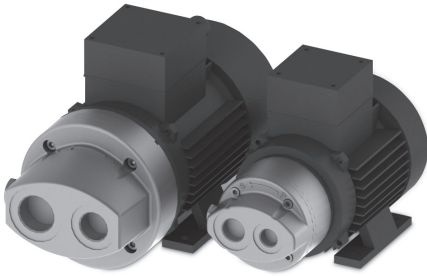
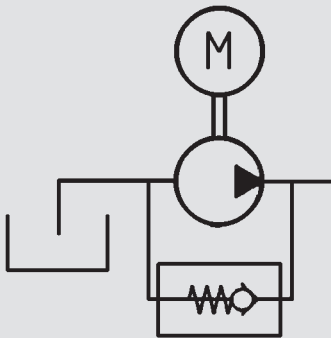


Supply Pumps FZP/MFZP



Symbol



General

The supply pump from the FZP series is a vane pump for the low-pressure range with fixed displacement.

Product Features

- Surface-mounted pump – no pump mount or coupling required
- Standard with internal pressure limitation valve
- As an option, with flange-mounted motor
- Small construction lengths

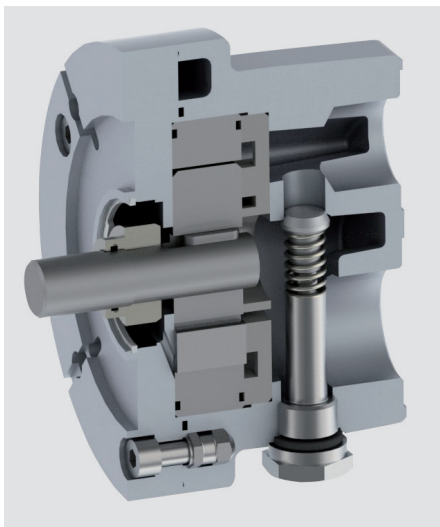
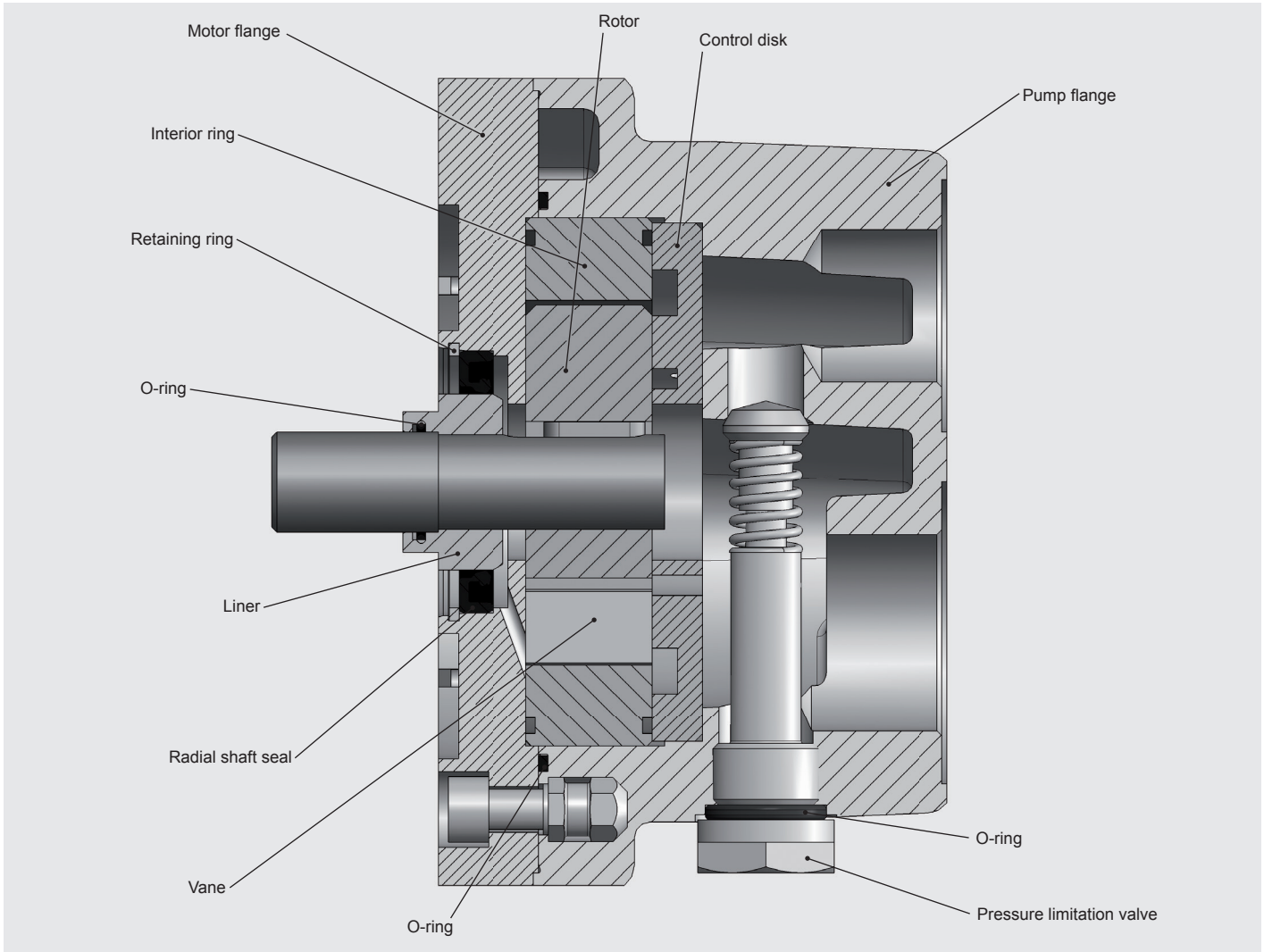
Areas of Application

- Filter circuits
- Cooling circuits
- Lubrication technology
- Pump transfer units

Technical Details

Operating pressure	max. 10 bar			
Pressure at the suction port	<ul style="list-style-type: none"> ● max. -0.4 bar suction underpressure ● max. 0.5 bar overpressure 			
Medium	Mineral oil to DIN 51524 Part 1 and Part 2			
Permissible contamination	≤ NAS 12			
Temperature of medium	-20 °C to +80 °C for mineral oil			
Viscosity	See characteristic curves			
Ambient temperature	-20 °C to +40 °C			
Mounting position	No restrictions			
RPM	<ul style="list-style-type: none"> ● min. 1,000 rpm ● max. 2,000 rpm Direction of rotation – right-turning (view of motor fan wheel)			
Drive (only MFZP)	Drive type: electric motor Current type: three-phase current For power and voltage see model code Protection class: IP 55 Insulation class: F			
Volumetric efficiency	>90% (at $v = 40 \text{ mm}^2/\text{s}$)			
Weights	FZP-1:		1.4 kg	
	FZP-2:		3.9 kg	
	FZP-3:		9.6 kg	
	MFZP-1/2.0	0.18 kW	6.0 kg	
	MFZP-1/2.0	0.37 kW	7.4 kg	
	MFZP-2/2.1	0.75 kW	13.5 kg	
	MFZP-2/2.1	1.50 kW	19.5 kg	
	MFZP-3/3.0	2.20 kW	32.5 kg	
	MFZP-3/3.0	4.00 kW	39.5 kg	
Noise levels		ccm/rev	1 bar	6 bar
	Size 1	3.5	58	62
		7.0	58	63
		10.0	60	64
	Size 2	20.0	66	68
		30.0	67	68
		40.0	69	70
	Size 3	70.0	69	71
		100.0	76	78
		130.0	77	78

Test fluid: ISO VG46 at 40 °C (40 mm²/s)
 The noise level values serve as guidelines,
 as room acoustics, connections, viscosity and reflection
 affect the level of noise.



Note regarding tubing
pressure differences (flow loss)

- Simplified for hydraulic oils:

$$\Delta p \text{ [bar]} = 5.84 \cdot \frac{l \text{ [m]}}{d^4 \text{ [mm]}} \cdot Q \text{ [l/min]} \cdot \gamma \text{ [mm}^2/\text{s]}$$

- Influence of the interior diameter on flow losses with the following example values:
l = 1 m, Q = 150 l/min, $\gamma = 200 \text{ mm}^2/\text{s}$

	Internal diameter [mm]		
	di ₁ (38)	di ₁ (32)	di ₁ (25)
$\Delta p \text{ [bar/mm]}$	0.084	0.167	0.45

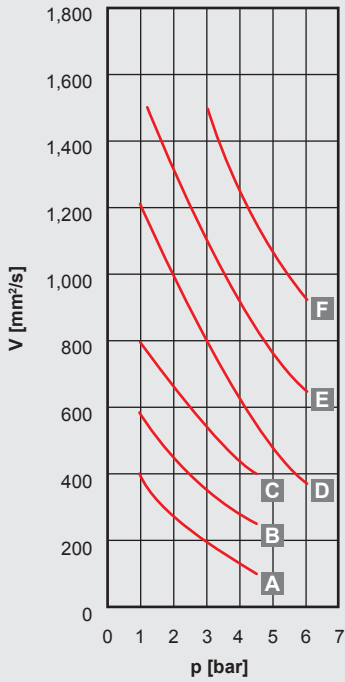
- Observations apply only for straight pipes
- Additional threaded joints and pipe bends increase flow loss

Note:

- As few threaded connections as possible
- Few pipe bends – where bends are used, with large bending radius
- Difference in height between pump and oil level as small as possible
- Hoses must be suitable for a vacuum of min. 5,000 mmW (e.g. by means of steel wire insert)
- Do not reduce the pipe cross-section determined by the threaded connection

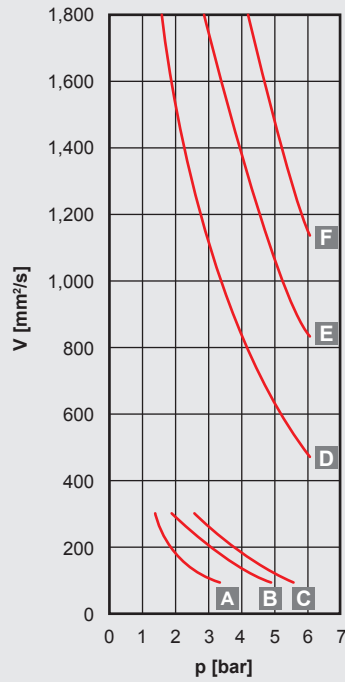
Control Curves

FZP-1



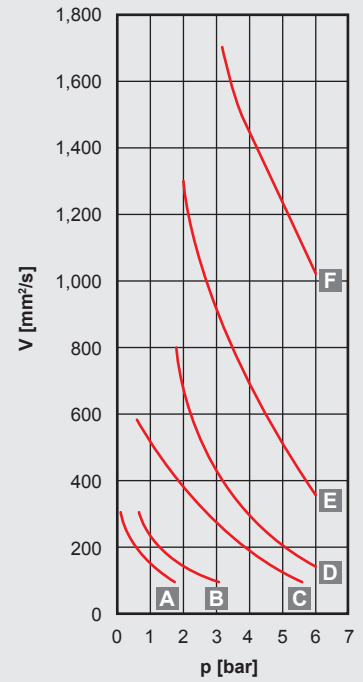
A	10.0 cm ³ / rev - 0.18 kW / 0.2 kW DC
B	7.0 cm ³ / rev - 0.18 kW / 0.2 kW DC
C	3.5 cm ³ / rev - 0.18 kW / 0.2 kW DC
D	10.0 cm ³ / rev - 0.37 kW
E	7.0 cm ³ / rev - 0.37 kW
F	3.5 cm ³ / rev - 0.37 kW

FZP-2



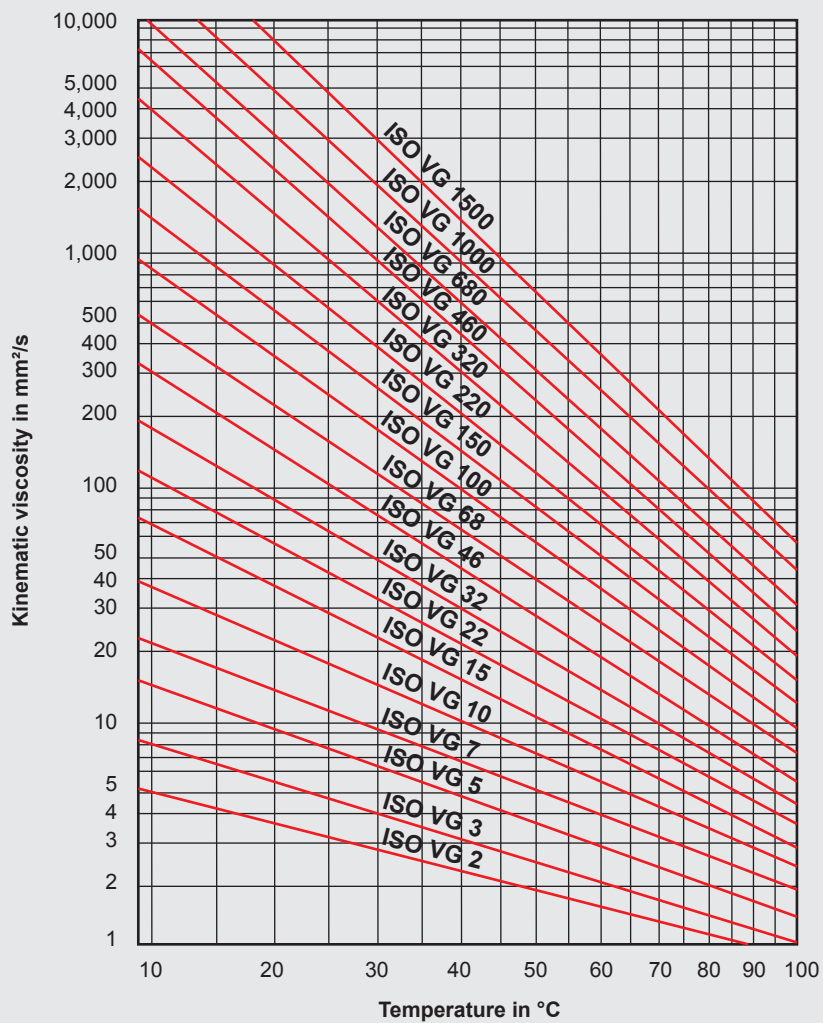
A	40 cm ³ / rev - 0.75 kW
B	30 cm ³ / rev - 0.75 kW
C	20 cm ³ / rev - 0.75 kW
D	40 cm ³ / rev - 1.5 kW
E	30 cm ³ / rev - 1.5 kW
F	20 cm ³ / rev - 1.5 kW

FZP-3



A	130 cm ³ / rev - 2.2 kW
B	100 cm ³ / rev - 2.2 kW
C	70 cm ³ / rev - 2.2 kW
D	130 cm ³ / rev - 4.0 kW
E	100 cm ³ / rev - 4.0 kW
F	70 cm ³ / rev - 4.0 kW

**Viscosity-temperature graph
to DIN 51519 viscosity index 50**



Design

Pump (FZP or MFZP) selected in accordance with customer specifications.

Example:

Flow rate: 190 l/min
 Counter-pressure: 5 bar
 Viscosity: 200 cSt
 Motor voltage: 400 V – 50 Hz

Selection:

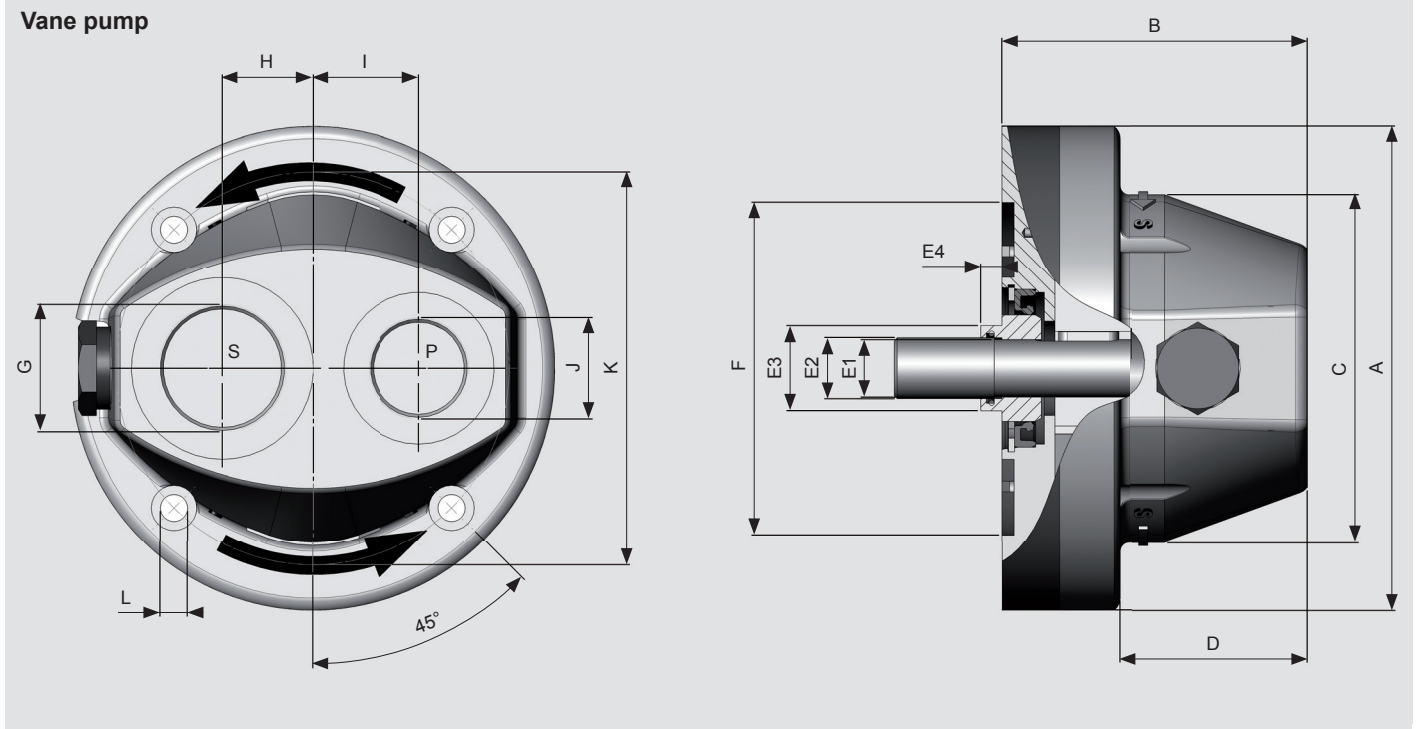
190 l/min → FZP-3 / MFZP-3 (approx. 130 ccm/rev at 1,500 rpm)
 5 bar and 200 cSt → drive power 4 kW (= motor size 112)

Result:

FZP-3/3.0/P/100/130/RV6
 MFZP-3/3.0/P/112/130/RV6/4/400-50

Dimensions

Vane pump

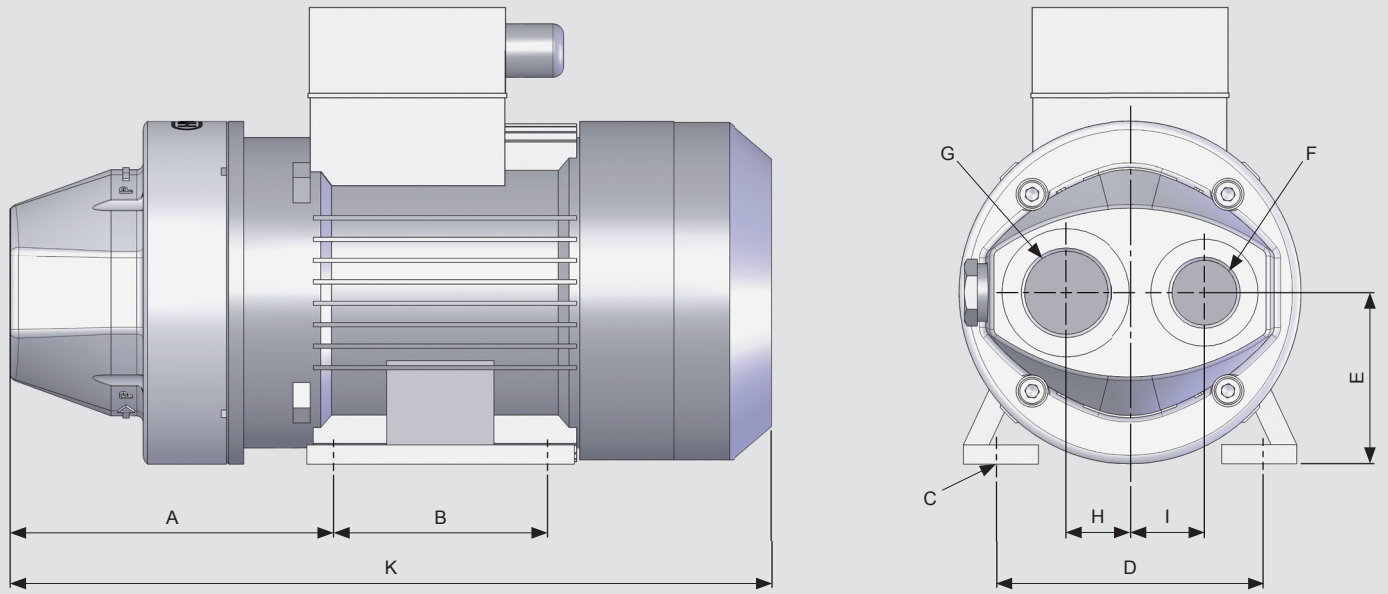


[mm]

Assembly	Flow capacity l/min at n = 1,500 rpm	Pump dimensions														
		A	B	C	D	E1	E2	E3	E4	F	G	H	I	J	K	L
1	5 – 15	105	75	70	26	14	17	24	5	70	G ¾	20.00	20.00	G ½	85	7
2	30 – 60	160	100	100	33	19	20	35	7	110	G 1 ¼	30.00	35.00	G 1	130	9
						24	25	35	7							
3	100 – 200	200	130	140	35	28	30	40	7	130	G 2	43.75	43.75	G 1 ½	165	11

Dimensions

MFZP



[mm]

	A	B	C	D	E	F	G	H	I
MFZP-1/2.0/X/63	117	80	7	100	63	G ½	G ¾	20.00	20.00
MFZP-1/1.1/X/AMG	117	80	7	100	63	G ½	G ¾	20.00	20.00
MFZP-1/1.1/X/71	120	90	7	112	71	G ½	G ¾	20.00	20.00
MFZP-2/2.1/X/80	150	100	9	125	80	G 1	G 1 ¼	30.00	35.00
MFZP-2/2.1/X/90	156	125	9	140	90	G 1	G 1 ¼	30.00	35.00
MFZP-3/3.0/X/100	193	140	12	160	100	G 1 ½	G 2	43.75	43.75

Construction length "K" of motor pump groups:

	El. motor size	Flange	Length "K" [mm]
MFZP-1	63/0.18 kW	Spec. flange	approx. 260
MFZP-1	AMG/0.2 kW/B34	Small flange	approx. 245
MFZP-1	71/0.37 kW/B34	Small flange	approx. 320
MFZP-2	80/0.75 kW/B34	Large flange	approx. 340
MFZP-2	90/1.2 kW/B34	Large flange	approx. 380
MFZP-3	100/2.2 kW/B34	Large flange	approx. 450
MFZP-3	100/4 kW/B34	Large flange	approx. 480

Model Code

MFZP-2 - 2.1 - P - 90/40 - RV6 - 1.5/400-50

Motor pump group MFZP _____
(with motor)

Surface-mounted pump FZP _____

Assembly _____

1
2
3

Modification number _____
(see flow rate table)

Seals _____

P = Perbunan

V = Viton

(other seals on request)

Motor size and flow rate _____

Assembly	Motor size	Modification number	Flow rate in ccm/revolutions (other rates on request)								
			3.5	7	10	20	30	40	70	100	130
1	63 (0.18 kW, only MFZP)	2.0	•	•	•						
	AMG (0.2 kW, DC)	1.1	•	•	•						
	71 (0.37 kW)	1.1	•	•	•						
2	80 (0.75 kW)	2.1				•	•	•			
	90 (1.5 kW)	2.1				•	•	•			
3	100 (2.2 kW)	3.0							•	•	•
	112 (4.0 kW)	3.0							•	•	•

Pressure limitation valve _____

RV3 (3.0 bar)

RV4.5 (4.5 bar)

RV6 (6.0 bar) (preferred size)

RV10 (10.0 bar)

Motor power and voltage _____

n = 1,500 rpm

(other voltages and frequencies on request)

Size 1:

0.18 kW

0.37 kW

Size 2:

0.75 kW

1.50 kW

Size 3:

2.20 kW

4.00 kW

Standard voltages and frequencies in three-phase motors

400 V star / 230 V delta – 50 Hz

(other voltages and frequencies on request)

Design Data Sheet, Feed Pumps

Project: _____
Contact: _____
Telephone: _____
E-mail: _____

Medium: _____ (Enclose data sheet for the medium)

Fluid temperature: _____ °C

Fluid purity: _____

Spec. materials prescribed? _____

Seal material: Perbunan (NBR) Viton (FPM)
 Other: _____

Flow rate: _____ l/min

Suction height: _____ m

Operating pressure: _____ bar

Max. pressure: _____ bar (pressure limitation valve)

Electrical data

Motor rating: _____ kW

Voltage: _____ V _____ Hz

Speed: _____ rpm

Direction of rotation: _____

Installation position of the pump: _____

Installation space limited? _____

Permitted noise level: _____ dB(A)

Ambient temperature: _____ °C

Unit qty. per year: _____

Remarks/miscellaneous:

Note

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications and corrections.



HYDAC COOLING GMBH

INTERNATIONAL

Industriegebiet
66280 Sulzbach/Saar
Germany

Tel.: +49 6897 509-01
Fax: +49 6897 509-454

E-mail: cooling@hydac.com
Internet: www.hydac.com

HYDAC AG
Mezzovico
branch office

Via Sceresca, Zona Industriale 3
6805 Mezzovico
Switzerland

Tel.: +41 91 9355-700
Fax: +41 91 9355-701

E-mail: info@hydac.ch
Internet: www.hydac.com