



COMUNE DI CAPACCIO

Provincia di SALERNO

Piano per gli Insediamenti Produttivi Progetto: "Infrastrutture area P.I.P. - Urbanizzazioni primarie - 2° Lotto - 1° Stralcio"



COMMITTENTE

AMMINISTRAZIONE COMUNALE DI CAPACCIO (SA)

Fase progettuale:

PROGETTO ESECUTIVO 2° LOTTO 1° STRALCIO

EMISSIONE 0 del: GIUGNO/2008

REVISIONE 1 del: GENNAIO/2014

REVISIONE 2 del: APRILE/2015

Atto di:

COORDINAMENTO GENERALE: Ing. Carmine GRECO - Area VI
COORDINAMENTO STRUTTURE: Ing. Carmine GRECO - Area VI
COORDINAMENTO IMPIANTI: Ing. Carmine GRECO - Area VI
COORDINAMENTO SICUREZZA: Ing. Carmine GRECO - Area VI

ELABORATO

**FOGNA ACQUE NERE:
DISCIPLINARE DESCRITTIVO E PRESTAZIONALE
GRUPPO ELETTROGENO**

DATA APRILE 2015

SCALA

CODICE FILE
PIP 2-1 TAV. N. 16.8

TAVOLA

N. 16.8

IL PROGETTISTA

Ing. Vincenzo CRISCUOLO - Area V

R.U.P.:

Ing. Carmine GRECO - Area VI

IL SINDACO:

(Dott. Italo VOZA)

Progetto: Comune di Capaccio: area P.I.P. - Caso1

Cliente:

Singola 1

				N° di	
Lunghezza	6.0	m	Piede acc.	0.30	1
Materiale	Acciaio		Curva a 90°	0.24	2
Classe di press	NORM		Saracinesca	0.15	1
Dimensioni	150	mm	Innesto a T	0.60	0
Rugosità	0.200	mm	Valvola ritegno	0.30	1
Diametro int.	160.3	mm	Sbocco	1.00	0
			Altro	0.00	0
Totale:				1.20	
Velocità acqua:	m /s		Pc nel singolo tratto:		m

Singola 2

				N° di	
Lunghezza	6.0	m	Piede acc.	0.30	0
Materiale	Acciaio		Curva a 90°	0.24	2
Classe di press	NORM		Saracinesca	0.15	1
Dimensioni	200	mm	Innesto a T	0.60	1
Rugosità	0.200	mm	Valvola ritegno	0.30	0
Diametro int.	209.1	mm	Sbocco	1.00	0
			Altro	0.00	0
Totale:				1.20	
Velocità acqua:	m /s		Pc nel singolo tratto:		m

Progetto: Comune di Capaccio: area P.I.P. - Caso1

Cliente:

Tubazione 1

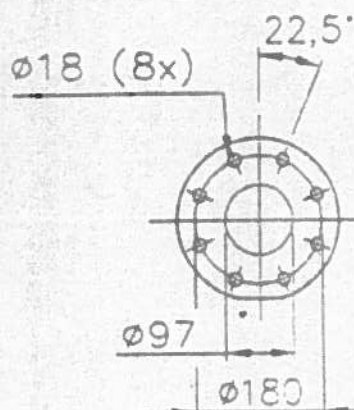
				N° di	
Lunghezza	1055.0	m	Piede acc.	0.30	0
Materiale	PEAD		Curva a 90°	0.24	9
Classe di press	PN10		Saracinesca	0.15	3
Dimensioni	250	mm	Innesto a T	0.60	0
Rugosità	0.010	mm	Valvola ritegno	0.30	0
Diametro int.	204.4	mm	Sbocco	1.00	1
			Altro	0.93	2
			Totale:	5.50	
Velocità acqua:	1.4	m /s	Pc nel singolo tratto: 8.0 m		
Portata totale:	45.0	l/s	N° di	Perd. di carico:	Prev. totale:
Prev. geodetica:	13.0	m	1	8.7 m	21.7 m
			2	8.2 m	21.2 m
			3	8.1 m	21.1 m
			4	8.1 m	21.1 m
				m	m

Colebrook-White

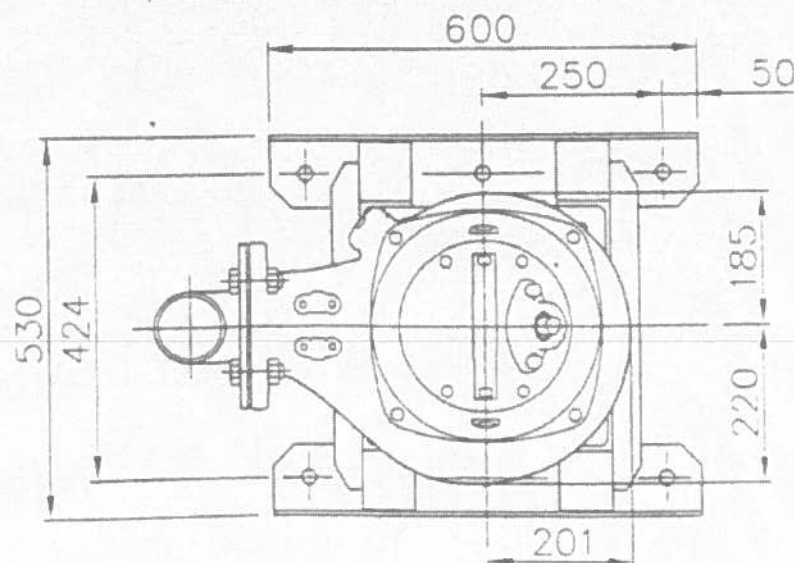
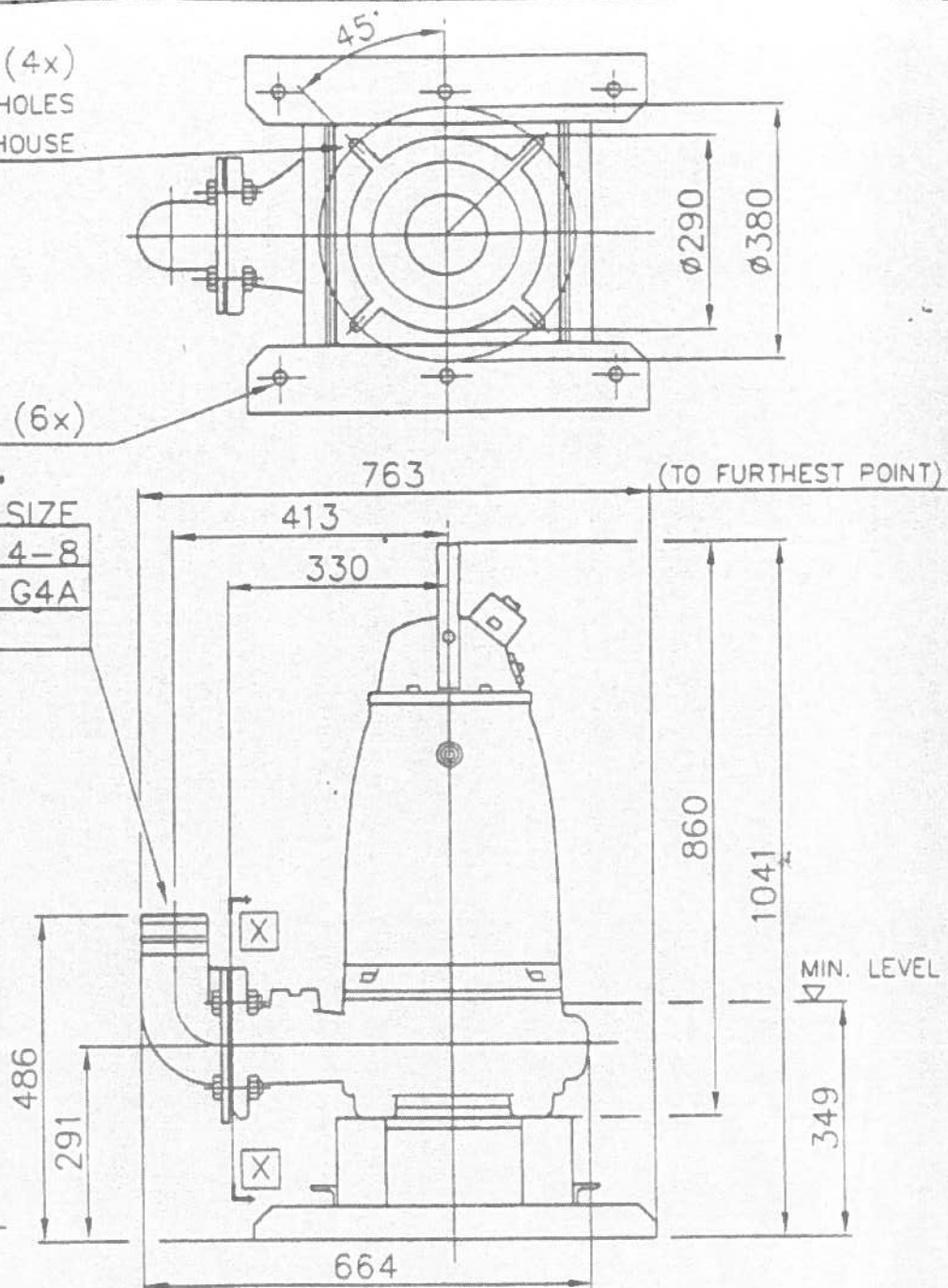
M16 (4x)
THREADED HOLES
IN PUMP HOUSE

Ø22 (6x)

Ø100 HOSE SIZE
NPSM 4-8
ISO G4A



VIEW [X] - [X]



Weight (kg)

Total incl. stand

219

AUTOCAD
DRAWING

Denomination

Dimensional drwg
NS 3153 HT
DN150/dia100

Drawn by

JoS

Checked by

JK

Date

000606

Scale

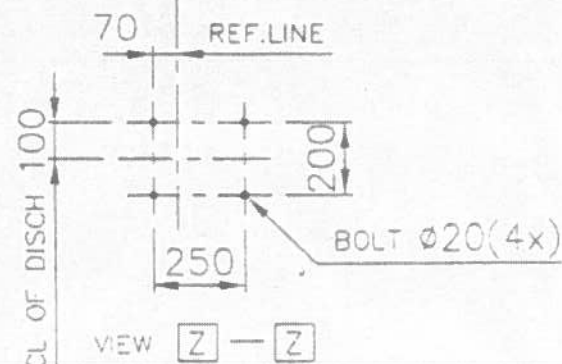
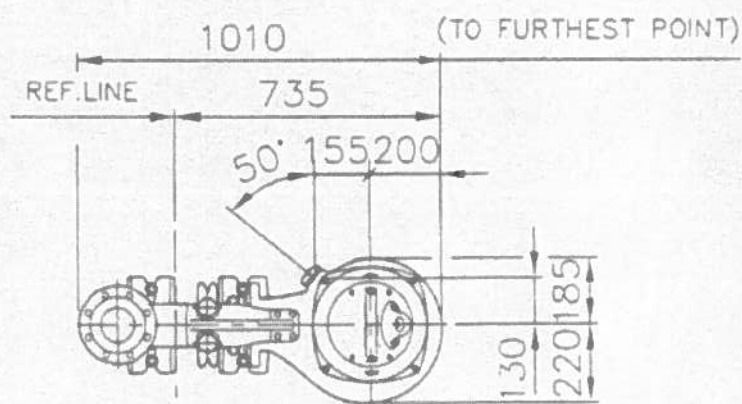
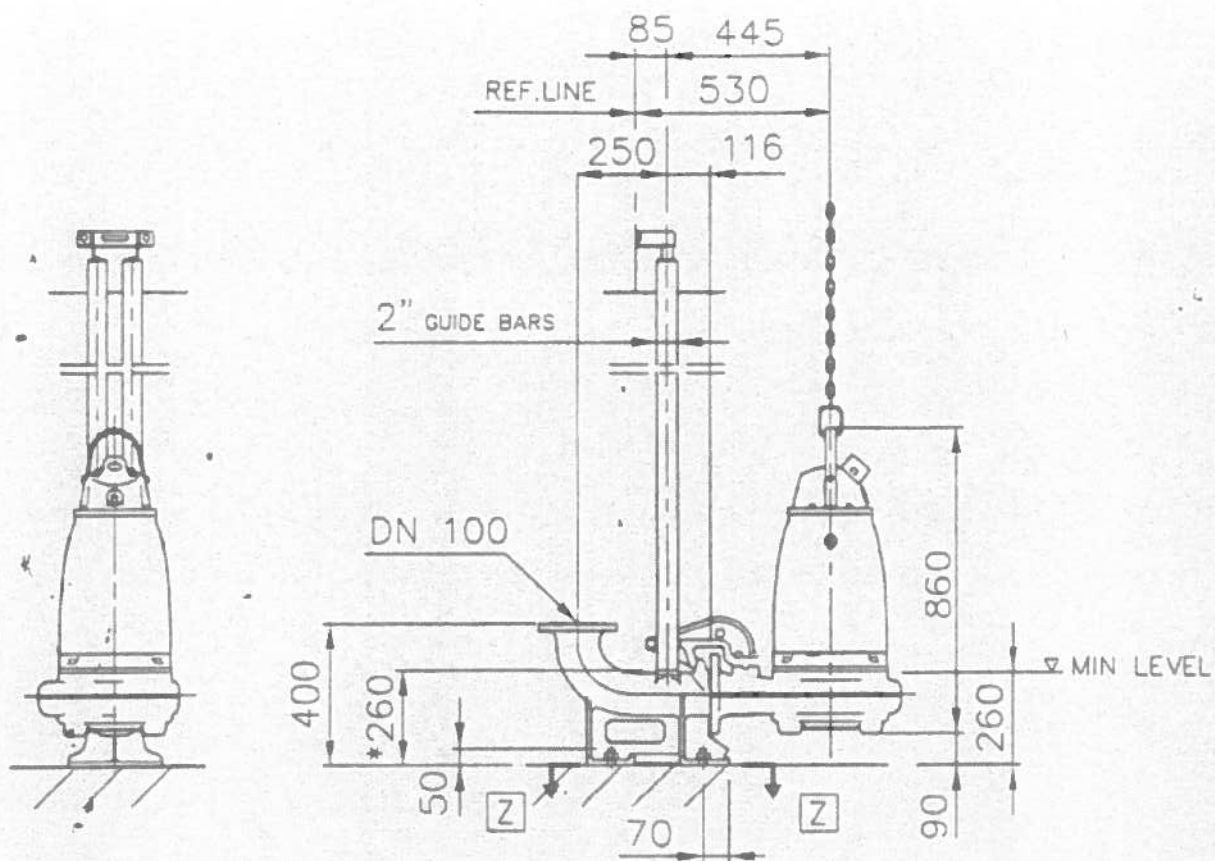
1:10

Reg. no

5399

659 44 00

C



* DIMENSION TO ENDS OF GUIDE BARS

Weight (kg)	
Pump	Stand
197	42

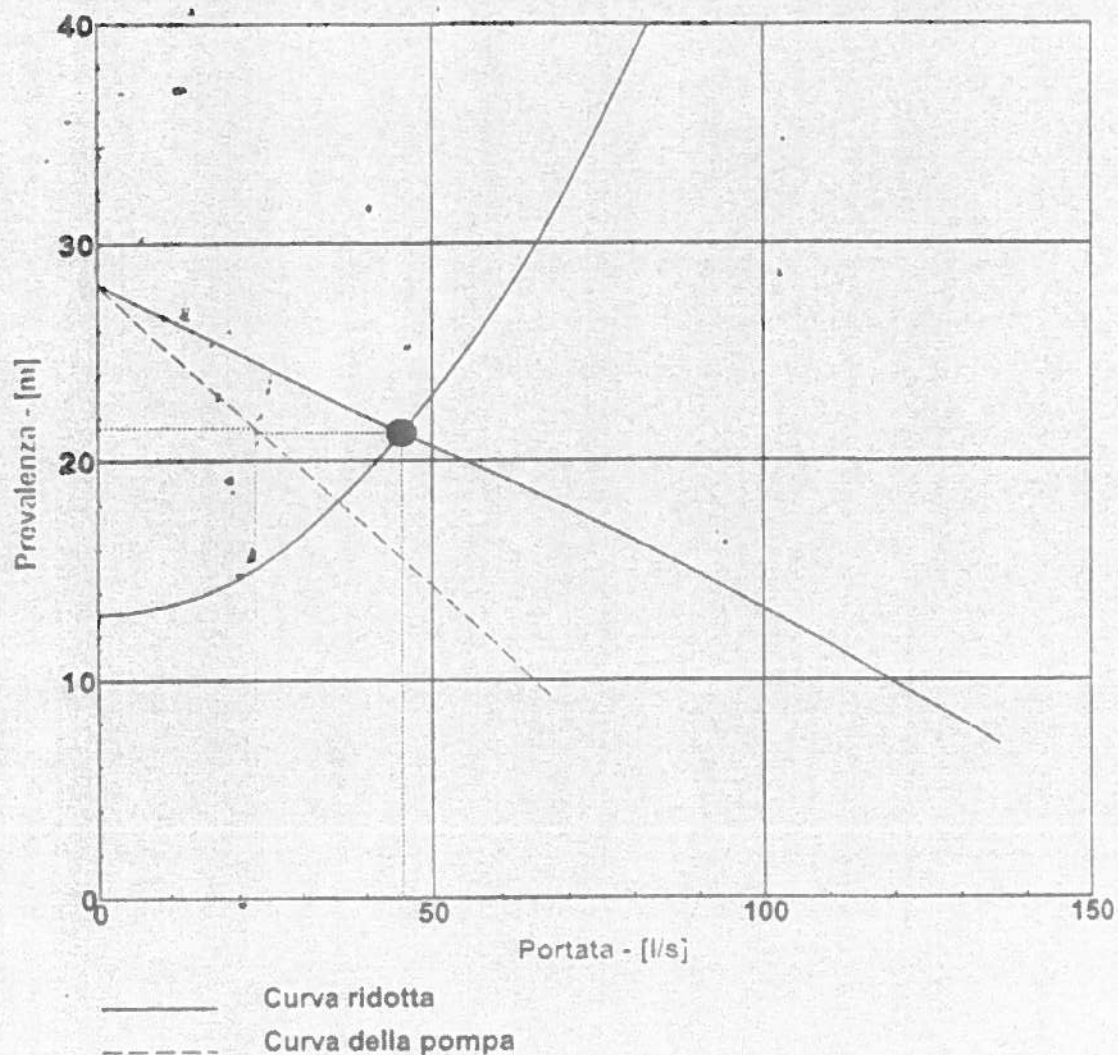
AUTOCAD DRAWING	Dimensional dwg NP 3153 HT DN 100/DN 100	Drawn by: LGS	Checked by: JK	Date: 990610
		Scale: 1:20		Reg no: 5399
		550 45 00		E

Analisi funzionam. - Condizione di lavoro

SIA

Progetto: pip.seconda

Proprietario: Paolo



2 NP 3153 53-453-00-6050

DATI CARATTERISTICI

Potenza nom.: 13.5 kW

Diametro girante: 261 mm

Canali: 2

CONDIZIONE DI LAVORO

N° di pompe: 2

Portata: 45.6 l/s

Prevalenza: 21.5 m

Prevalenza ridotta: 21.3 m

Potenza idr.: 13.8 kW

Rendimento idr.: 69.6 %

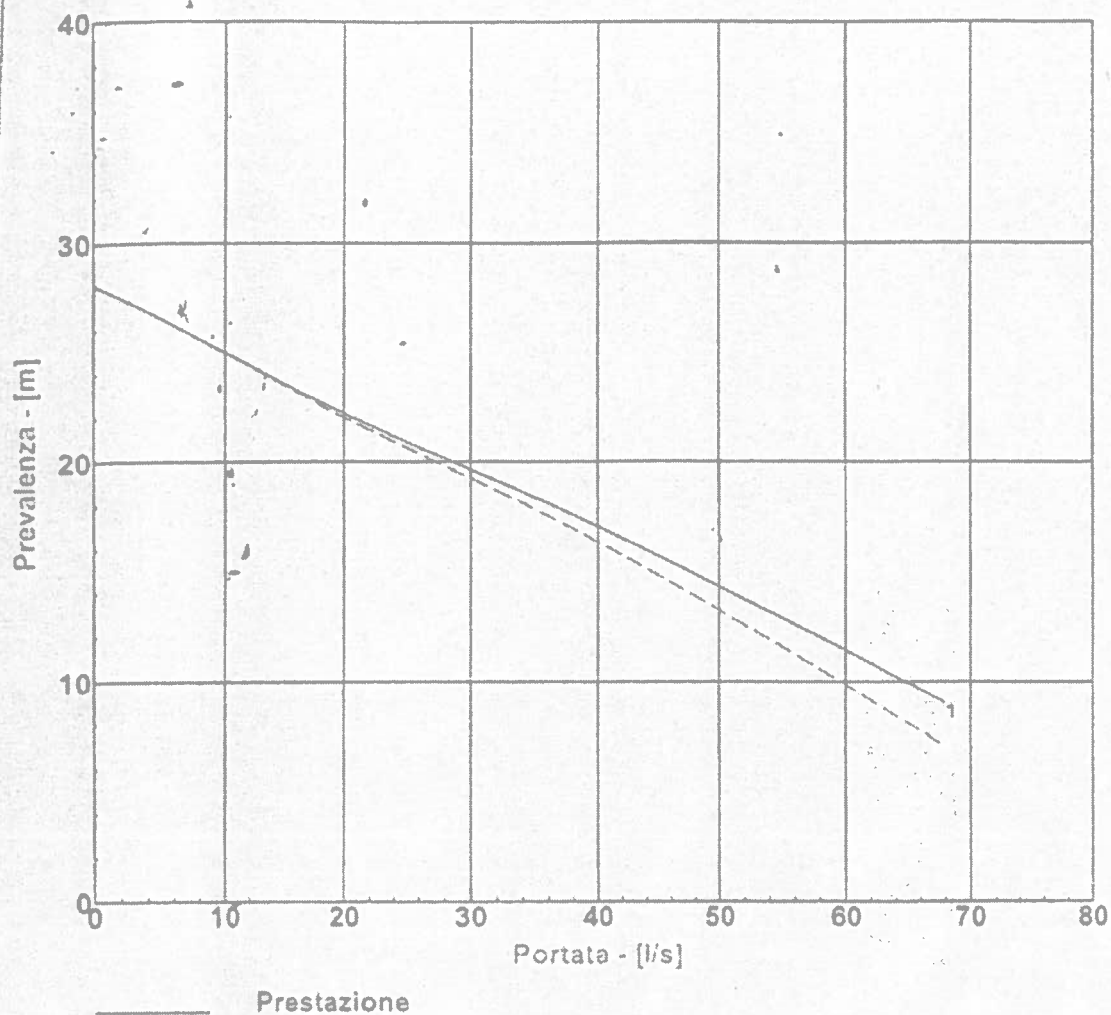
Energia specif.: 0.0955 kWh/m³

Analisi funzionam. - Curva caratteristica



Progetto: pip.seconda

Proprietario: Paolo

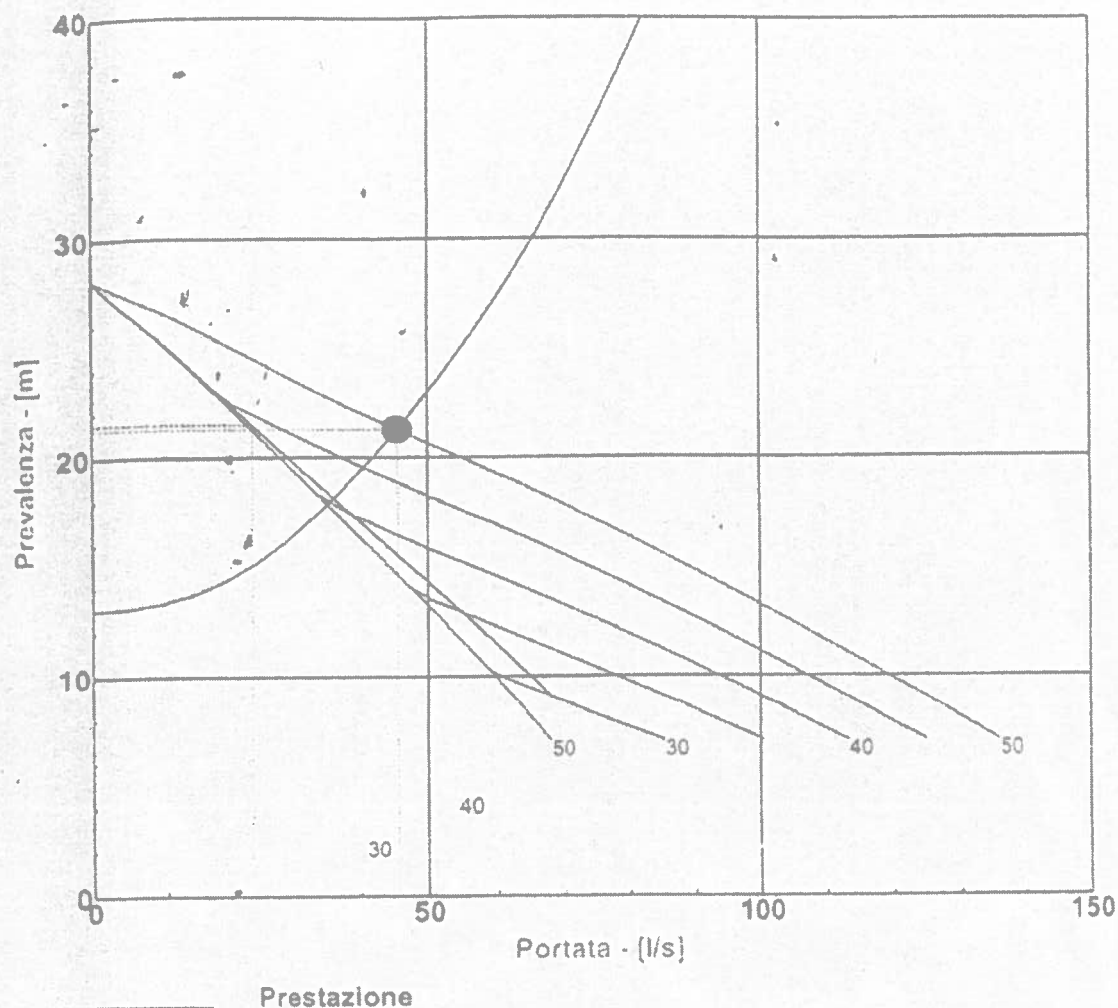


1. NP 3153 - 53-453-00-6050 13.5 kW 261 mm

Analisi & VFD - Prestazione

Progetto: pip.seconda

Proprietario: Paolo



Pompa: N 3153 53-453-00-6050

DATI CARATTERISTICI

Diametro girante: 261 mm

Potenza nom.: 13.5 kW

Canali: 2

Colleg.to: In parallelo

Collegam. VFD: Separata

N° di pompe: 2

Frequenza: 50 Hz

Portata: 45.6 l/s

Prevalenza: 21.3 m

Pot. ass.: 16.1 kW

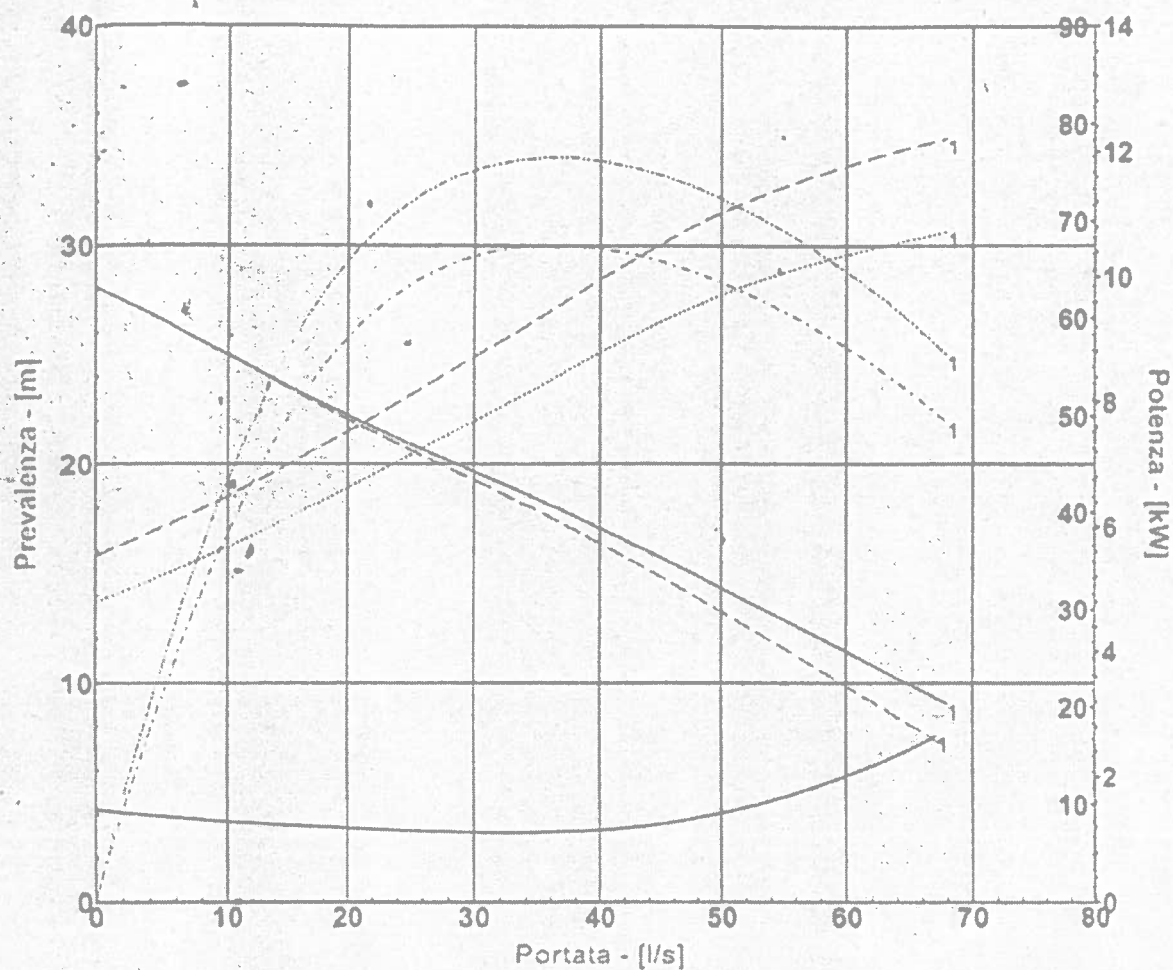
Rendimento tot.: 58.9 %

Energia spec: 0.098 kWh/m³

Analisi funzionam. - Curva caratteristica

Progetto: pip.seconda

Proprietario: Paolo



- Prestazione/NPSH-rich.
- - - Potenza ass.
- ... Potenza idr.
- . - Rendimento tot.
- - - Rendimento idr.

1. NP 3153 - 53-453-00-6050 13.5 kW 261 mm



Dati targa

Frequenza	50Hz	Prodotto	3153 . 181	Edizione	1
Fasi	3	Motore	21-18-4AA	Avviamenti / ora	15
Poli	4	Potenza resa	13.5 kW	Sost. in data	
Approv.		Installazioni	PSTZ	Valido da	28/12/2004
Raffredd.	N	Tipo servizio	S1	Stato	APPR

Massima temp. 40 ° C / 104 ° F

	Alternativa 1	Alternativa 2		
Tensione	690 V	400 V	Variante statore	01
Colleg.to	Y	D	Velocità	1455 r/min
Corrente	16.0 A	28.0 A	N° di modulo	160
Avviamento	86.0 A	150.0 A	Edizione motore	12
Fattore di potenza	0.82	0.82		
Cod. rotore bloccato	G	G		

Dati per liquidi caldi

Nota! Potenza resa nominale ridotta

Massima temp.	70 ° C / 158 ° F	° C /	° F
Corrente (1)	13.0 A	A	
Corrente (2)	23.0 A	A	
Max potenza assorbita	12.6 kW	kW	

Industrial Engine Power by Power Solutions, Inc.

8.1L

GM Industrial Engine



Feature/Benefits

- Coil-near-plug Ignition includes crankshaft sensor, camshaft sensor, ESC sensors, and eight ignition coils.
- Cylinder head features high-flow replicated ports and sintered powder metal exhaust valve seat inserts for durability.
- Industrial torsional damper with integral six-rib pulley to accommodate serpentine accessory drive hardware.
- Iron exhaust valve seat facing for better valve durability with alternative fuel applications.
- Platinum tip long-life spark plugs.
- High torque camshaft with hydraulic roller valve lifters provides maximum performance.
- Positive Crankcase Ventilation (PCV) system is integral to intake manifold (no valve required).
- Coated cast aluminum 8-quart oil pan with full baffles and 12-mm drain plugs on port and starboard sides.
- Industrial external water crossover.
- Coated, flat-top hypereutectic cast aluminum pistons.
- Engine block quick-connect fittings for easy assembly of oil coolers and other oil systems.

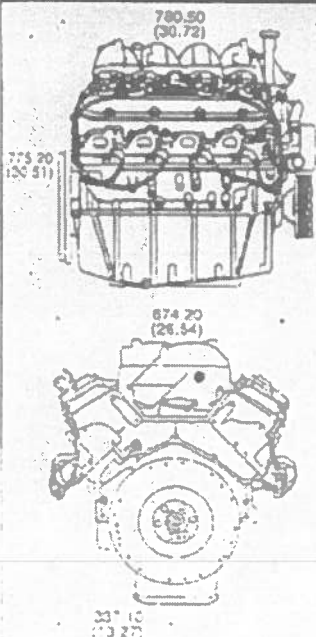
Options

- "Vortec 8100" Sight Shield and related mounting hardware available in kit form.
- A fourth-generation electronic control module (MEFI-IV) utilizing state-of-the-art hybrid technology and related parts is available in kit form.
- GM-designed accessory drive components available in kit form.
- Engine block heater for cold climate operations available in kit form.

Feature Focus

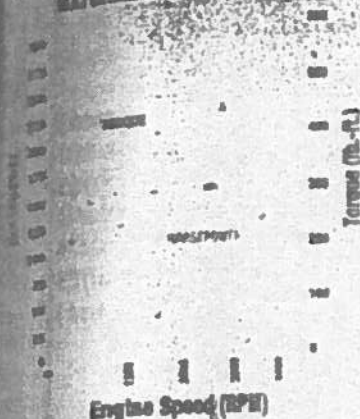
- The coil-near-plug Ignition system, with both crankshaft sensor and camshaft sensor, is another example of GM Powertrain bringing advanced automotive technology to the industrial engine market.

Power Solutions Inc.



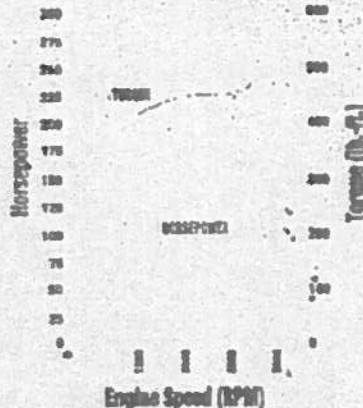
8.1L ENGINE

NATURAL GAS, CARBURETED



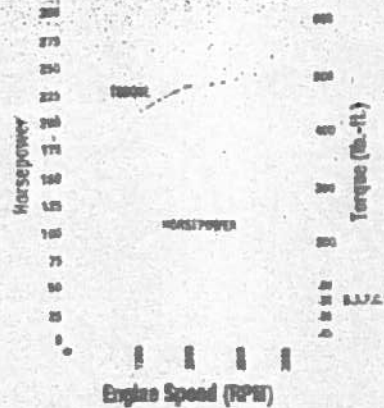
Power corrected to SAE J1995. Actual power levels may vary due to fuel system calibration, and design of induction and exhaust system.

LP, CARBURETED



Power corrected to SAE J1995. Actual power levels may vary due to fuel system calibration, and design of induction and exhaust system.

GASOLINE, FUEL INJECTION



Power corrected to SAE J1995. Actual power levels may vary due to fuel system calibration, and design of induction and exhaust system.

* A.S.P.C. IN POUNDS OF FUEL PER BRAKE HORSEPOWER-HOUR

PSI OFFERS TURN-KEY CERTIFIED AND NON-CERTIFIED ENGINE PACKAGES

General Data

Type: 90° 8.1L V8
Displacement: 496 cid (8127 cc)
Compression Ratio: 9.1:1
Valve Configuration: Pushrod Actuated
Overhead Canted Valves
Manufactured: Tonawanda, New York
Valve Lifters: Hydraulic Roller
Bore X Stroke: 4.25 x 4.37 in
(107.95 mm x 111 mm)
Main Bearing Caps: 4-Bolt Cast Iron
Balance Method: Internal
Intake Manifold: Factory-Installed
Alternate Fuel Manifold
Fuel Delivery: PFI or LPG/NG Mixer
Oil Pan Capacity: 8 qt
Fuel Types: CNG / LPG
Engine Rotation: Clockwise (from the front)
Paint Protection: Component Painted
Horsepower: 264 hp @ 3000 rpm (Propane)
242 hp @ 3000 rpm (Natural Gas)
Torque: 352 lb.-ft @ 3000 rpm (Propane)
317 lb.-ft @ 3000 rpm (Natural Gas)
Shipping Weight: 729 lb (327.49 kg)

Materials

Block: Cast Iron
Cylinder Head: Cast Iron
Intake Manifold: One-Piece
Cast Aluminum
Crankshaft: High-Density Nodular Iron
(with undercut and rolled fillets)
Pistons: Hypereutectic Cast Aluminum
Exhaust Seat: Sintered powder metal
exhaust valve seat inserts)
Gaskets: Non-Asbestos

Engine Sealing System

One-piece viton rear main seal
One-piece oil pan gasket
Molded rocker cover seal
Composite graphite cylinder head
gaskets with stainless steel core

Sensors

Switch & Sender: Water Temp &
Oil Pressure

Fuel System Options

Closed-Loop Fuel System Kit
Gasoline Fuel Injection
Gasoline/LPG Carb or Injection Dual Fuel
LPG (Mixer, Throttle Body, Fuel
Lock, Regulator)
LPG W/Governor (Same As Above
w/Elec. Governor)
LPG W/Governor (Same As Above
w/Veloc. Governor)
LPG Carb or Injection
NG/LPG Carb Dual Fuel
NG Carb
NG (Mixer, Throttle Body & Air Cleaner)
NG W/Governor (Same As Above
w/Elec. Governor)
Three Way Catalyst Available

Information may vary with application. All specifications listed are based on the latest product information available at the time of publication. The right is reserved to make changes or any time without notice.

PSI

POWER SOLUTIONS, INC.

655 Wheat Lane, Wood Dale, IL 60191

Telephone 630-350-9400

Fax 630-350-9900

Associated Company

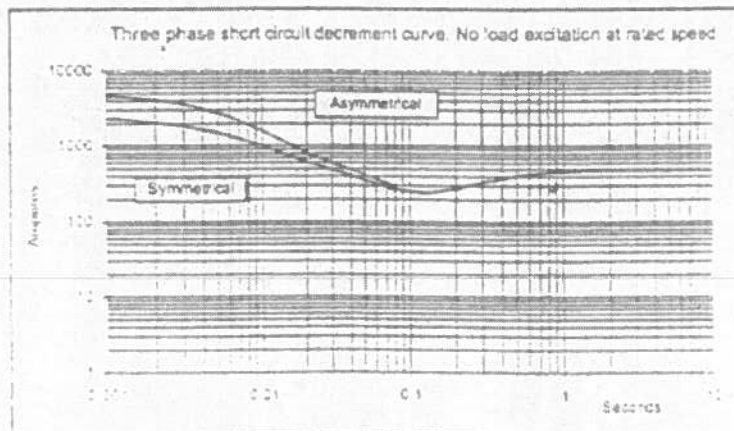
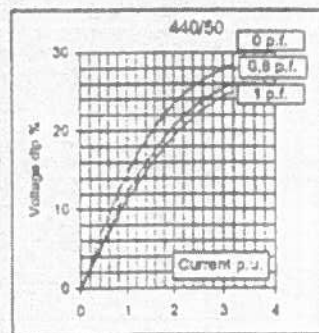
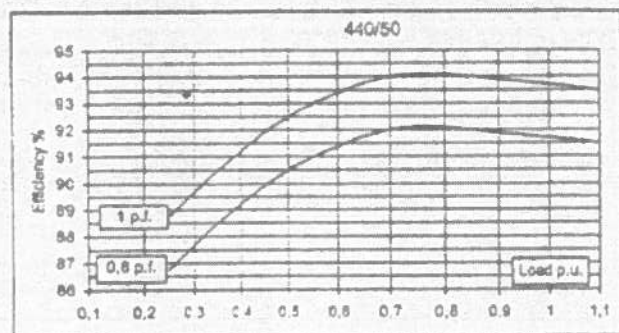
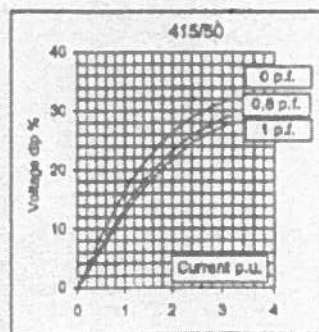
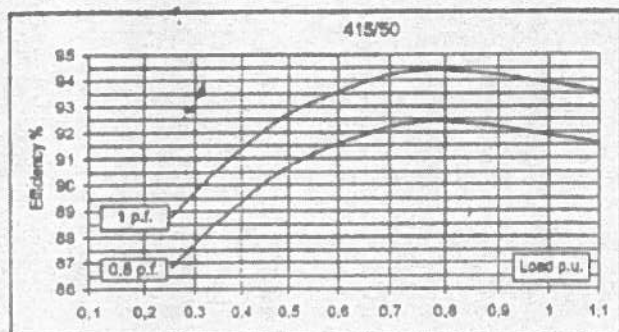
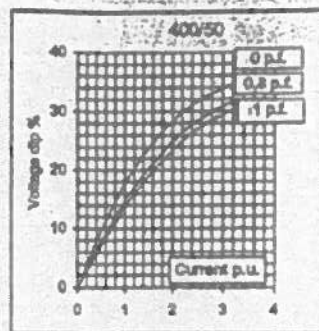
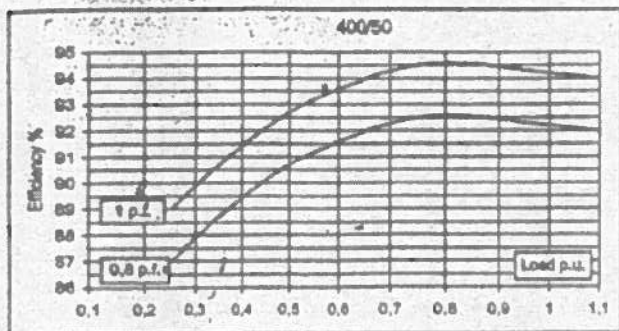
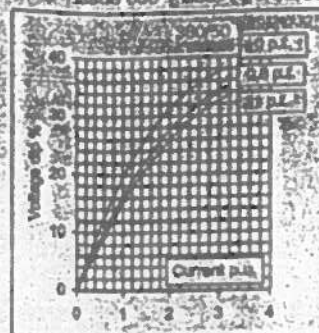
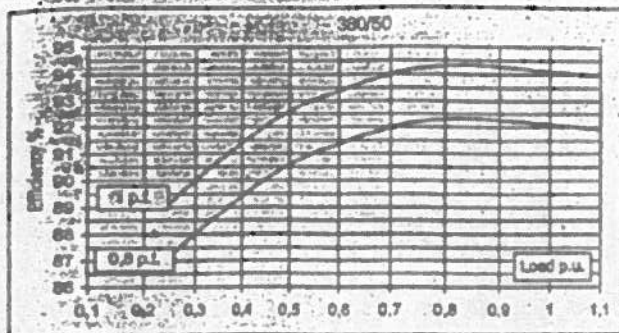
PGL
Power Great Lakes, Inc.

GM POWERTRAIN

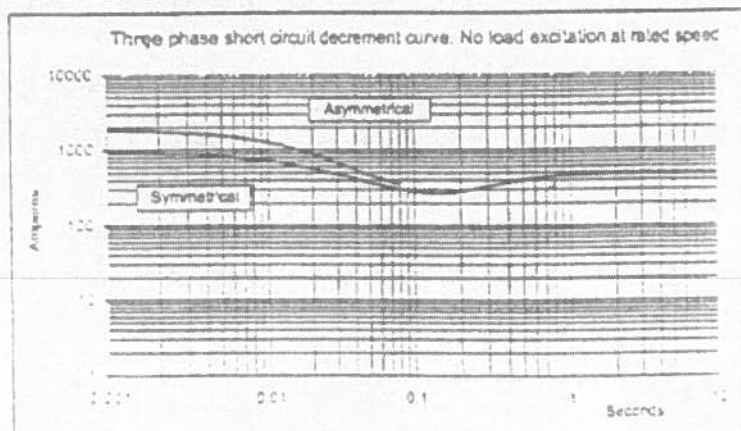
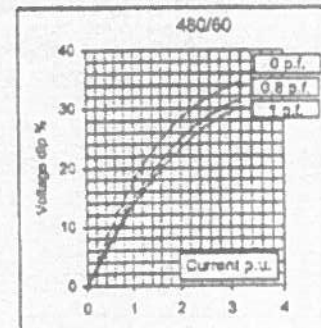
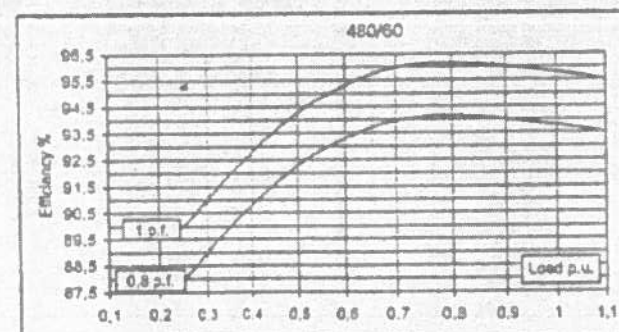
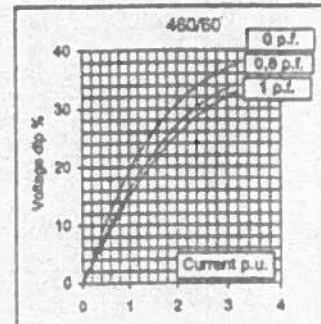
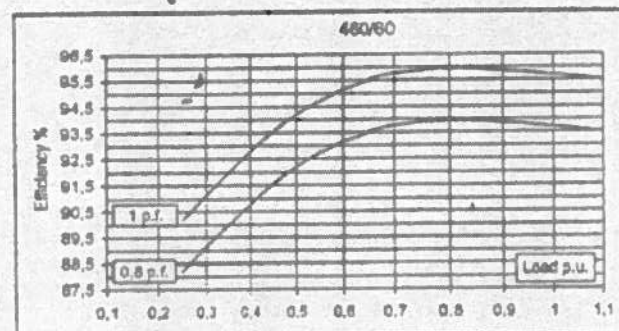
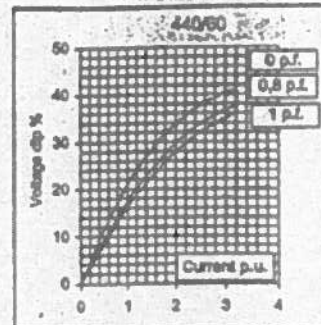
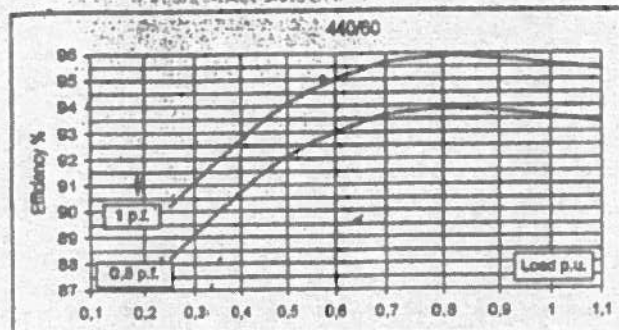
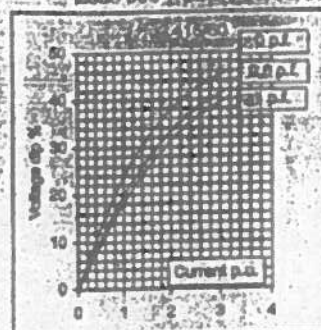
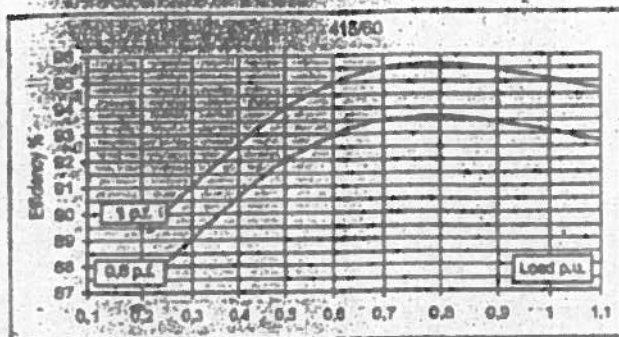
1999-2000 1-800-833-0000

Electrical Characteristics		Hz							
Frequency		50				60			
Voltage (series star)		380	400	415	440	415	440	460	480
Rated power class H		105	105	105	105	115	120	120	120
Rated power class F		84	84	84	84	92	101	101	101
Regulation with		95	95	95	97	104	114	114	114
Insulation class		78	78	78	81	82	81	81	81
Execution		Brushless							
Stator winding		12 ends							
Rotor		with damping cage							
Efficiencies class H		%	92,1	92,2	91,9	91,7	93,1	93,6	93,7
(see graph. for details)		%	92,2	92,5	92,4	92,1	93,6	93,8	93,9
		%	90,6	90,7	90,7	90,5	92	92,1	92,2
		%	87,2	87	86,8	86,8	88,2	88,2	88,2
Reactances (f. l.d. F)		Xd'	%	254,8	230	213,7	153,9	280,8	273,7
		Xd'	%	19,5	17,6	16,4	11,8	21,5	20,9
		Xd''	%	6,3	5,7	5,3	3,8	7,0	6,8
		Xq	%	165,8	149,6	139,0	100,1	182,7	178,0
		Xq'	%	165,8	149,6	139,0	100,1	182,7	178,0
		Xq''	%	34,6	31,2	29,0	20,9	38,1	37,1
		X ₂	%	20,5	18,5	17,2	12,4	22,8	22,0
		X ₀	%	3,9	3,5	3,3	2,3	4,3	4,2
Short Circuit Ratio		Kcc		0,41	0,47	0,61	0,90	0,32	0,35
Time Constants		Td'	sec.	0,0393					
		Td''	sec.	0,0055					
		Tdo'	sec.	1,70					
		Tα	sec.	0,0146					
Short Circuit Current Capacity		%	>300				>350		
Excitation at no load		Amp.	0,5	0,6	0,8	1,1	0,2	0,3	0,4
Excitation at full load		Amp.	2	2,2	2,3	2,6	1,7	1,9	2
Overload (long-term)		%	1 hour in a 8 hours period 110% rated load						
Overload per 20 sec.		%	300						
Stator Winding Resistance (20°C)		Ω	0,02						
Rotor Winding Resistance (20°C)		Ω	2,951						
Exciter Resistance (20 °C)		Ω	Rotor : 0,410				Stator : 15,28		
Heat dissipation at f.l.d.H		W	7205	7106	7404	6155	6818	6232	6777
Telephone Interference			FHT < 2%				TIF < 40		
Radio Interference			EN50081-1; EN50082-1; VDE0875K. For others standards apply to factory						
Waveform Distors.(THD) at f. load		LL/LN %	1,8 / 1,9						
Waveform Distors.(THD) at no load		LL/LN %	2,8 / 2,9						
Mechanical characteristics									
Protection			IP 21 (other protection on request)						
DE bearing			6314.2RS						
NDE bearing			6311.2RS						
Weight of wound stator assembly		kg	126						
Weight of wound rotor assembly		kg	81						
Weight of complete generator		kg	393						
Maximum overspeed		rpm	2250						
Unbalanced magnetic pull at f.l.d.F		kN/mm	5,1						
Cooling air requirement		m³/min	19,3				23		
Inertia Constant (H)		sec.	0,111				0,133		
Noise level at 1m, 7m		dB(A)	79 / 65				83 / 59		

50 Hz



60 Hz



Technical drawing of a mechanical assembly, likely a pump or motor component, showing dimensions and labels. The drawing includes a cross-section of the assembly with various parts labeled with numbers 1 through 5. Dimensions are provided in millimeters (mm) and inches (in).

Dimensions (mm):

- Overall length: 637.5
- Overall width: 93
- Distance from left face to center of part 1: 198.5
- Distance from left face to center of part 2: 437
- Distance from left face to center of part 3: 240
- Distance from left face to center of part 4: 150.5
- Distance from left face to center of part 5: 753
- Distance from left face to center of part 6: 105
- Distance from left face to center of part 7: 60
- Distance from left face to center of part 8: 91
- Distance from left face to center of part 9: 61
- Distance from left face to center of part 10: 243
- Distance from left face to center of part 11: 372.5
- Distance from left face to center of part 12: 81
- Distance from left face to center of part 13: 50

Labels:

- 1: Part 1 (Pump housing)
- 2: Part 2 (Pump housing)
- 3: Part 3 (Pump housing)
- 4: Part 4 (Pump housing)
- 5: Part 5 (Pump housing)
- 6: Part 6 (Pump housing)
- 7: Part 7 (Pump housing)
- 8: Part 8 (Pump housing)
- 9: Part 9 (Pump housing)
- 10: Part 10 (Pump housing)
- 11: Part 11 (Pump housing)
- 12: Part 12 (Pump housing)
- 13: Part 13 (Pump housing)

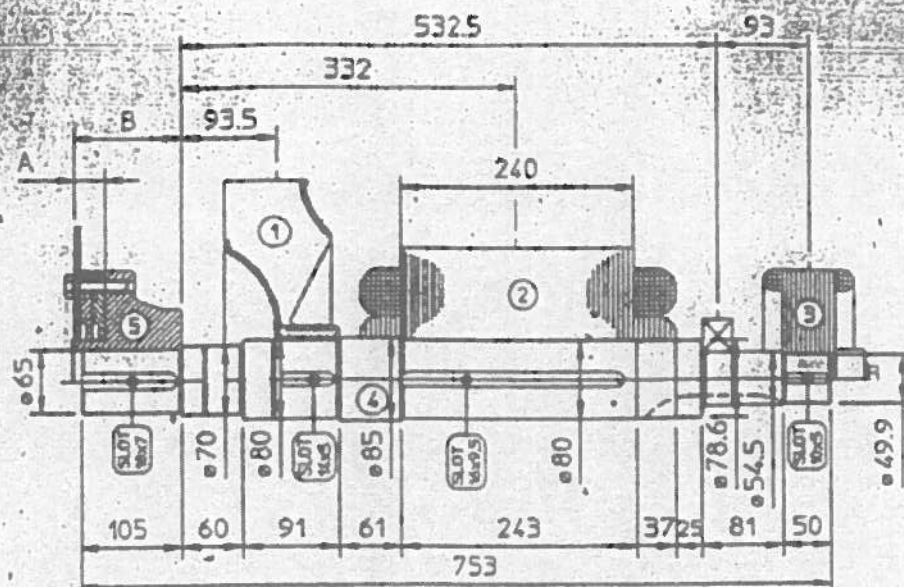
Notes:

- Part 1: 150.5
- Part 2: 240
- Part 3: 150.5
- Part 4: 150.5
- Part 5: 150.5
- Part 6: 150.5
- Part 7: 150.5
- Part 8: 150.5
- Part 9: 150.5
- Part 10: 150.5
- Part 11: 150.5
- Part 12: 150.5
- Part 13: 150.5

	COMPONENT	WEIGHT kg	J kgm ²
1	FAN	3.3	0.0451
2	MAIN ROTOR	81	0.7898
3	EX. ROTOR	14.5	0.0874
4	SHAFT	24.5	0.0184
	TOTAL	123.3	0.9405

10. GRAVITY CENTER

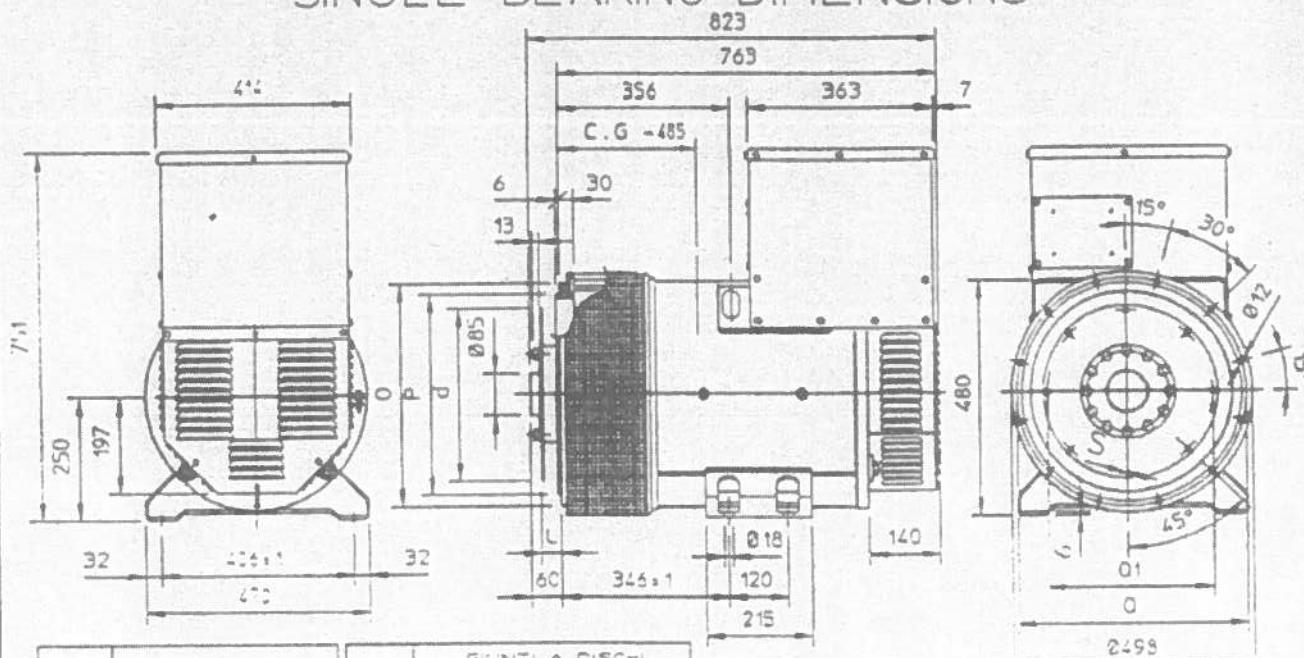
SINGLE BEARING MOMENTS OF INERTIA



COMPONENT	WEIGHT kg	J kgm ²
1 FAN	3.3	0.0451
2 MAIN ROTOR	81	0.7898
3 EX. ROTOR	14.5	0.0874
4 SHAFT	24.5	0.0184
TOTAL	123.3	0.9405

SAE No	SHAFTS COUPLING FLEX PLATE			
	A	B	WEIGHT kg	J kgm ²
10	46.5	112.8	20.5	0.1342
11.5	37.3	98.8	19.3	0.1512
14	27.4	84.4	21.1	0.2752

SINGLE BEARING DIMENSIONS



SAE No	FLANGA FLANGE BRICE FLANGE				SAE No	GIUNTA A DISCHI DISC COUPLING OSCOLE DE MONPALES SCHEBENKUPPLUNG			
	O	P	C	Z		L	d	Q1	Z
3	451	409.5	418.5	12	10	53.8	34.32	295.27	8
2	489	447.7	454.7	12	11 1/2	39.4	352.42	333.37	8
1	552	511.2	522.2	12	14	25.4	466.72	438.41	8