

ORGANISATION EUROPEENNE POUR LA RECHERCHE NUCLEAIRE
EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Laboratoire Européen pour la Physique des Particules
European Laboratory for Particle Physics

IT-3230/TS/CMS

Supply and installation of a double loop fluorocarbon cooling plant for the CMS
Tracker and Preshower detectors

CONTRACT: F545/TS/CMS

Technical documentation for proposed equipment
(Spécification technique d'achat)

STA 220-PIX

EDMS n°: 581341

TECHNICAL SPECIFICATION FOR

PUMP FOR THE PIXELS

ITEM: 220-PIX

Version	Date	Modifications
C	21/03/05	REVIEW
B	21/01/05	REVIEW
A	05/11/04	First issue


Prepared by :	Checked as CERN representative by:	Date & Signature:
F.Moracchioli : le 21/03/05  <small>DEVELOPPEMENT ET APPLICATIONS DES TECHNIQUES DE L'ENERGIE Quartier de la Condamine - B.P. 6 - 38770 LA MOTTE D'AVEILLANS Tél: 33/04.76.30.63.11/fax: 33/04.76.30.68.75</small>	P. Tropea (N.B. Missing maintenance procedures)	11-4-2005

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I. INTRODUCTION

The present specification is referred to *PUMP* to be supplied for the CMS Tracker and Preshower detector cooling project. These equipments shall be installed at CERN on the PIXEL unit to supply flow of C6F14 .

II. DESIGN DATA

The technical specification given by CERN for the PUMP to be used for this job requires:

- Type of component:
- Performances (*flow rate, measuring scale, dimensions, etc, as extracted from the Technical Specification and its related annexes*)
 - Working pressure : 3 bars
 - Flow rate : 5.5 m3/hour
 -
 -
- Environmental conditions:
 - Temperature : -25°C
 - Radiation / Magnetic field
 - Pressure : atm
- CERN suggested component:
 - Supplier:CASTER.....
 - Model:.....
 - Type:.....

III. PROPOSITION

DATE proposes the following component:

- Type of component: *PUMP*
- Supplier: 3M PUMP
- Model: T MAG M4 MONOBLOC- 4 KW
- Type: CENTRIFUGAL.....
- Performances (ex:flow rate, measuring scale, dimensions, etc)
 - Fluids : C6F14
 - Working pressure : 3.5 bars
 - Flows rate : 3.6 m3/hour
 - Working temperatures : -25°C
- Materials:
 -
- Environmental working conditions that can be sustained:
 - Temperature : -100/+100°C
 - Pressure : PN16

IV. TECHNICAL DOSSIER

-see technical note following

V. TECHNICAL DRAWINGS

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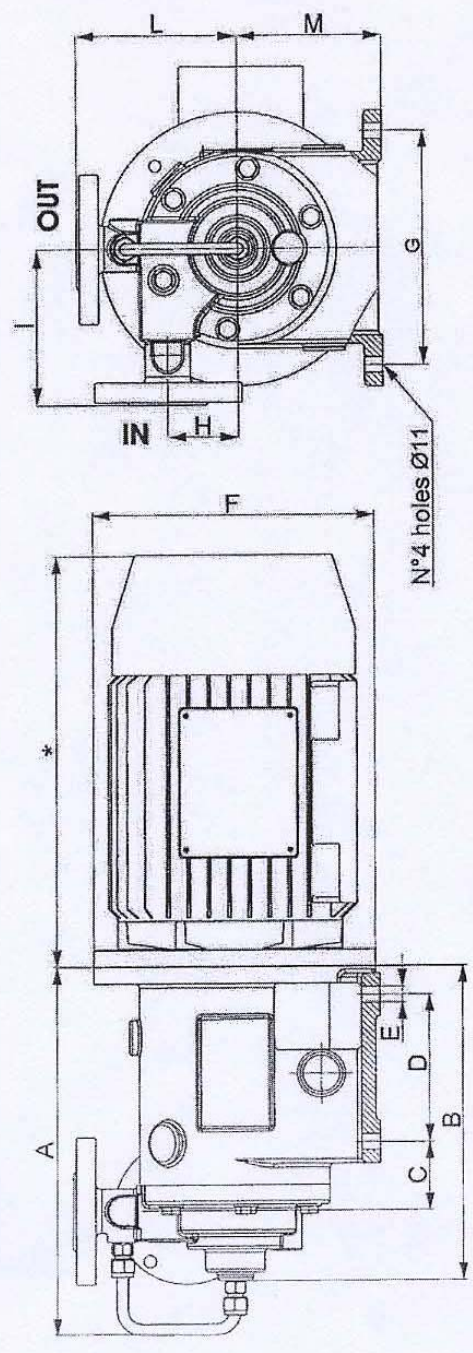
VI. OPERATION AND MAINTENANCE PROCEDURES

- see technical note following

VII. ADDITIONAL DOCUMENTATION

	Pump model: T Mag-M4	Motor size: IEC Gr.100/112
ITEM:		Port connections: Flanged

Outline Drawing



Dimensions

A	B	C	D	E	F	G	H	I	L	M
305,7	250,7	57,3	107	11,5	250	180	47,5	120	120	130

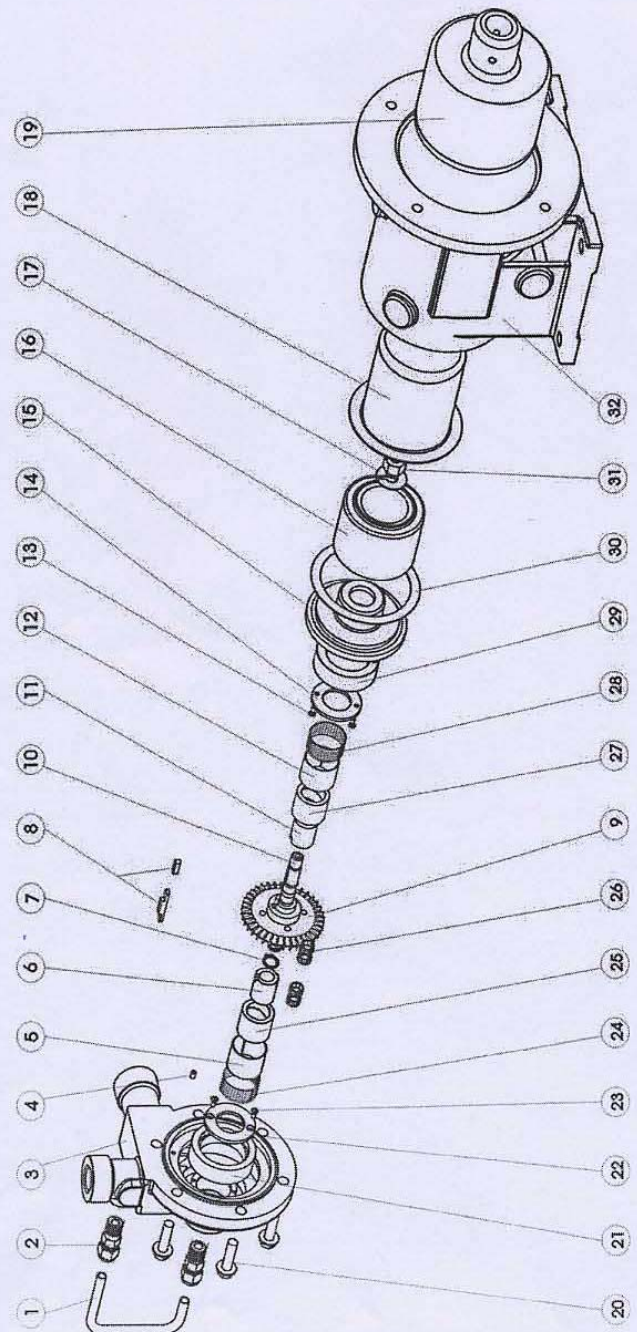
* Depends on the constructor

Flanges	
PN 40 (16 - 25)	
P	S
25	14
Q	R
85	115

-This drawing is for reference only
 -Pump may be supplied without motor
 -All dimensions are in millimeters

	Pump model: T Mag-M1 / 6 ITEM:	Port connections: Threaded
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Exploded view



Pos.	Part Description	Material	Pos.	Part Description	Material
1, 2	Flushing kit	SS 316	18	Rear casing	SS 316
3	Pump casing	SS 316	19	External magnet	Carbon steel
4	Screw	SS 316	20	Set screws	SS 316
5, 12	Bushing elastic rings	SS 316	21	Pump casing wear ring	Special carbon
6, 11	Sleeve bushings	SiC	24, 28	Bushings tolerance rings	SS 316
7, 17, 31, 8	Seger, washer, nut, shaft key	SS 316	25, 27	Bushings	Special carbon
9	Impeller	SS 316	26	Sleeve bushings tolerance rings	SS 316
10	Shaft	SS 316	29	Volute ring wear ring	Special carbon
13, 14, 22, 23	Lock washer & screws	SS 316	30	Body gasket	Asbestos free
15	Volute ring	SS 316	32	Bracket	Carbon steel
16	Internal magnet	SS 316			



Pump performance data	
MODEL: T Mag-M4	Curve N°: 0160304
ITEM: PIXEL.	Power [kW]: 4,0
Project: T1903E/013	2900RPM

