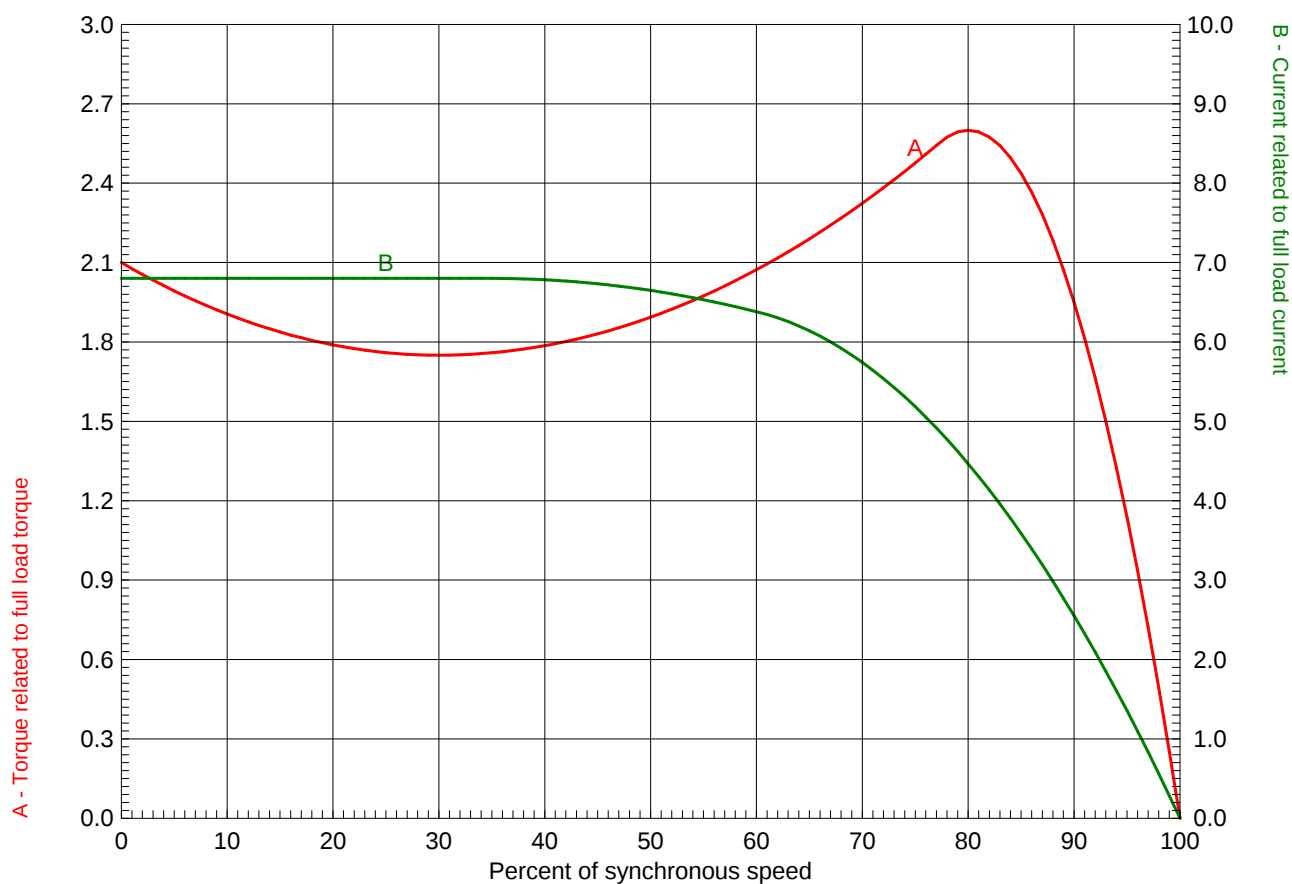
TORQUE AND CURRENT X SPEED CURVE



Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W22Xdb Flameproof - Standard Efficiency IE1 Multivoltage Product code : 15557934



Performance : 4 kW 380/660 V 50 Hz 2P 112M

Rated current : 8.08/4.65 A	Moment of inertia (J) : 0.0081 kgm ²
LRC (p.u.) : 6.8	Duty cycle : S1
Rated torque : 13.2 Nm	Insulation class : F
Locked rotor torque : 210 %	Service factor : 1.00
Breakdown torque : 260 %	Temperature rise : 80 K
Rated speed : 2885 rpm	Design : N

Locked rotor time 100% : 9 s (hot) 16 s (cold)
Load inertia (J=GD²/4) : 0.00809 kgm²

Rev.	Summary of changes		Performed	Checked	Date
Performed by	airtonlj			255020/2020-A1	
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Date	21/07/2020			3/7	0

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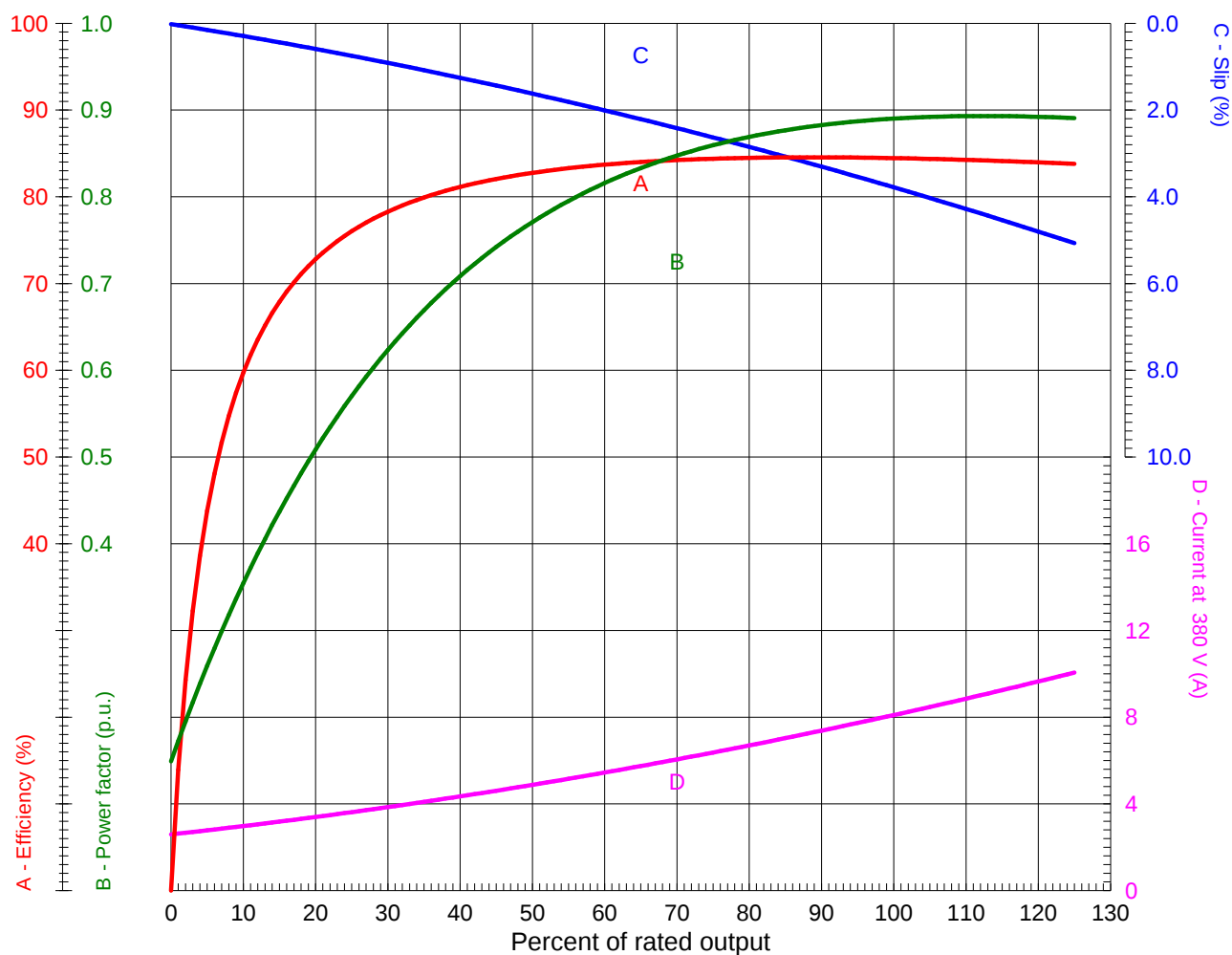
LOAD PERFORMANCE CURVE



Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W22Xdb Flameproof - Standard Efficiency IE1 Multivoltage Product code : 15557934



Performance : 4 kW 380/660 V 50 Hz 2P 112M

Rated current	: 8.08/4.65 A	Moment of inertia (J)	: 0.0081 kgm ²
LRC (p.u.)	: 6.8	Duty cycle	: S1
Rated torque	: 13.2 Nm	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.00
Breakdown torque	: 260 %	Temperature rise	: 80 K
Rated speed	: 2885 rpm	Design	: N

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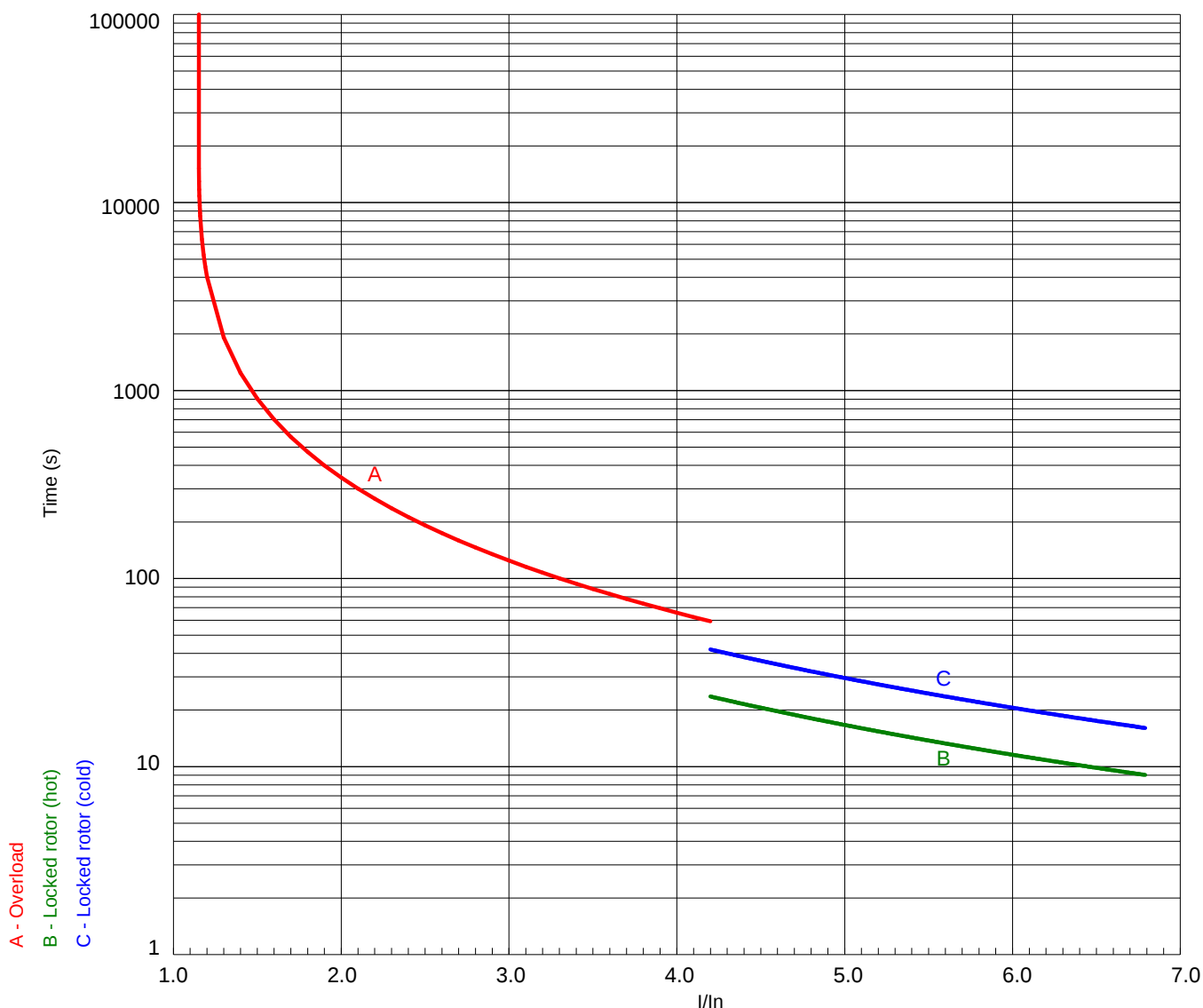
THERMAL LIMIT CURVE



Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W22Xdb Flameproof - Standard Efficiency IE1 Multivoltage Product code : 15557934



Performance : 4 kW 380/660 V 50 Hz 2P 112M

Rated current	: 8.08/4.65 A	Moment of inertia (J)	: 0.0081 kgm ²
LRC (p.u.)	: 6.8	Duty cycle	: S1
Rated torque	: 13.2 Nm	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.00
Breakdown torque	: 260 %	Temperature rise	: 80 K
Rated speed	: 2885 rpm	Design	: N

Heating constant : 16.7 min
Cooling constant : 50.1 min

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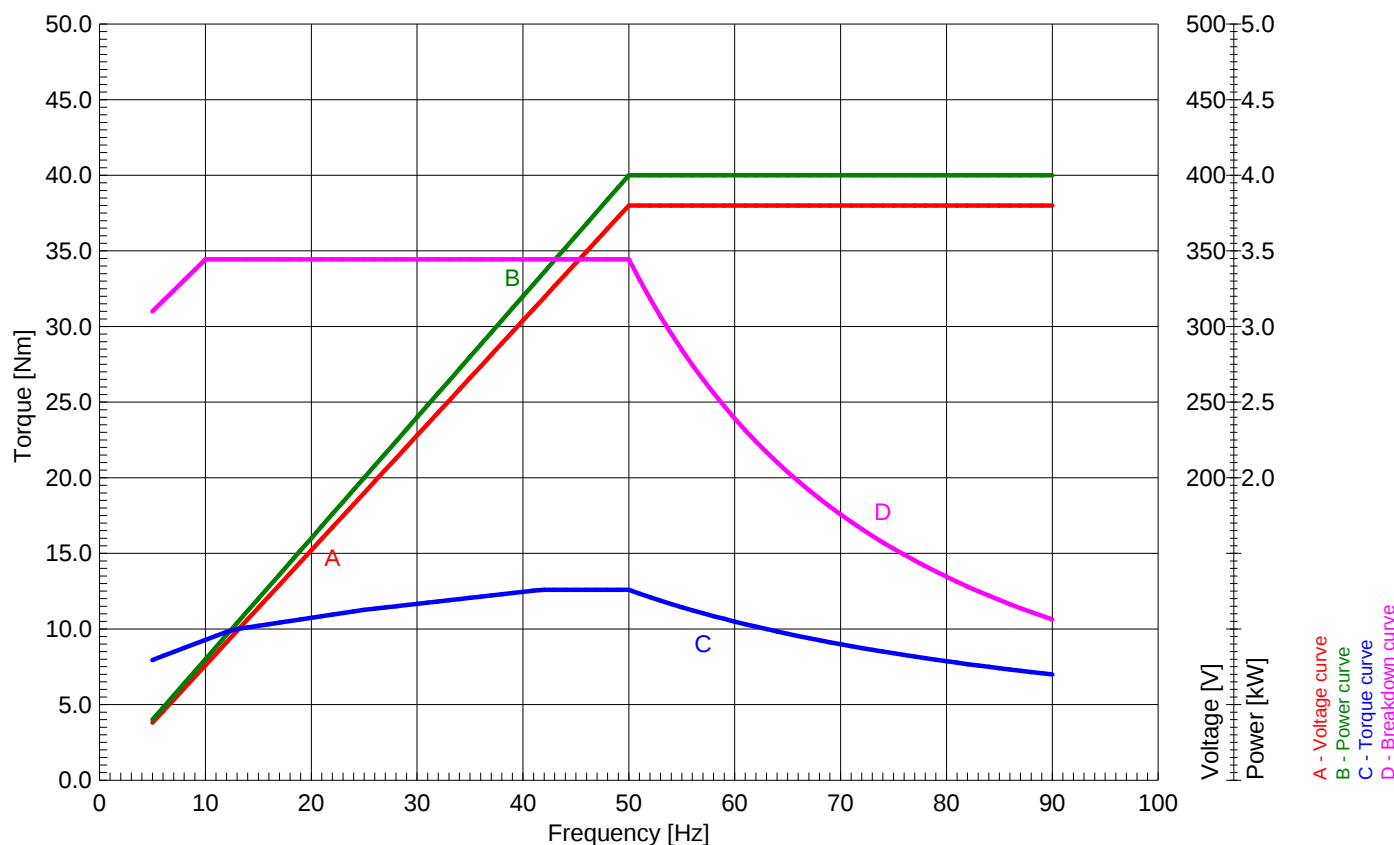
VFD OPERATION CURVE



Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W22Xdb Flameproof - Standard Efficiency IE1 Multivoltage Product code : 15557934



Performance : 4 kW 380/660 V 50 Hz 2P 112M

Rated current	: 8.08/4.65 A	Moment of inertia (J)	: 0.0081 kgm ²
LRC (p.u.)	: 6.8	Duty cycle	: S1
Rated torque	: 13.2 Nm	Insulation class	: F
Locked rotor torque	: 210 %	Service factor	: 1.00
Breakdown torque	: 260 %	Temperature rise	: 80 K
Rated speed	: 2885 rpm	Design	: N
		Maximum peak voltage phase-to-phase	<= 1600 V
		dV/dt	<= 5200 V/μs
		Rise time	>= 0,1 μs

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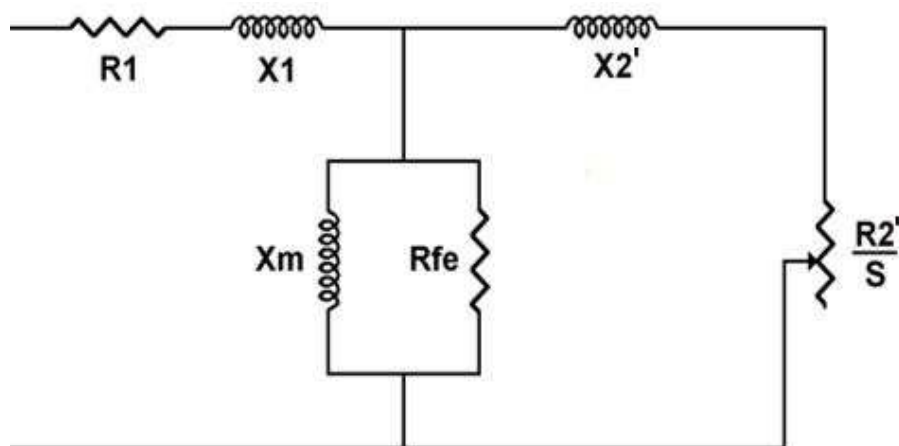
EQUIVALENT CIRCUIT



Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : W22Xdb Flameproof - Standard Efficiency IE1 Multivoltage Product code : 15557934



Rated			
R1	3.6943 ohms / 0.1023 p.u.	X1	5.7352 ohms / 0.1589 p.u.
R2'	2.0877 ohms / 0.0578 p.u.	X2'	6.6342 ohms / 0.1838 p.u.
Rfe	2830.1610 ohms / 78.3978 p.u.	Xm	215.9279 ohms / 5.9814 p.u.

Locked rotor			
R1	4.4409 ohms / 0.1230 p.u.	X1	5.0325 ohms / 0.1394 p.u.
R2'	2.6926 ohms / 0.0746 p.u.	X2'	3.0015 ohms / 0.0831 p.u.
Rfe	2426.4610 ohms / 67.2150 p.u.	Xm	278.7576 ohms / 7.7218 p.u.

T''do	0.2521 s	X/R	1.8948 p.u.
T''d	0.0091 s	RS	0.9682 ohms / 0.0268 p.u.
Ta	0.0047 s	X''d = Xs	8.0341 ohms / 0.2226 p.u.
Zbase	36.1000 ohms	X2(-)	4.2039 ohms / 0.1165 p.u.

All parameters reflected to stator side.

Per phase values, for T connection.

Resistances at 20.0 °C, reactances at rated voltage and frequency.

Performance : 4 kW 380 V 50 Hz 2P 112M

R1	= Stator resistance	T''do	= Open circuit AC time constant
R2'	= Rotor resistance	T''d	= Short circuit AC time constant
Rfe	= Core loss resistance	Ta	= Short circuit DC time constant
X1	= Stator leakage reactance	X/R	= X/R Ratio
X2'	= Rotor leakage reactance	RS	= Supplementary losses resistance
Xm	= Magnetizing reactance	X''d = Xs	= Subtransient reactance
Zbase	= Base impedance	X2(-)	= Negative sequence reactance

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