

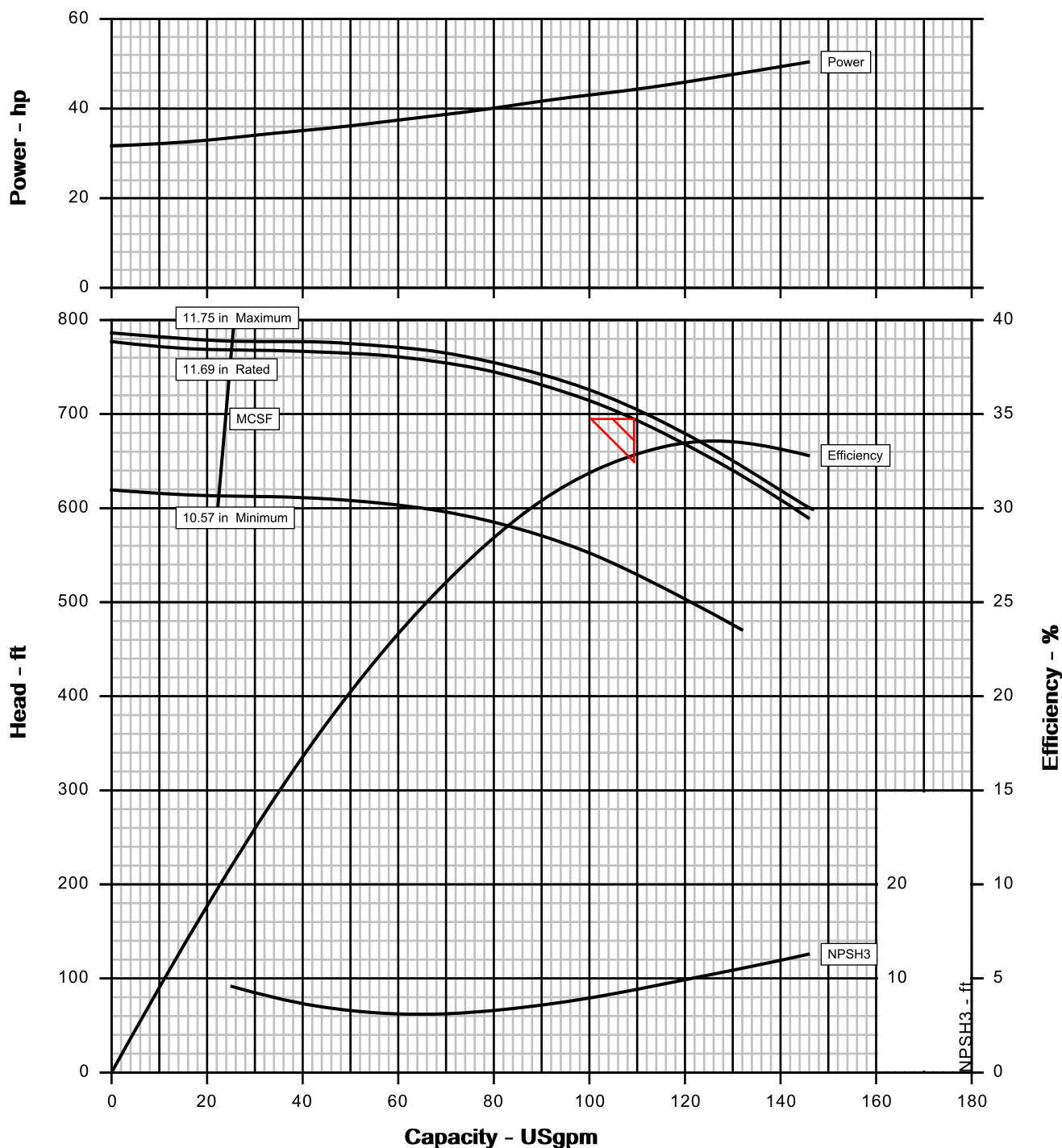


Pump size & type / Stages : 1.5HPXM12A / 1  
Based on curve no. : 2X12WM-1-3.1  
Impeller diameter : 11.69 in

Customer : MARATHON PETROLEUM COMPANY  
Item number : -  
Service : -  
Flowserve reference : 2406835551  
Date : April 14, 2021

Capacity : 109.5 USgpm  
Head : 695.00 ft  
Density / Specific gravity : - / 0.761  
Pump speed : 3,550 rpm  
Ns / Nss : 309 / 6,830 (US units)  
Test tolerance : ANSI/HI 14.6 Grade 1B

CURVES ARE APPROXIMATE, PUMP IS GUARANTEED FOR ONE SET OF CONDITIONS; CAPACITY, HEAD, AND EFFICIENCY.



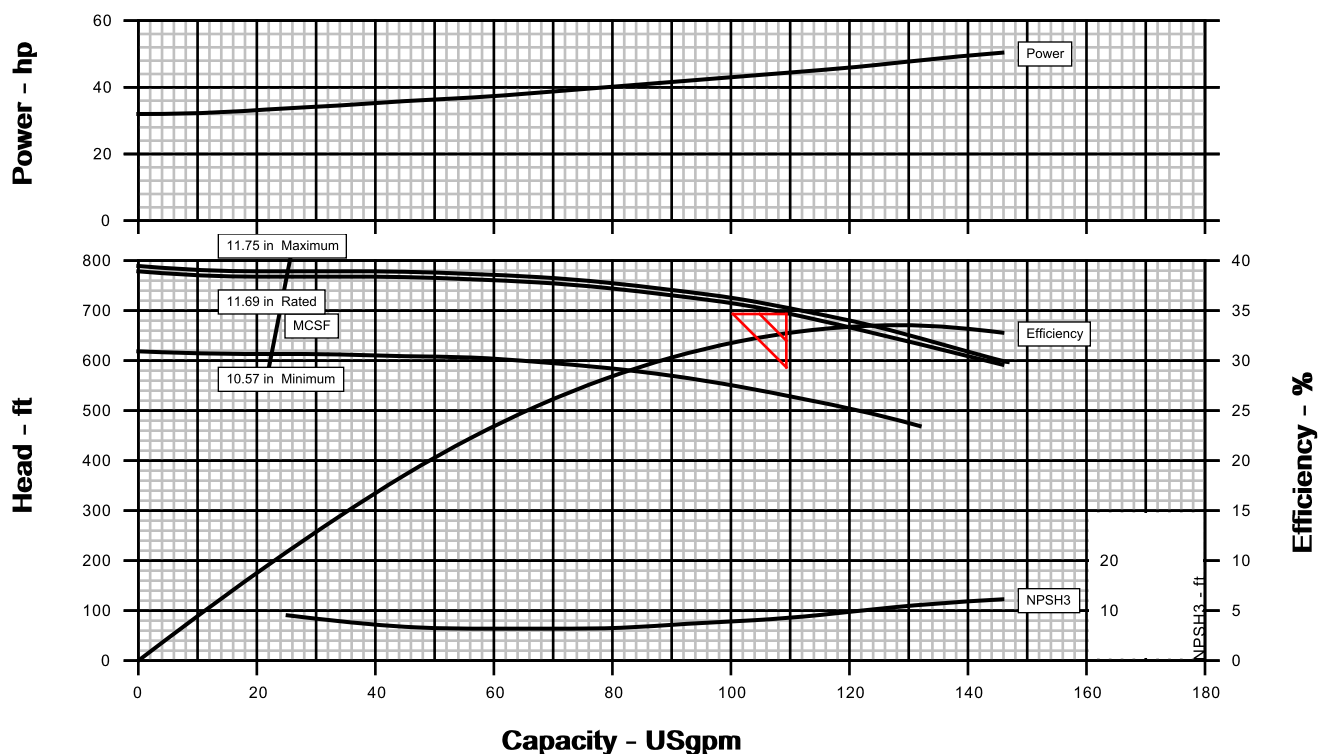
The customer must provide a minimum NPSHa of 8.7 ft.

Customer	: MARATHON PETROLEUM COMP...	Pump / Stages	: 1.5HPXM12A / 1
Customer reference	: -	Based on curve no.	: 2X12WM-1-3.1
Item number	: -	Flowserve reference	: 2406835551
Service	: -	Date	: April 14, 2021

Operating Conditions	Materials / Specification
Capacity (rated/normal) : 109.5 USgpm / -	Material column code : A8
Water capacity (CQ=1.00) : -	Pump specification : -
Total developed head : 695.00 ft	<b>Other Requirements</b> Hydraulic selection : No specification Construction : No specification Test tolerance : ANSI/HI 14.6 Grade 1B Driver Sizing : Max Power(MCSF to EOC) using SF Seal configuration : Single Seal
Water head (CH=1.00) : -	
NPSHa/NPSHa less margin : Ample / -	
Maximum suction pressure : 44.3 psig	
Liquid	
Liquid type : Other	
Liquid description : -	
Temperature : 753 °F	
Density / Specific gravity : - / 0.761	
Solid Size - Actual / Limit : - / 0.1250 in	
Viscosity / Vapor pressure : 0.90 cP / -	

Performance			
Hydraulic power : 14.6 hp	Impeller diameter		
Pump speed : 3,550 rpm	Rated	: 11.69 in	
Pump overall efficiency (CE=1.00) : 33.0 %	Maximum	: 11.75 in	
NPSH required (NPSH3) : 8.7 ft	Minimum	: 10.57 in	
Rated brake power : 44.4 hp	Ns / Nss	: 309 / 6,830 (US units)	
	Minimum continuous flow	: 24.8 USgpm	
Maximum brake power : 50.4 hp	Maximum head at rated diameter	: 776.48 ft	
Driver power rating : 60.0 hp / 44.7 kW	Flow at BEP	: 126.9 USgpm	
Casing working pressure : 300.1 psig	Flow as % of BEP	: 86.3 %	
(based on shut off @ cut dia/rated SG)	Efficiency at normal flow	: -	
Maximum allowable : 424.9 psig	Impeller diameter ratio (rated/max)	: 99.5 %	
Hydrostatic test pressure : 1,023.0 psig	Head rise to shut off	: 11.7 %	
Estimated rated seal chamber pressure : 4.0 psig	Total head ratio (rated / max) / (max / rated)	: 98.4 % / 101.6 %	

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