

SIHI[®] SM-X
Side Channel Pumps



Design

SIHI submersible pump type SM-X is a side channel pump that includes the following features:

- ATEX and IEC-Ex certifications
- Low NPSH required
- Side channel hydraulics with steep performance curves
- Motor cooled by media
- Reduction of maintenance and installation costs
- Easy handling due to small size and low weight
- Increased safety by separation between electrical connection and fluid pipe

The SIHI SM-X submersible side channel pump is the ideal choice for liquefied gas applications like LPG car filling (up to two nozzles).

Application

A liquefied gas application have different configurations, depending on countries and local regulations. The submersible pumps are used all over the world to avoid any installation and piping above the ground, which leads to better safety and clean station design.

The principal disadvantage of the stations installed with submersible pumps is the ownership cost due to the emptying of the tank in case of maintenance of the pump.

Due to its unique design, SIHI pump type SM-X reduces the maintenance operation to its minimum.

Remarks

The SIHI pump type SM-X is an innovative product that can be dropped in place to the other usual submersible pumps used in most of the LPG car filling stations.

Due to its design, this pump can be installed without a bypass valve as an internal bypass to secure the minimum flow of the pump is integrated.

The well-known reliability of the side channel pump is combined with the safe use and the simple design of a submersible pump.

Technical data

Operating Parameters	Unit	Values
Maximum flow rate	l/min	To 100 l/min (60 Hz)
Maximum differential pressure	bar	To 10 bar (145 psi)
Maximum motor speed	1/min	3400 rpm
Protection class	EX	II 2 G Ex mb IIB T3 Gb
Voltage 50 Hz/60 Hz	V	400V/480V
Power consumption	kW	4
Noise emissions	dB(A)	< 70
Operating temperature	°C (°F)	-20°C to 40°C (-4°F to 104°F)

Values are calculated for LPG with specific gravity of 0.56 kg/dm³

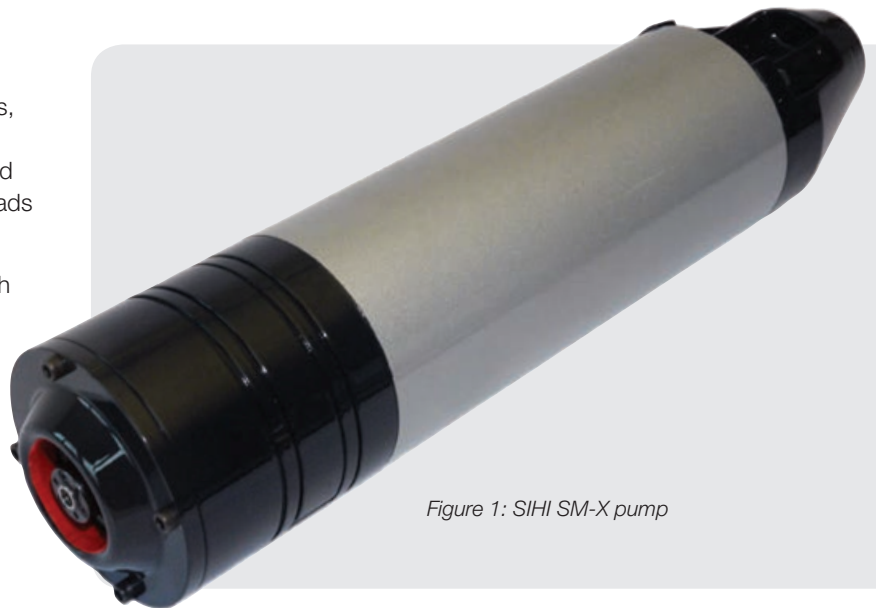


Figure 1: SIHI SM-X pump

Advantages of the SM-X

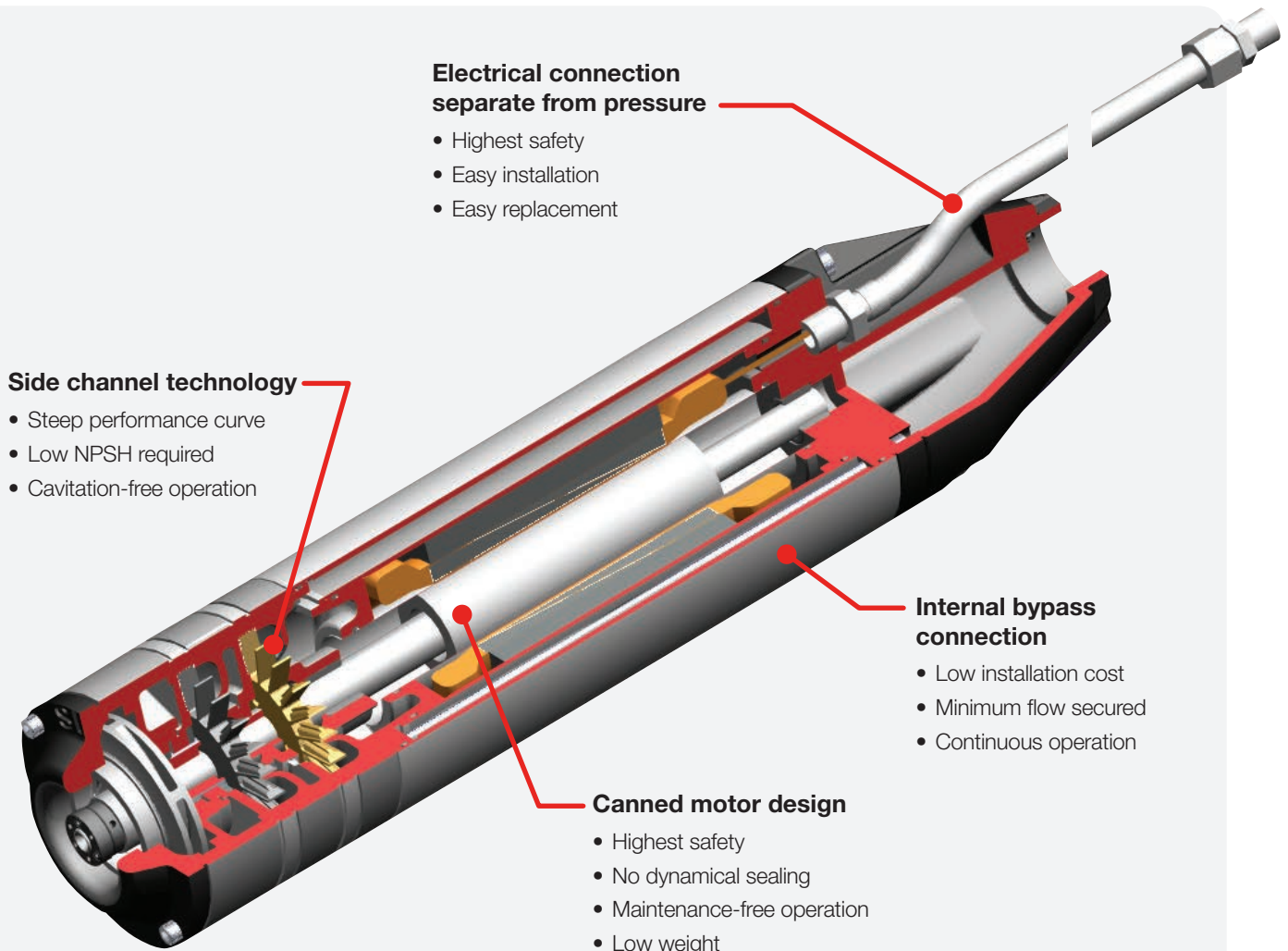


Figure 2: SIHI SM-X pump cutaway

Variants of SM-X

The SIHI pump type SM-X is available in one unique variant which provides to the owner the advantages of a standardized product.

Explosive area

The SIHI SM-X pump is designed and certified to be used in explosive areas. The ATEX protection class is II 2G Ex m IIB T3 Gb for use between -20°C to 40°C (-4°F to 104°F). It is also certified IEC-EX for usage outside European countries with IECEx Ex m IIB T3 Gb.

Sectional drawing

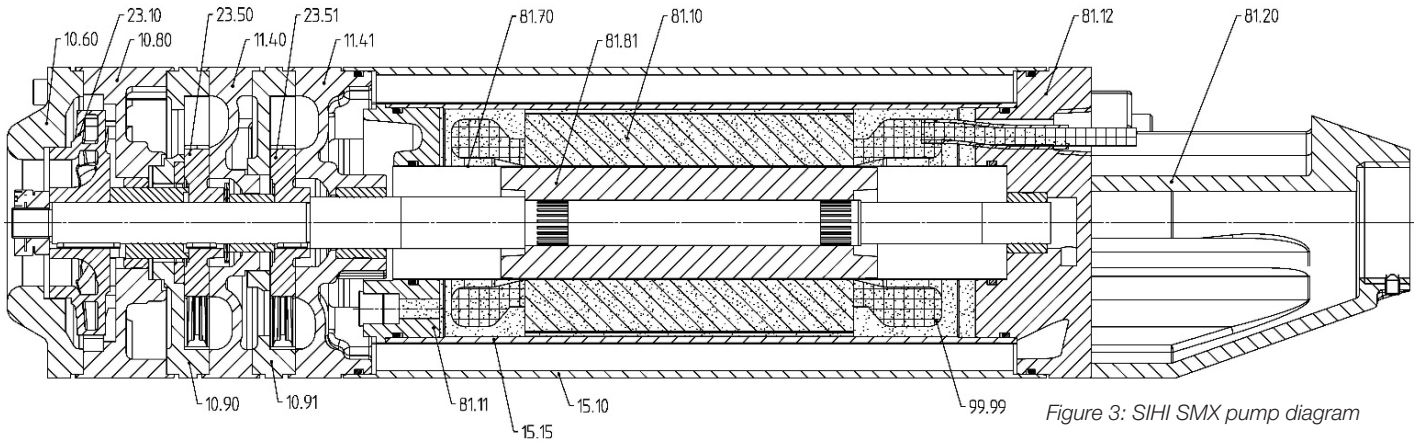


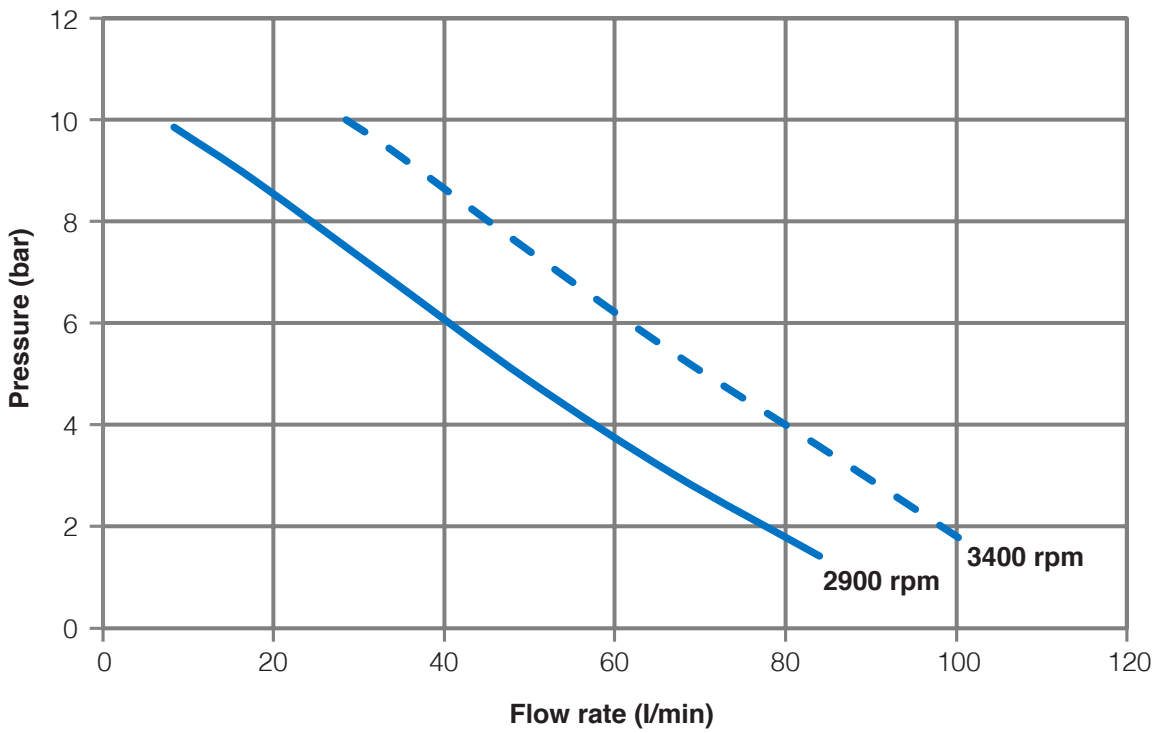
Figure 3: SIHI SMX pump diagram

Parts list

Pos.	Designation	Material
10.60	Suction casing	0.7040
10.80	Low NPSH stage	0.7043
10.90	Suction intermediate (1)	0.7040
10.91	Suction intermediate (2)	0.7040
11.40	Side channel intermediate (1)	0.7040
11.41	Side channel intermediate (2)	0.7040
15.10	Shell casing	AW 6060
15.15	Outer can	AW 6060
23.10	Low NPSH impeller	0.6025
23.50	Vane wheel impeller (1)	1.4517
23.51	Vane wheel impeller (2)	2.0561
81.10	Stator	N/A
81.11	Motor casing (1)	0.7040
81.12	Motor casing (2)	0.7040
81.20	Pump head	0.7040
81.70	Inner can	1.4301
81.81	Rotor	N/A
99.99	Resin	N/A

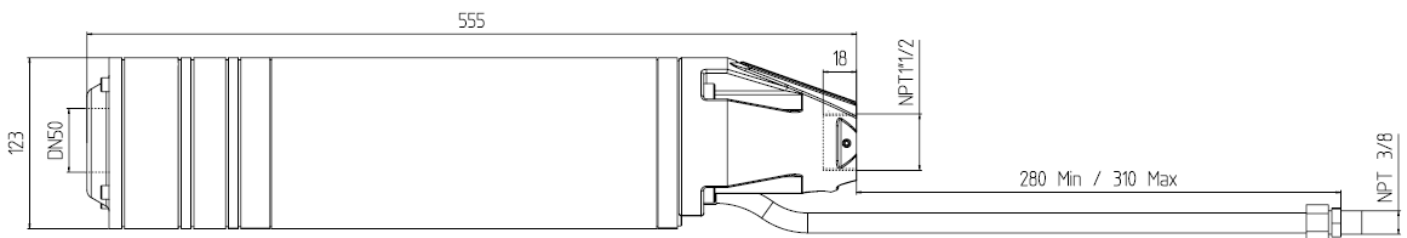
Curves

For LPG with specific gravity of 0.56 kg/dm³



Dimensional drawing

Dimensions [mm]



Net weight: 25 kg

Pump codification

Pump type	Size	Number of impellers	Hydraulic	Bearing set-up	Shaft seal	Material combination	Gasket	Additional option	Motor size
	20 = Side channel hydraulics size 2000	02 = Two side channel stages	A = Standard SC hydraulics left-hand driven	F = 2 carbon sleeve bearings	D = Can motor (new)	1A = GGG casing/stages and brass impellers	P = Perbunan	A = Standard	61 = Size similar to 132M
SMXA	20	02	A	F	D	1A	P	A	61

Codification example: SMXA 2002 AF D 1A PA 61

Pump options and accessories

Designation	Use	Remark
ELFI power monitor	Secure pump from dry running Secure pump from over power	Needed if no continuous level controller is installed on the tank and/or not link to motor stop Not needed if SIHI intelligent drive is used
Adaptor kit for red jacket V17/21	Drop in place of existing pumps	Plug and play on the usual RJ pump head Recover existing pump length



Flowserve Corporation
5215 North O'Connor Blvd.
Suite 2300
Irving, Texas 75039-5421 USA
Telephone: +1 937 890 5839

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