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PUMPEN + FILTER GMBH & Co. KG

International VIT 10 - 11. Dezember 2009

New Pump type RM-MS



omd ■ 800-648-3326
oliver m. dean, inc. ■ www.omdean.com

RM-MS

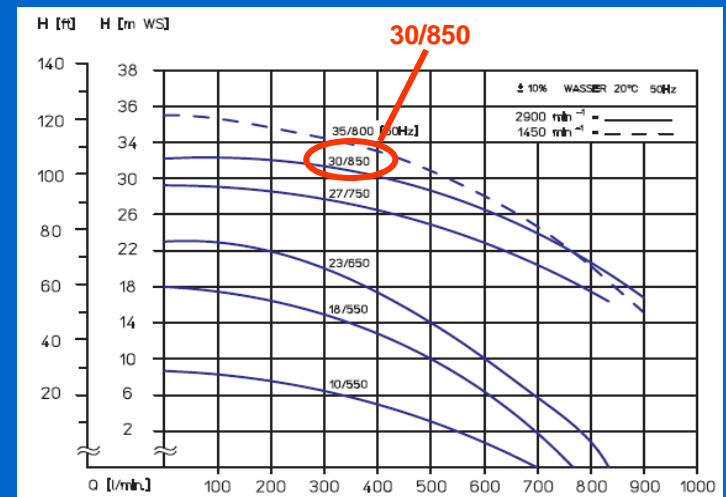
Multistage magnetically coupled centrifugal pump

Task:

Pumping of aggressive fluids with high pressure > 3,0 bar and small / middle flow

Solution until yet:

To reach the high pressure we had to take a pump type which is oversized for the less flow (z.B. RM 30/850)



RM-MS

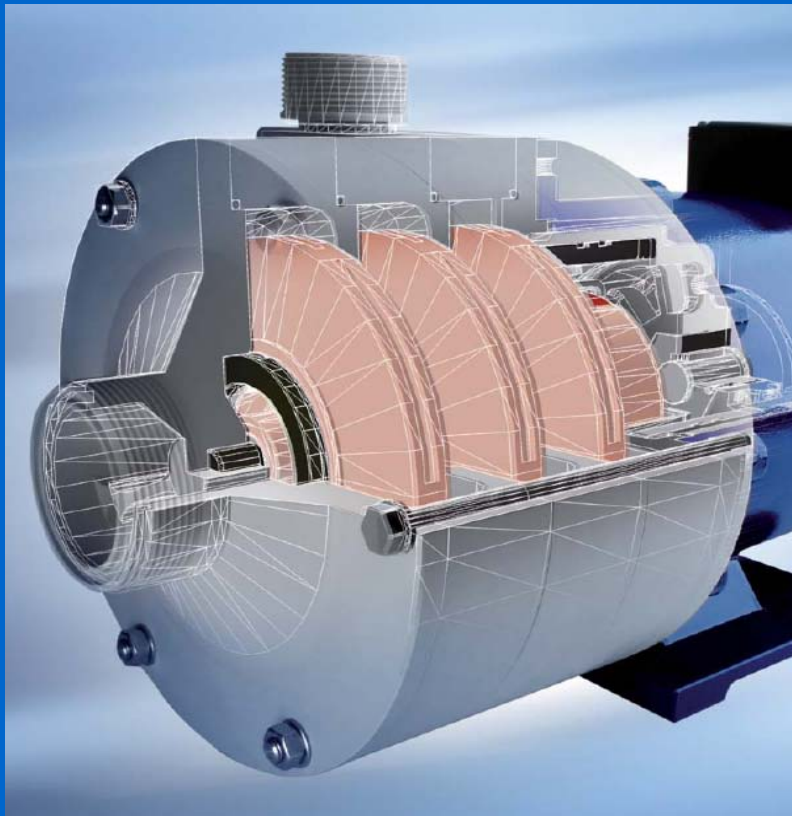
Multistage magnetically coupled centrifugal pump

Problem:

- Single stage centrifugal pumps are not very efficient in high pressure operation. Pump is working with bad operation point.
- Oversised pumps with high invest costs
- Pumps with big dimensions

RM-MS

Multistage magnetically coupled centrifugal pump

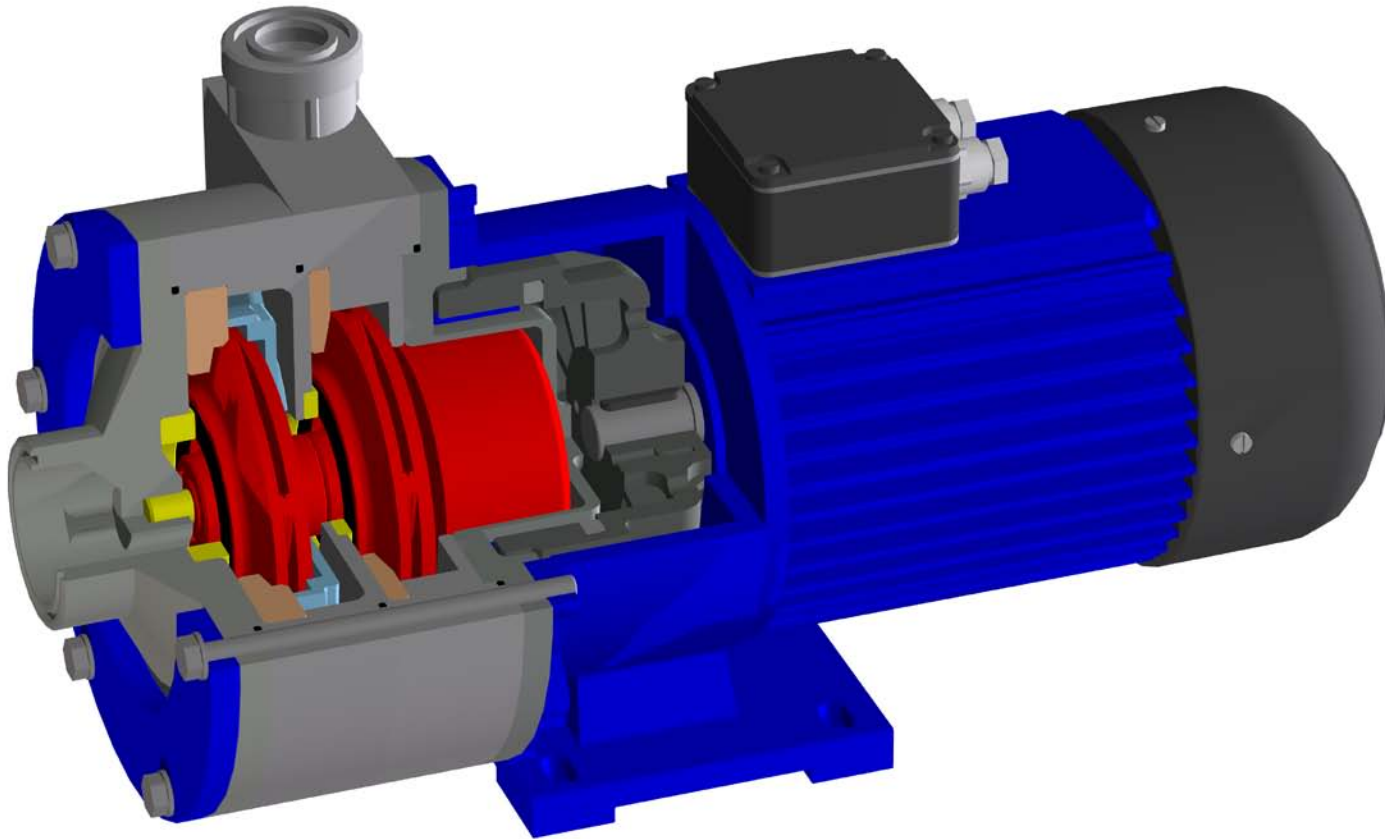


Solution:

- Multistage pump with one, two or three Impeller
- Transmission with mag coupling
- Made of PP or PVDF
- Bearings made of Al-Oxid 99,7% and PTFE-Graphit

RM-MS

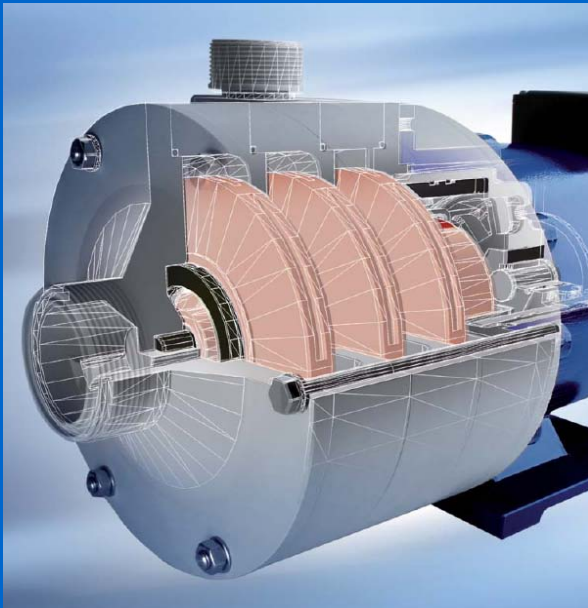
Multistage magnetically coupled centrifugal pump



RM-MS

Multistage magnetically coupled centrifugal pump

Technical data



Delivery high:

1 - stage max. 28 mWs
2 - stage max. 47 mWs
3 - stage max. 65 mWs

Capacity:

max. 200 l/min

Max. fluid temperature

PP – 80°C
PVDF – 90°C

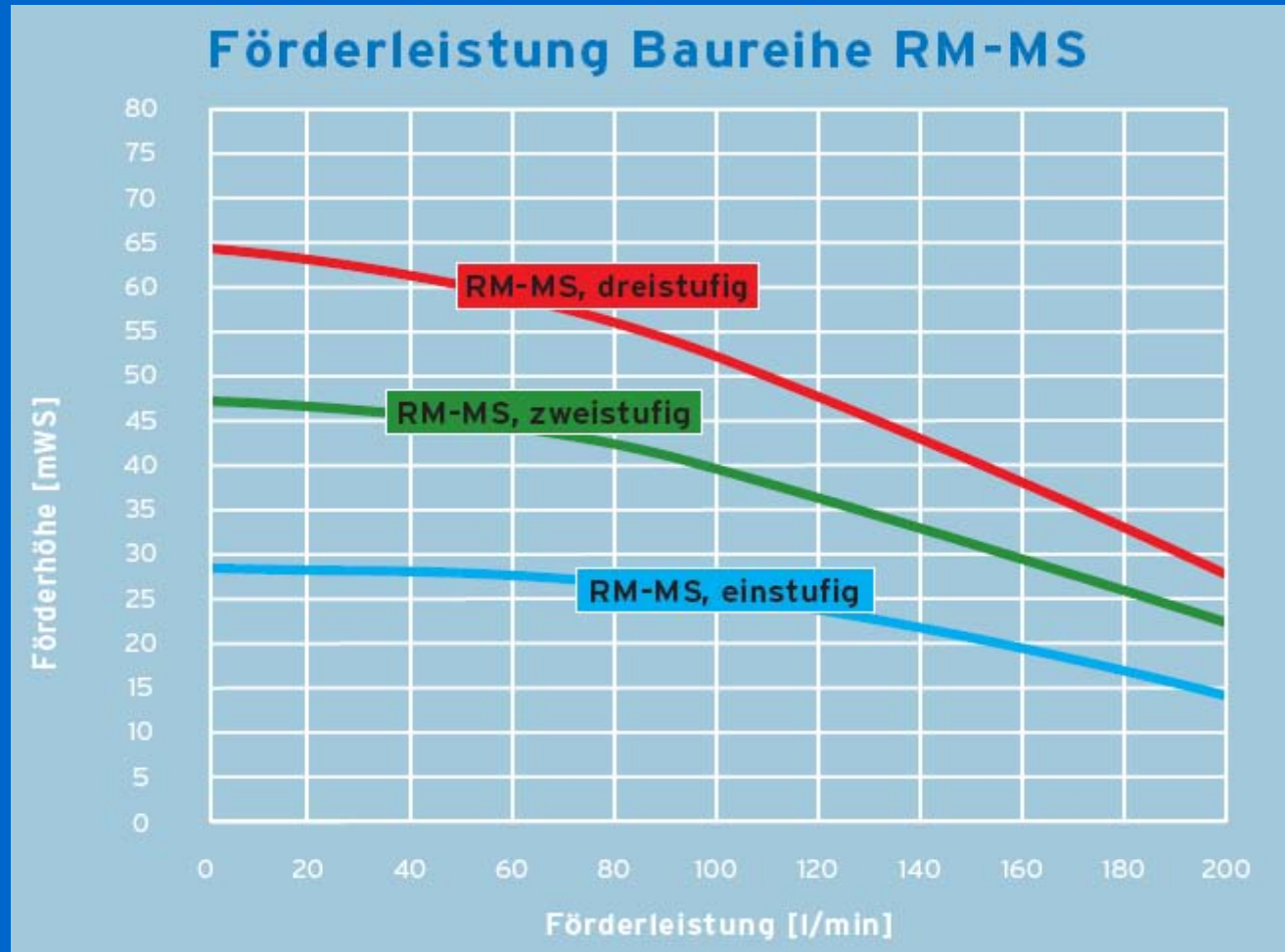
Motor capacity:

0,75 – 3,0 kW



RM-MS

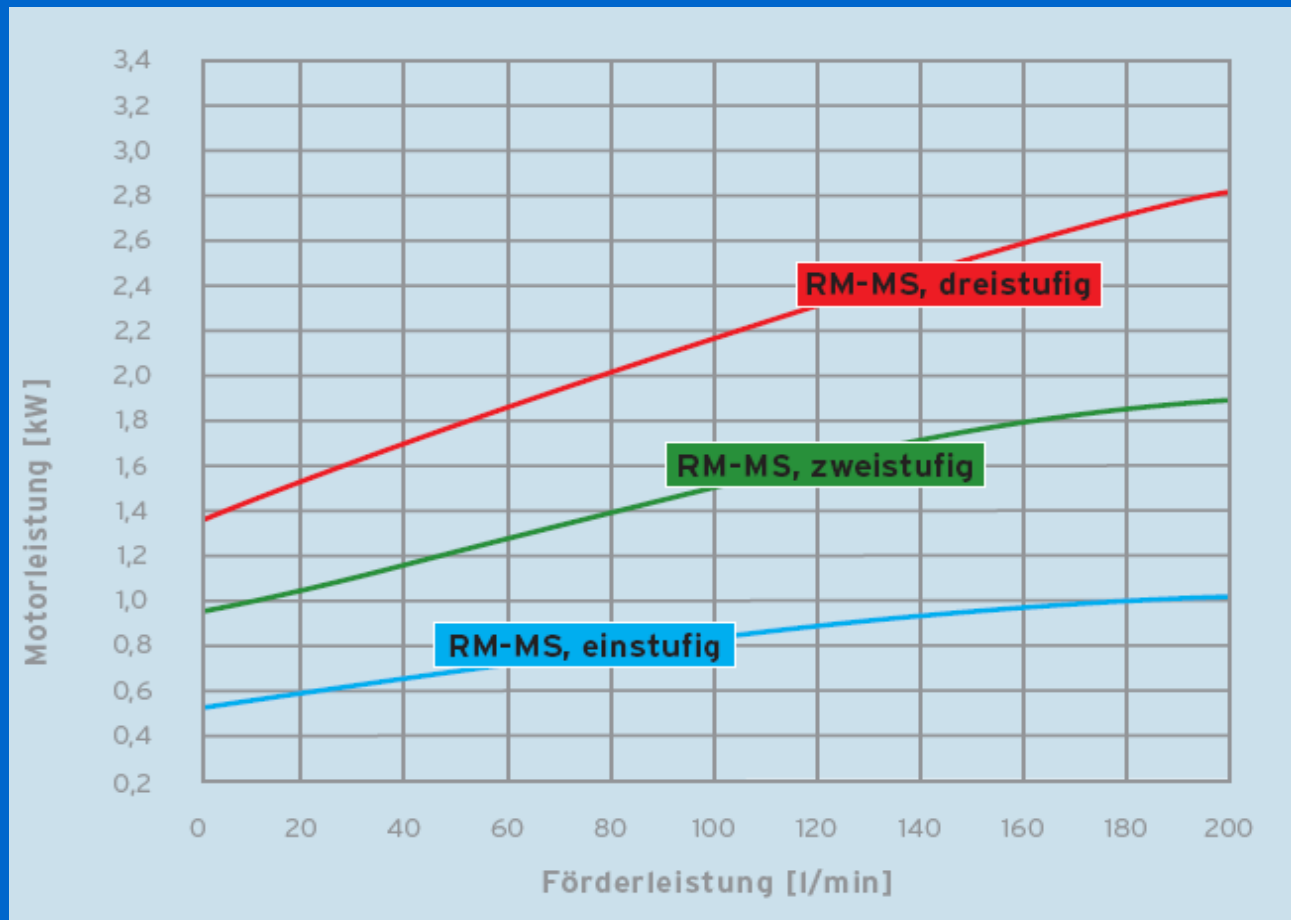
Multistage magnetically coupled centrifugal pump



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Multistage magnetically coupled centrifugal pump

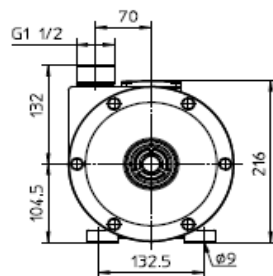
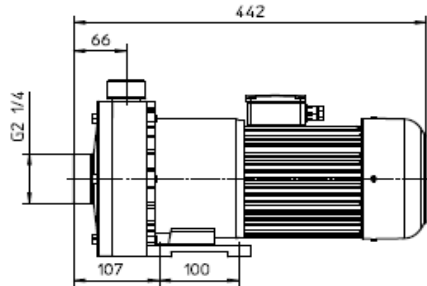
Motorleistungsbedarf



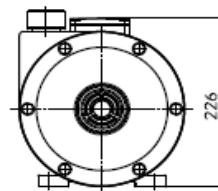
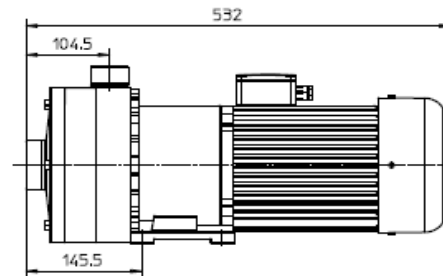
RM-MS

Multistage magnetically coupled centrifugal pump

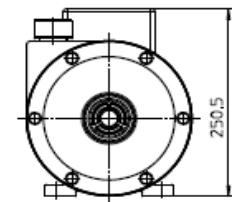
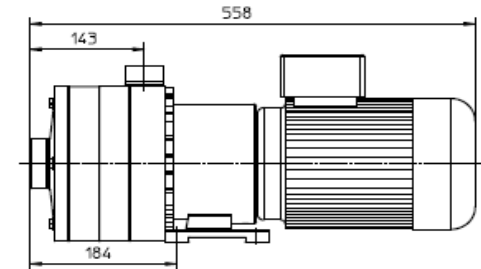
Baugrößen und Maße



RM-MS, einstufig
1,5 kW



RM-MS, zweistufig
2,2 kW



RM-MS, dreistufig
3,0 kW

RM-MS

Multistage magnetically coupled centrifugal pump

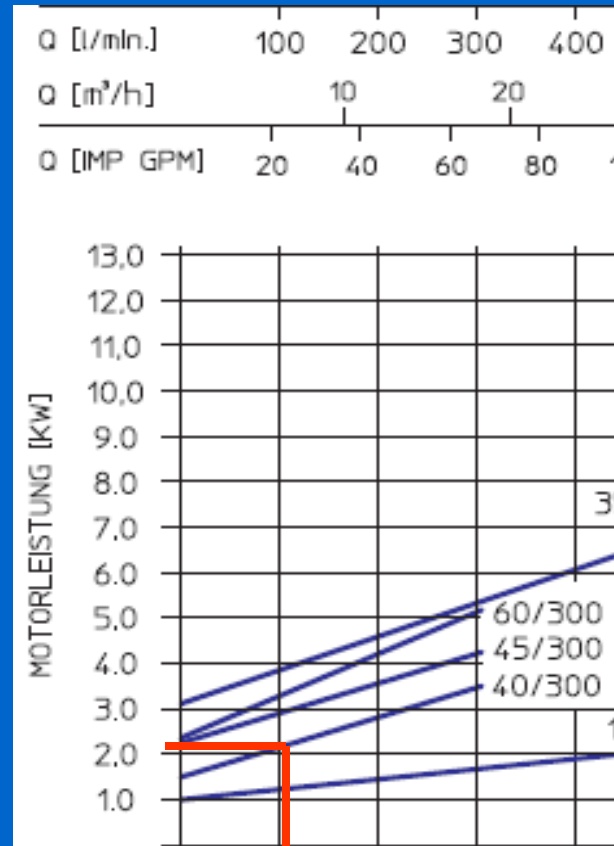
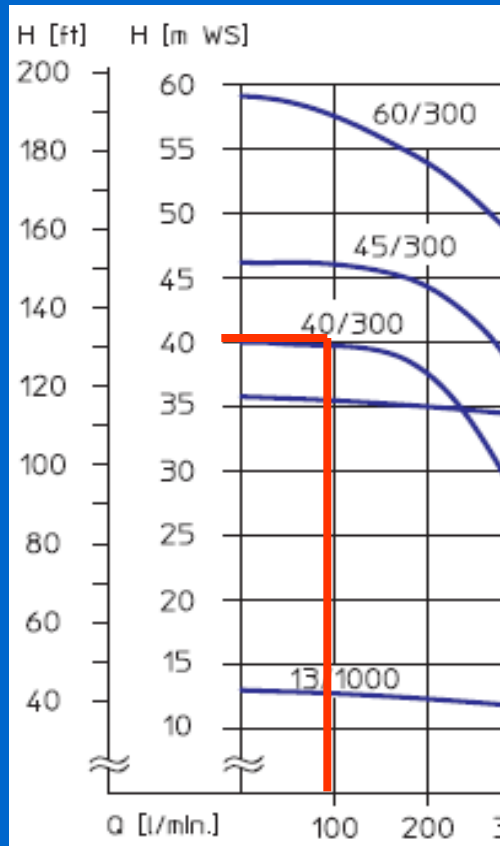
Features / Advantages

- Very good efficiency for high pressure applications
- Best efficient point by high pressure and less flow
> reduced the energy consumption
- Hermetically sealed through magnet coupling
- Best chemical resistance
- Key advantage on the market:
Multistage centrifugal pump made of PP/PVDF for aggressive fluids

RM-MS

Multistage magnetically coupled centrifugal pump

Efficiency compare RM-40/300 – RM-MS



Demand:
100 l/min
at 40 mWs

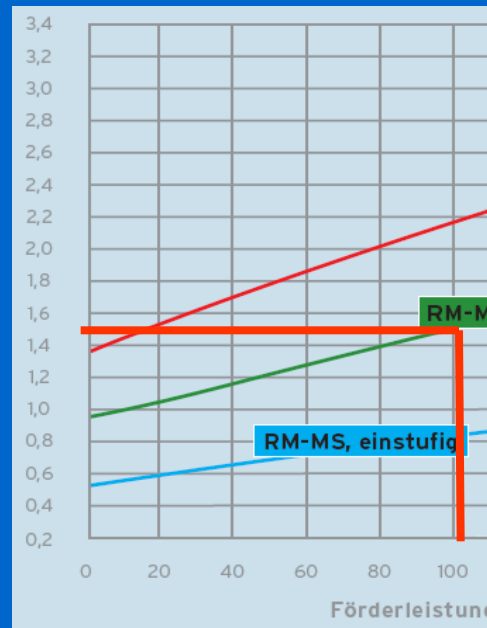
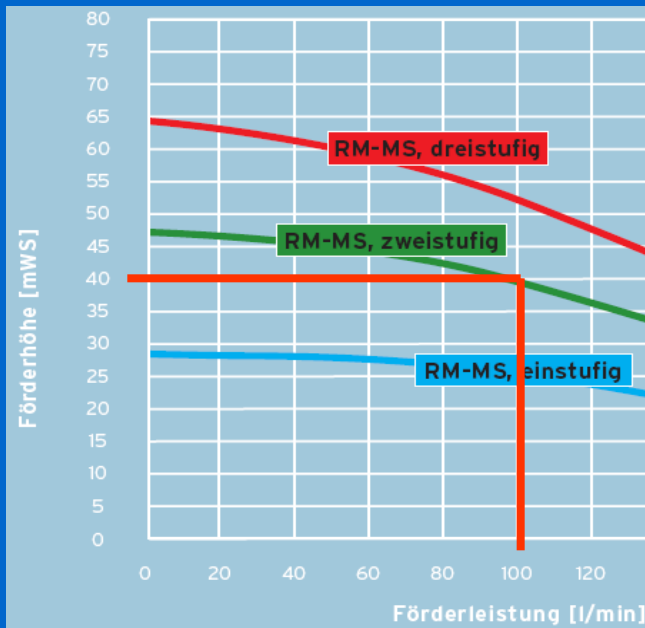
Single stage
pumpe RM40/300

Needed motor
power:
2,1 kW

RM-MS

Multistage magnetically coupled centrifugal pump

Efficiency compare RM-40/300 – RM-MS



- Demand: 100 l/min at 40 mWs
- Two stage pump RM-MS 2
- Needed motor power: 1,5 kW

Reducing of energy consumption for 29 % !

RM-MS

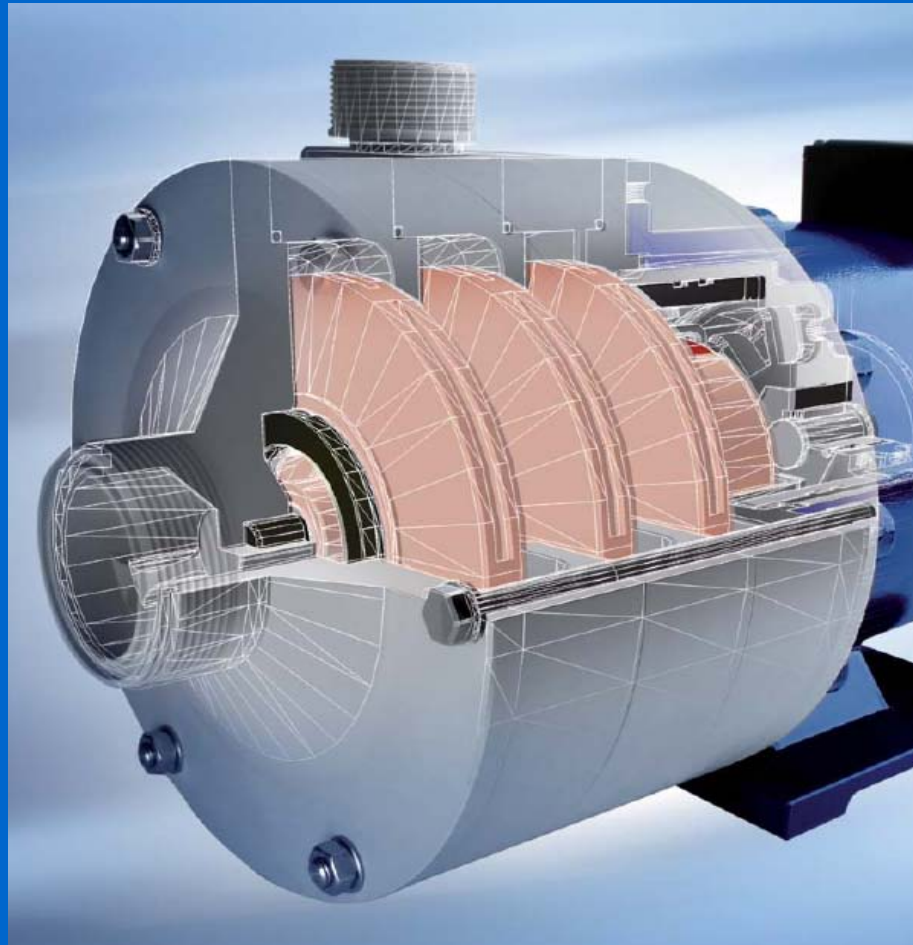
Multistage magnetically coupled centrifugal pump

Applications:

- Pressure rise installations in industrial processes especially for chemically aggressive media
- VE water supply
- Spray processes
- Dosing of chemicals in system pressure > 3.0 bar
- Everywhere where chemically aggressive media with higher pressure are needed

RM-MS

Multistage magnetically coupled centrifugal pump





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Frequency-converter for centrifugal pumps



SFU

Frequency converter

task definition:

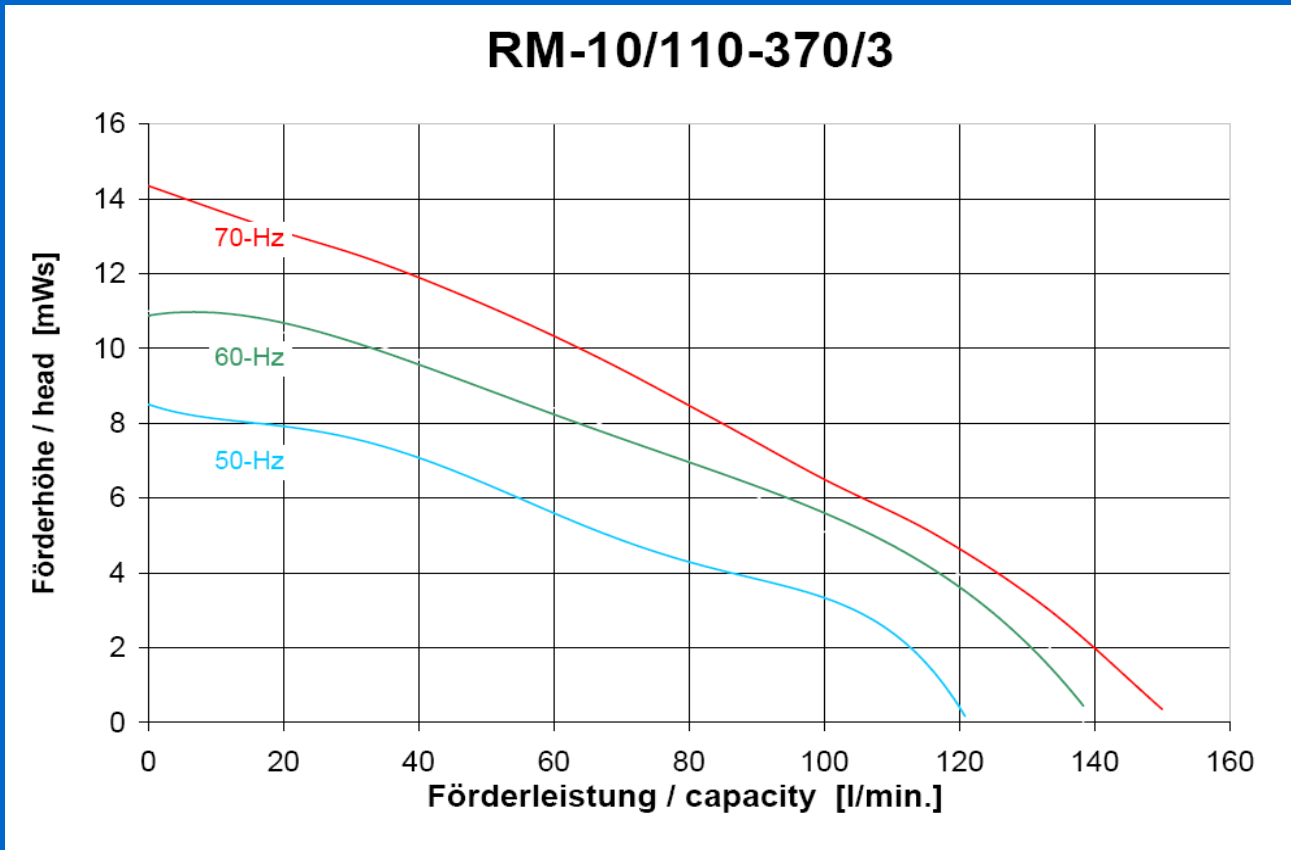
- Adaption of performance curve to really needed point of operation
- Reducing of energy consumption instead throttling the flow through valves.
With 50% motor speed the needed motor consumption is reduced to 12% of nominal power !
- Increase of max. delivery high
- Simple and cheap solution for refit in existing installations.



SFU

Frequency converter

Adaption of performance curve through speed control:



**Please check
max. motor
power !**

SFU

Frequency converter SFU in IP55

- Simple and economic speed variation
- Designed for dirty and wet environment, class IP 55 for installing near the pump
- Easy operation with keypad (Type SFU-S)
- Option with main switch, poti for speed control and start / stop button (Typ SFU-L)
- Power range 0,37 – 4,0 kW
- Input voltage 1 x 230V oder 3 x 400 V
- Internal EMV filter
- Price from 246,-- EUR (0,37 kW) to 635,-- EUR (4,0 kW)



SFU

Frequency converter SFU in IP21

- Simple and economic speed variation
- Designed for installing in the electrical cabinet, class IP 21
- Easy operation with keypad (Type SFU-S)
- Power range 0,37 – 4,0 kW
- Input voltage 1 x 230V oder 3 x 400 V
- Internal EMV filter
- Price from 198,-- EUR (0,37 kW) to 598,-- EUR (4,0 kW)



SFU

Type list SFU in IP55



Typenliste 1-Phasen Einspeisung

Typ	Eingangs - Spannung	Ausgangs- Spannung	Motornenn- leistung	Nenn- strom	Schutzart	Abmessungen	Preis	Art. Nr
	Volt	Volt	kW	A	IP	BxHxT	EUR	
SFU- S -0,37/1-55	1 x 230	3 x 230V	0,37	2,3	IP 55	140x200x162	246,--	
SFU- L-0,37/1-55	1 x 230	3 x 230V	0,37	2,3	IP 55	140x200x162	345,--	
SFU- S -0,75/1-55	1 x 230	3 x 230V	0,75	4,3	IP 55	140x200x162	261,--	
SFU- L -0,75/1-55	1 x 230	3 x 230V	0,75	4,3	IP 55	140x200x162	385,--	991223
SFU- S -1,5/1-55	1 x 230	3 x 230V	1,5	7,0	IP 55	140x200x162	340,--	
SFU- L -1,5/1-55	1 x 230	3 x 230V	1,5	7,0	IP 55	140x200x162	513,--	
SFU- S -2,2/1-55	1 x 230	3 x 230V	2,2	10,5	IP 55	165x310x176	439,--	
SFU- L -2,2/1-55	1 x 230	3 x 230V	2,2	10,5	IP 55	165x310x176	574,--	

Typenliste 3-Phasen Einspeisung

Typ	Eingangs - Spannung	Ausgangs- Spannung	Motornenn- leistung	Nenn- strom	Schutzart	Abmessungen	Preis	Art. Nr
	Volt	Volt	kW	A	IP	BxHxT	EUR	
SFU- S -0,75/3-55	3 x 400	3 x 400V	0,75	2,2	IP 55	140x200x162	361,--	
SFU- L -0,75/3-55	3 x 400	3 x 400V	0,75	2,2	IP 55	140x200x162	439,--	
SFU- S -1,5/3-55	3 x 400	3 x 400V	1,5	4,1	IP 55	140x200x162	391,--	
SFU- L -1,5/3-55	3 x 400	3 x 400V	1,5	4,1	IP 55	140x200x162	526,--	
SFU- S -2,2/3-55	3 x 400	3 x 400V	2,2	5,8	IP 55	165x310x176	521,--	
SFU- L -2,2/3-55	3 x 400	3 x 400V	2,2	5,8	IP 55	165x310x176	582,--	
SFU- S -4,0/3-55	3 x 400	3 x 400V	4,0	9,5	IP 55	165x310x176	635,--	
SFU- L -4,0/3-55	3 x 400	3 x 400V	4,0	9,5	IP 55	165x310x176	684,--	

SFU

Type list SFU in IP21



Typenliste 1-Phasen Einspeisung

Typ	Eingangsspannung Volt	Ausgangsspannung Volt	Motornennleistung kW	Nennstrom A	Schutzart IP	Abmessungen BxHxT	Preis EUR	Art. Nr
SFU- S -0,37/1-21	1 x 230	3 x 230V	0,37	2,3	IP 21	80x155x130	198,--	
SFU- S -0,75/1-21	1 x 230	3 x 230V	0,75	4,3	IP 21	80x155x130	226,--	
SFU- S -1,5/1-21	1 x 230	3 x 230V	1,5	7,0	IP 21	80x155x130	279,--	
SFU- S -2,2/1-21	1 x 230	3 x 230V	2,2	10,5	IP 21	100x260x175	384,--	

Typenliste 3-Phasen Einspeisung

Typ	Eingangsspannung Volt	Ausgangsspannung Volt	Motornennleistung kW	Nennstrom A	Schutzart IP	Abmessungen BxHxT	Preis EUR	Art. Nr
SFU- S -0,75/3-21	3 x 400	3 x 400V	0,75	2,2	IP 21	80x155x130	330,--	
SFU- S -1,5/3-21	3 x 400	3 x 400V	1,5	4,1	IP 21	80x155x130	386,--	
SFU- S -2,2/3-21	3 x 400	3 x 400V	2,2	5,8	IP 21	100x260x175	498,--	
SFU- S -4,0/3-21	3 x 400	3 x 400V	4,0	9,5	IP 21	100x260x175	598,--	



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VIT 26 - 27. November 2009

Rechenschieber Druckverlust

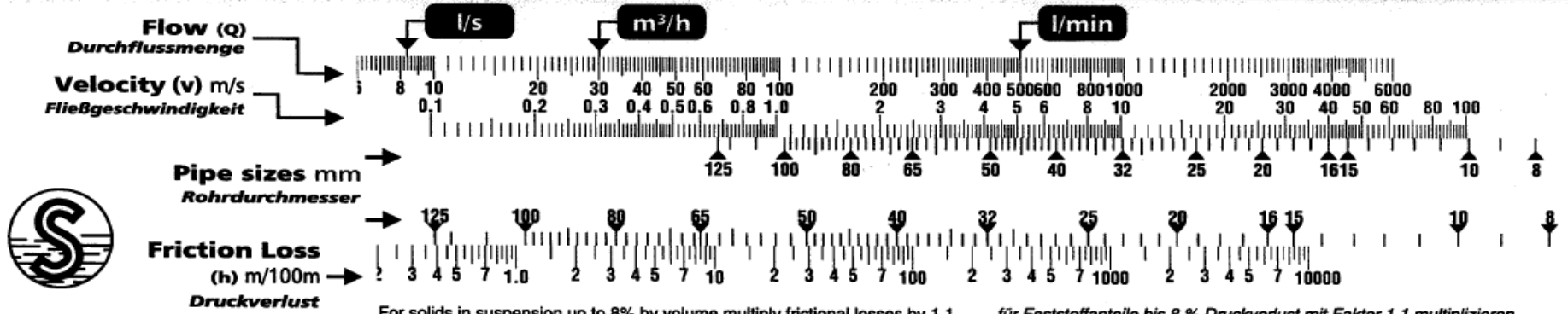


Friction Loss Calculator

Nominal Pipe Sizes 8-125mm

Ermittlung von Druckverlusten

Nenn Durchmesser Rohrleitungen (DN) 8-125mm



For solids in suspension up to 8% by volume multiply frictional losses by 1.1

für Feststoffanteile bis 8 % Druckverlust mit Faktor 1,1 multiplizieren

Using the calculator:

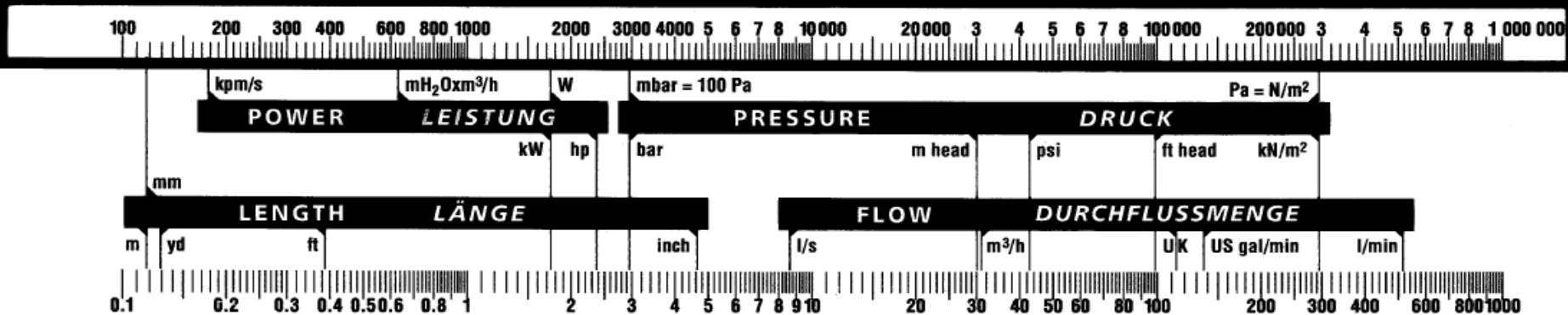
1. Select Flow Requirement
2. Read off Velocity against pipe size required
3. Read off Friction Loss against pipe size required

Note: These figures should be used only as guidelines

Anwendung des Rechenschiebers:

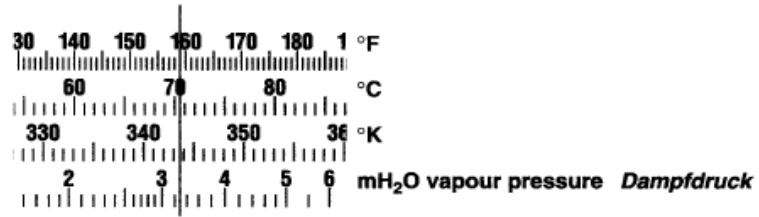
1. Auswahl der Durchflussmenge
2. Ablesen der Fließgeschwindigkeit zum Rohrdurchmesser
3. Ablesen des Druckverlustes zum Rohrdurchmesser

Anmerkung: Diese Zahlen dienen lediglich als Richtwerte!



SONDERMANN
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RM-TS *absolutely safe to run dry*

Competence in pump and filter technologies

Kompetenz in Pumpen- und Filtertechnik