4 Installation & operation

4.1 Introduction

This chapter provides detailed information about the operation and maintenance of the hard nip calender, including descriptions of all principle components and assemblies that the calender comprises.

4.2 Foreseen function

The hard nip calender is designed and manufactured for the purpose of in-line calendering of uncoated papers. The calendering process reduces caliper and enhances smoothness and gloss parameters.

The influencing factors on the sheet are line force, roll surface temperature, roll characteristics and calender configuration.

4.3 Configuration of the calender

Reference drawings: X96718 - A97146 - X97417

	Single nip calender
Top	Heated chilled iron drive roll ø 28"
Bottom	Chilled iron Econip roll ø 22"

4.4 Principle components / sub-systems

This section provides information about the principle components and assemblies that the calender comprises and the auxiliary systems that provide services to the calender.

The main components and auxiliary systems are:

- Calender frames
- Econip roll
- Drive roll
- Rotary union
- Hydraulic cylinders
- Hydraulic unit - loading cylinders
- Hydraulic unit- Econip roll

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- Control desk
- Spreader roll
- Doctors
- Drive roll heating system

4.4.1 Calender frames

Reference drawing: X96718 - A95553

The frames are heavy duty type, made from fabricated steel with a fabricated steel cross stay.

The frames are stress relieved and provided with machined faces for mounting the roll bearing houses, pivot arms and other ancillary equipment.

The calender frames are finish painted in RAL 6011 (green). Surface preparation, priming and top coating is carried out in line with Voith Sulzer Standards.

Some hydraulic / pneumatic circuit components are mounted on the calender frames - they are listed below. The component numbers below are taken from drawing no. A95553.

Component number	Component description
11.3a-b	Solenoid valve (3/2)
30.6a-b	Electronic servo-valve*
31.1a-b	Oil flowmeter
43.1a-b	Differential pressure regulator (ratio 1.56:1)
50.3	Pressure gauge
71.2a-d	P/I transducer*
71.4	P/I transducer
77.1a-b	Air breather
	*components of servo-valve manifold block

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