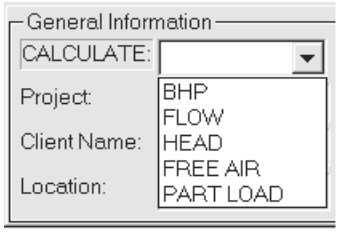
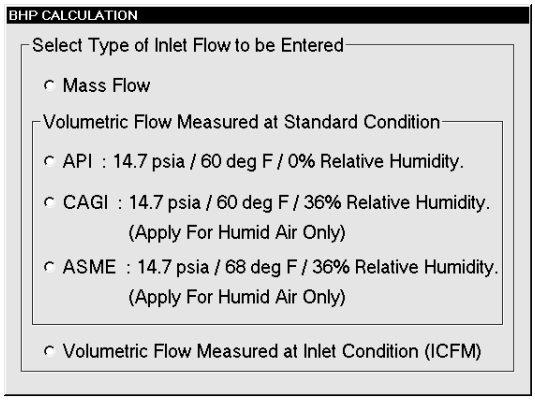
C-MAX™ Compressor Module

A 32-bit Systems Analysis Software
for Windows® 95 and Windows NT™

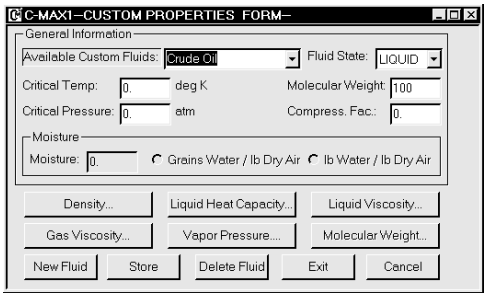
You can use the Compressor module to calculate Break Horsepower, Flow Rate, Head, Free Air, or Part Load Capacity/Power for a compressor system.

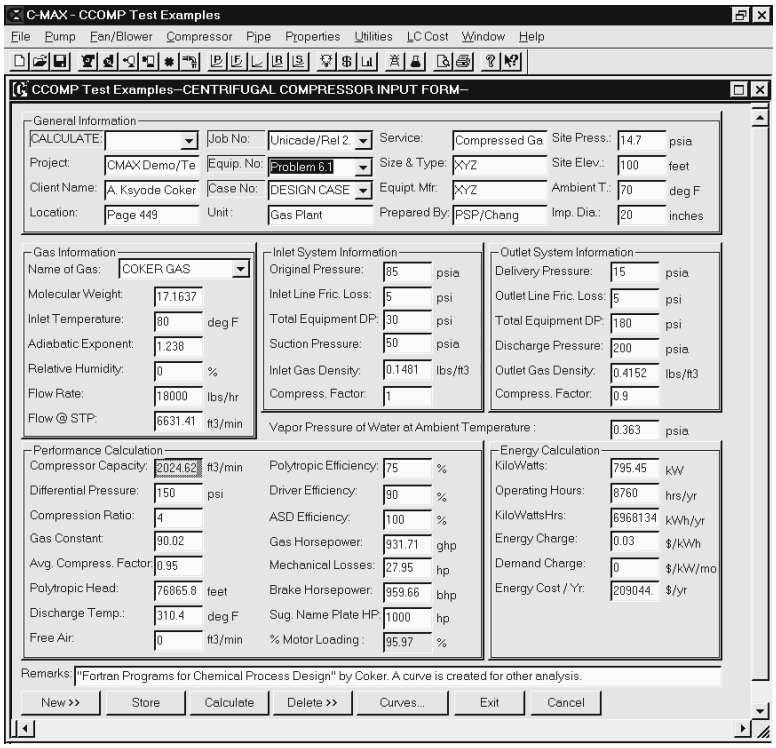


When calculating brake horsepower or free air, you can choose either mass flow rate, volumetric flow rate at standard conditions (CAGI, API, and ASME), or volumetric flow rate at compressor inlet conditions.



Property module gives you an ability to develop the physical and chemical properties of custom fluids database. You can define the vapor pressure, viscosity, density, heat capacity, and molecular weight by empirical equation or laboratory data.

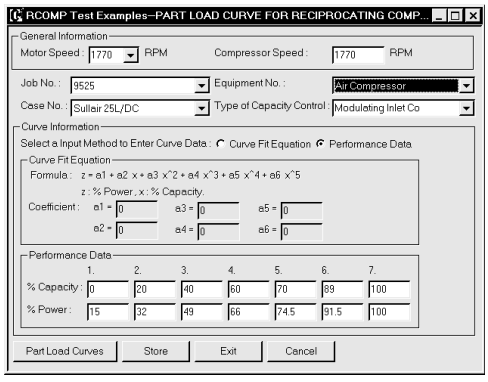




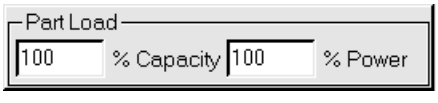
Easy-To-Learn and Use Unique "All-In-One" System Input Forms

Special features for Positive Displacement Compressor

By using this module, you can easily draw part load curve to show the performance of a reciprocating or rotary screw compressor. The part load curve can be drawn from curve-fit equation or lab data.



Based on the part load curve, **C-MAX** will calculate either capacity or power of compressors operating under partial loading.



C-MAX™ Compressor Module

The Systems Analysis Software for All Fluid Flow Applications

You can create these industry standard, ready-to-use reports from C-MAX Compressor module!

CENTRIFUGAL COMPRESSOR SPECIFICATIONS SHEET

Client :	A. Ksyode Coker				Job No :	Unicade/Rel 2.0	
Location :	Page 449				Equip No :	Problem 6.1	
Plant/Unit :	Gas Plant				Case No :	DESIGN CASE	
Service :	Compressed Gas				No. Impeller :		
Equip. Mfr :	XYZ				Bhp :	959.66 @ N/A	RPM
Size & Type :	XYZ				Speed Range :		RPM

OPERATING CONDITIONS

Gas (Dry) :	COKER GAS			Sat'd With		Avg. Mol. Wt. :	17.16377	"K" Value :
Suction :	Press.	Normal	50	psia	Guarantee		Max.	
	Temp.	Normal	80	deg F	Guarantee		Max.	
Discharge :	Press.	Normal	200	psia	Guarantee		Max.	
	Temp.	Normal	310.4	deg F	Guarantee		Max.	
Sidestream :	Press.	Normal			Guarantee		Max.	
	Temp.	Normal			Guarantee		Max.	

CENTRIFUGAL COMPRESSOR SYSTEM FORM

GENERAL INFORMATION

COMPRESSOR SYSTEM							
Project :	CMAX Demo/Test	Job No :	Unicade/Rel 2.0	Service :	Compressec	Site Pressure :	14.7 psia
Client Name :	A. Ksyode Coker	Equipt. No :	Problem 6.1	Size & Type :	XYZ	Site Elev :	100 feet
Location :	Page 449	Case No :	DESIGN CASE	Equipt. Mfr :	XYZ	Ambient Temp. :	70 deg F
		Unit :	Gas Plant	Prepared By :	PSP/Chang	Imp. Dia. :	20 inches

GAS INFORMATION			INLET SYSTEM INFORMATION			OUTLET SYSTEM INFORMATION		
Name of Gas :	COKER GAS		Original Pressure :	85	psia	Delivery Pressure :	15	psia
Molecular Weight :	17.16377		Inlet Line Fric. Loss :	5	psi	Outlet Line Fric. Loss :	5	psi
Inlet Temperature :	80	deg F	Total Equipment DP :	30	psi	Total Equipment DP :	180	psi
Adiabatic Exponent :	1.238		Suction Pressure :	50	psia	Discharge Pressure :	200	psia
Relative Humidity :	0	%	Inlet Gas Density :	0.1481	lbs/ft3	Outlet Gas Density :	0.4152	lbs/ft3
Flow Rate :	18000	lbs/hr	Compress. Factor :	1		Compress. Factor :	0.9	
Flow @ STP :	6631.41	ft3/min	Vapor Pressure of Water at Ambient Temperature :				0.363	psia

PERFORMANCE CALCULATION					ENERGY CALCULATION		
Compressor Capacity :	2024.62	ft3/min	Polytropic Efficiency :	75 %	KiloWatts :	795.45	kW
Differential Pressure :	150	psi	Driver Efficiency :	90 %	Operating Hrs :	8760	hrs/year
					Hrs :	6968134.8	kW/year
					arge :	0.03	$/kWh
					Charge :	0	$/kW/mo
					st / Yr :	209044.04	$/year

SYSTEM PRESSURE DROP REPORT

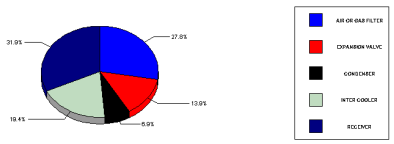
GENERAL INFORMATION

Job No :	Unicade/Rel 2.0	Project :	CMAX Demo/Test	Service :	Compressed Gas
Equipment No :	Problem 6.1	Client :	A. Ksyode Coker	Site Pressure :	14.7 psia
Case No :	DESIGN CASE	Site :	Page 449	Prepared By :	PSP/Chang

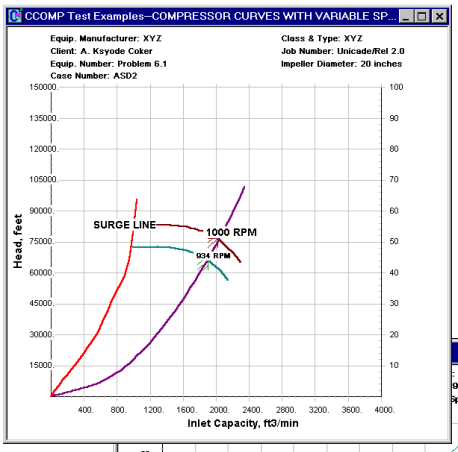
SYSTEM PRESSURE DROP SUMMARY

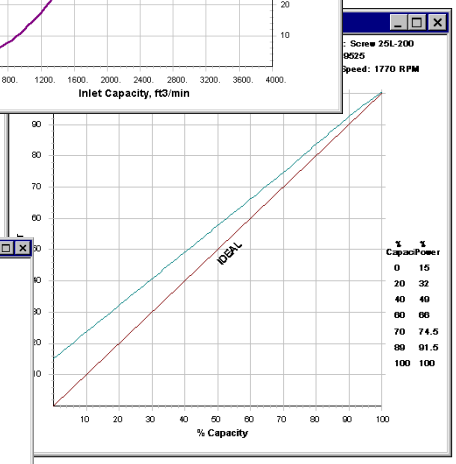
INLET SYSTEM

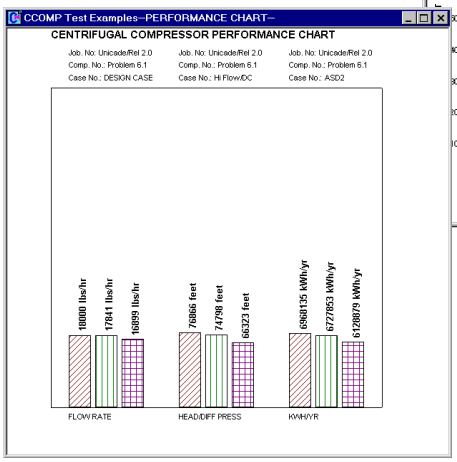
AIR OR GAS FILTER	20.00	psi
EXPANSION VALVE	10.00	psi
CONDENSER	5.00	psi
INTER COOLER	14.00	psi
RECEIVER	23.00	psi
TOTAL PRESSURE DROP	72.00	psi



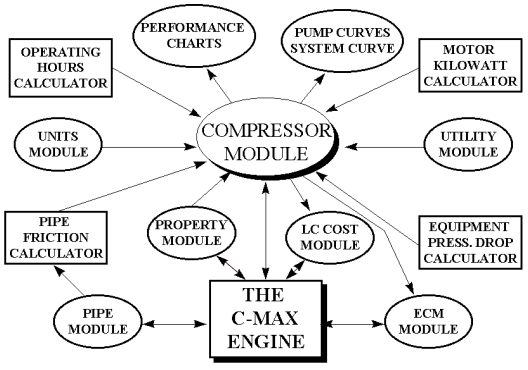
C-MAX graphs performance/characteristic curves, system curve, and adjustable speed drive curves for centrifugal compressors. It also plots a part load curve for reciprocating/rotary screw compressors.







The Compressor module is fully integrated with the Pipe module, Energy Conservation Measure (ECM) module, Life Cycle Costing module, and other modules.



Performance Charts let you easily compare the calculation results between the case studies.

The Compressor module is designed using Ingersoll-Rand Compressed Air and Gas Data Book, Compressed Air and Gas Handbook, and various engineering handbooks.

C-MAX Modules

- ⇨ Centrifugal Pump
- ⇨ Fans & Blowers
- ⇨ Compressors
  - Centrifugal
  - Recip. & Rotary Screw
- ⇨ Flow of Fluids (Piping)
- ⇨ ECM Compare
- ⇨ Economic Evaluation
- ⇨ Non-Energy Benefits
- ⇨ Performance Charts
- ⇨ Utility Rates
- ⇨ Properties Database
- ⇨ US/SI Units

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