Sem-Safe (Watermist Systems/ Products)

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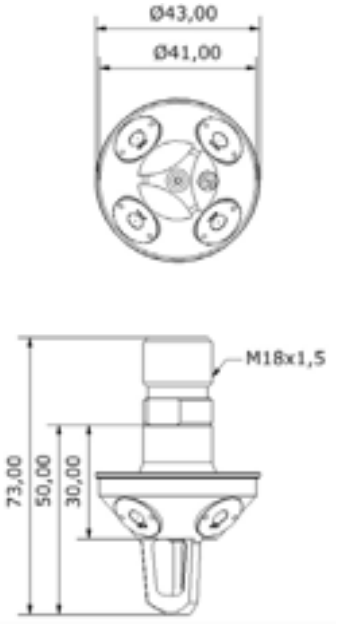
SEM-SAFE NOZZLES

Accommodation 100 bar

Data Sheet No.:
001-01-00001

Nozzle Type HNMP-4-10-2.04-57 (F)

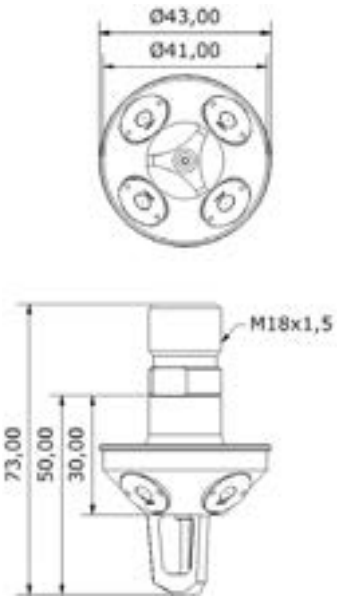


Nozzle Information	
Application	Shopping/storage area
Orientation	Pendent
Nozzle I.D.	F (3-02-48-4-22-57)
Working pressure	100 bar
K-factor	2.04
Max ceiling height	2.5m
Nozzle spacing	2.5m
Release temperature	57°C
Maximum distance to bulk head	1.25m
Tested in accordance with	IMO Res.A.800
Approved by	DNV, ABS, LR, BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	CuZn36Pb2As (brass) coated with NiSn

Ordering Information
8068633

Data Sheet No.:
001-01-00002

Nozzle Type HNMP-4-10-1.25-57 (D)

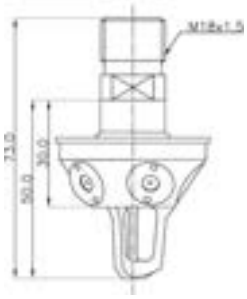


Nozzle Information	
Application	Cabin
Orientation	Pendent
Nozzle I.D.	D (5-01-46-4-17-57)
Working pressure	100 bar
K-factor	1.25
Max ceiling height	2.5m
Nozzle spacing	Centric within max. 12 m2 cabin
Release temperature	57°C
Maximum distance to bulk head	Symmetrical
Tested in accordance with	IMO Res.A.800
Approved by	DNV, LR, ABS, BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	CuZn36Pb2As (brass) coated with NiSn

Ordering Information
8068634

Data Sheet No.:
001-01-00003

Nozzle Type HNMP-5-10-1.68-57 (A)

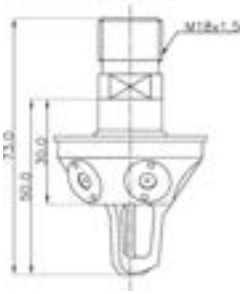


Nozzle Information	
Application	Public space
Orientation	Pendent
Nozzle I.D.	A (5-01-56-5-17-57)
Working pressure	100 bar
K-factor	1.68
Max ceiling height	2.5m
Nozzle spacing	3.5m
Release temperature	57°C
Maximum distance to bulk head	1.75m
Tested in accordance with	IMO Res.A.800
Approved by	DNV, LR, ABS, BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	CuZn36Pb2As (brass) coated with NiSn

Ordering Information
8067615

Data Sheet No.:
001-01-00004

Type HNMP-5-10-1.68-141 (O)

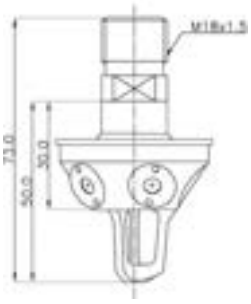


Nozzle Information	
Application	Sauna
Orientation	Pendent
Nozzle I.D.	O (5-01-56-5-17-141)
Working pressure	100 bar
K-factor	1.68
Max ceiling height	2.5m
Nozzle spacing	3.5m
Release temperature	141°C
Maximum distance to bulk head	1.75m
Tested in accordance with	IMO Res.A.800
Approved by	Nozzle is approved as Nozzle ID “A” with 57 °C bulb by: ABS, BV & DNV
Pipe connection	Ø10mm DIN 2353 M10S
Material	CuZn36Pb2As (brass) coated with NiSn

Ordering Information
8068635

Data Sheet No.:
001-01-00005

Nozzle HNMP-5-10-2.04-57 (B)

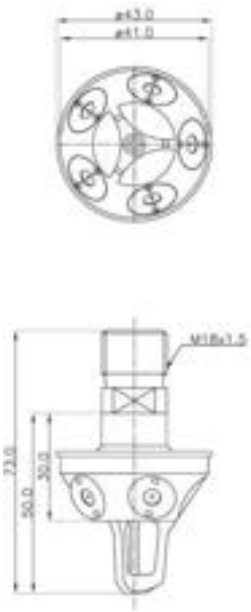


Nozzle Information	
Application	Public space
Orientation	Pendent
Nozzle I.D.	B (5-01-54-5-19-57)
Working pressure	100 bar
K-factor	2.04
Max ceiling height	5.0m
Nozzle spacing	3.0m
Release temperature	57°C
Maximum distance to bulk head	1.5m
Tested in accordance with	IMO Res.A.800
Approved by	DNV, LR, ABS, BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	CuZn36Pb2As (brass) coated with NiSn

Ordering Information
8067773

Data Sheet No.:
001-01-00006

Nozzle Type HNMP-5-10-1.68-93 (A)



Nozzle Information	
Application	Public space
Orientation	Pendent
Nozzle I.D.	A (5-01-56-5-17-93)
Working pressure	100 bar
K-factor	1.68
Max ceiling height	2.5m
Nozzle spacing	3.5m
Release temperature	93°C
Maximum distance to bulk head	1.75m
Tested in accordance with	IMO Res.A.800
Approved by	DNV, LR, ABS, BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	CuZn36Pb2As (brass) coated with NiSn

Ordering Information
8081138

Accommodation 60 bar

Data Sheet No.:
001-01-00007

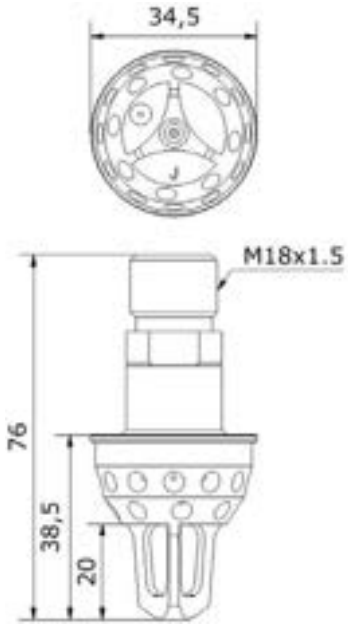
Type HNDP-0-12-5.2-57 (U)

Nozzle Information	
Application	Public space
Orientation	Pendent
Nozzle I.D.	U (5-12-56-75-52-57)
Working pressure	60 bar
K-factor	5.2
Max ceiling height	2.5m
Nozzle spacing	4.9m
Release temperature	57°C
Maximum distance to bulk head	2.4m
Tested in accordance with	IMO Res.A.800
Approved by	DNV, ABS, BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	CuZn36Pb2As (brass) coated with NiSn

Ordering Information
8068640

Data Sheet No.:
001-01-00009

Type HNDP-0-12-6.30-57 (J)



Nozzle Information	
Application	Public Space
Orientation	Pendent
Nozzle I.D.	J (5-12-56-75-63-57)
Working pressure	60 bar
K-factor	6.3
Max ceiling height	2.5m
Nozzle spacing	5.1m
Release temperature	57°C
Maximum distance to bulk head	2.5m
Tested in accordance with	IMO Res.A.800
Approved by	DNV, ABS, BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	CuZn36Pb2As (brass) coated with NiSn

Ordering Information
8068641

Data Sheet No.:
001-01-00008

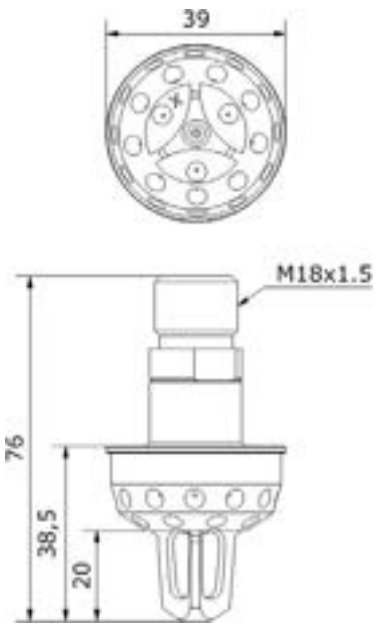
Nozzle Type HNDP-0-12-5.2-141 (US)

Nozzle Information	
Application	Sauna
Orientation	Pendent
Nozzle I.D.	US (5-12-56-75-52-141)
Working pressure	60 bar
K-factor	5.2
Max ceiling height	2.5m
Nozzle spacing	4.9m
Release temperature	141°C
Maximum distance to bulk head	2.4m
Tested in accordance with	IMO Res.A.800
Approved by	Nozzle is approved as Nozzle ID “U” with 57 °C bulb by: ABS, DNV, BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	CuZn36Pb2As (brass) coated with NiSn

Ordering Information
8068642

Data Sheet No.:
001-01-00010

Nozzle Type HNDP-0-12-5.40-57 (X)

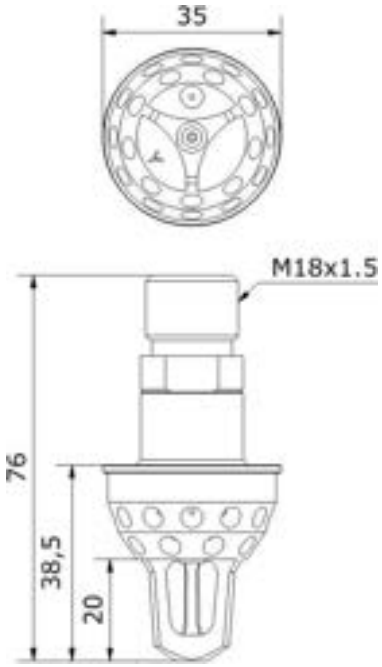


Nozzle Information	
Application	Public Space
Orientation	Pendent
Nozzle I.D.	X (5-12-34-75-54-57)
Working pressure	60 bar
K-factor	5.4
Max ceiling height	5.0m
Nozzle spacing	4.9m
Release temperature	57°C
Maximum distance to bulk head	2.4m
Tested in accordance with	IMO Res.A.800
Approved by	DNV, ABS, BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	CuZn36Pb2As (brass) coated with NiSn

Ordering Information
8068639

Data Sheet No.:
001-01-00011

Nozzle Type HNDP-0-12-6.40-57 (Y)

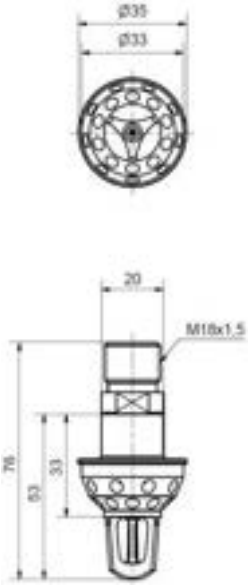


Nozzle Information	
Application	Shopping/Storage Area
Orientation	Pendent
Nozzle I.D.	Y (3-12-56-70-64-57)
Working pressure	60 bar
K-factor	6.4
Max ceiling height	2.5m
Release temperature	57°C
Nozzle spacing	4.4m
Maximum distance to bulk head	2.2m
Tested in accordance with	IMO Res.A.800, IMO MSC 265
Approved by	DNV, ABS, BV, LR
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8068496

Data Sheet No.:
001-01-00012

Nozzle Type HNDP-0-12-2.0-57 (AB)

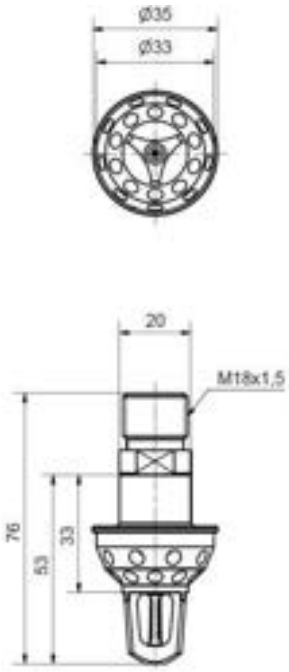


Nozzle Information	
Application	Cabin
Orientation	Pendent
Nozzle I.D.	AB (5-12-44-68-20-57)
Working pressure	60 bar
K-factor	2.0
Flow at working pressure	15,5 l/min
Max ceiling height	2.5m
Nozzle spacing	Centric within max. 12m^2 cabin
Release temperature	57°C
Maximum distance to bulk head	Symmetrical
Tested in accordance with	IMO Res.A.800, IMO MSC 265
Approved by	DNV, ABS, LR, RMRS* (as AB nozzle with standard 57°C bulb)
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8074115

Data Sheet No.:
001-01-00013

Nozzle Type HNDP-0-12-2.0-57 (AB)

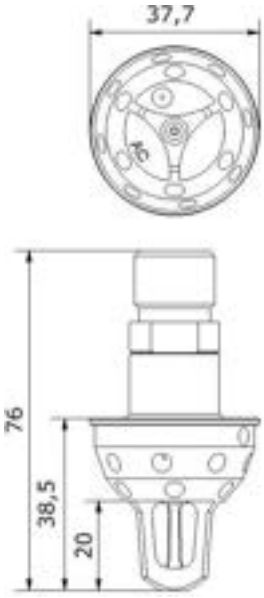


Nozzle Information	
Application	Corridor with max. width = 1.5 m
Orientation	Pendent
Nozzle I.D.	AB (5-12-44-68-20-57)
Working pressure	60 bar
K-factor	2.0
Flow at working pressure	15.5 l/min
Max ceiling height	2.5m
Nozzle spacing	4.5m
Release temperature	Standard 57°C
Maximum distance to bulk head	2.25m
Tested in accordance with	IMO Res.A.800, IMO MSC 265
Approved by	DNV, ABS, LR, RMRS* (Approved as AB nozzle with standard 57°C bulb)
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8074115

Data Sheet No.:
001-01-00014

Nozzle Type HNDP-0-12-3.4-57 (AC)

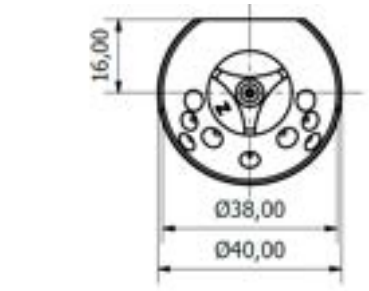


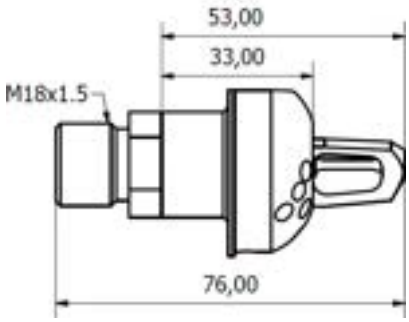
Nozzle Information	
Application	Cabin
Orientation	Pendent
Nozzle I.D.	AC (5-12-51-70-34-57)
Working pressure	60 bar
K-factor	3.4
Max ceiling height	2.5m
Nozzle spacing	Centric within max. 24m^2 cabin
Release temperature	57°C
Maximum distance to bulk head	Symmetrical
Tested in accordance with	IMO Res.A.800, IMO MSC 265
Approved by	DNV, ABS, BV, LR
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8074114

Data Sheet No.:
001-01-00015

Nozzle Type HNDS-0-12-4.5-57 (Z)



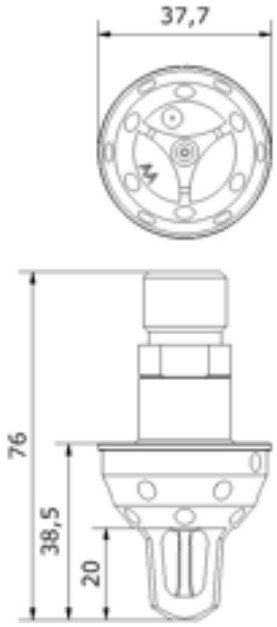


Nozzle Information	
Application	Cabin
Orientation	Sidewall
Nozzle I.D.	Z
Working pressure	60 bar
K-factor	4.5
Ceiling height	2.5m (nozzle max 150 mm below ceiling)
Coverage area	Width x length = 4m x 6m
Release temperature	57°C
Maximum distance to bulk head	Symmetrical on the wall. Approx. $2m^2$ at the entry allowed to be indirectly protected
Tested in accordance with	IMO Res. MSC 265
Approved by	DNV, ABS, LR, RMRS
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8077172

Data Sheet No.:
001-01-00016

Nozzle Type HNDP-0-12-2.88-57 (AA)

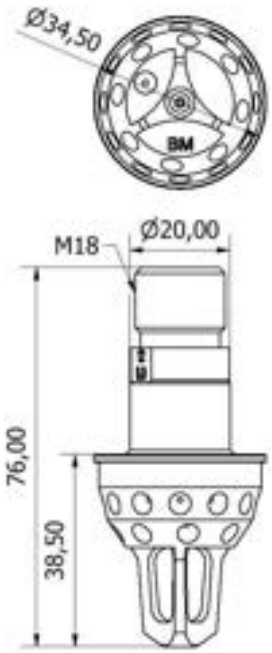


Nozzle Information	
Application	Corridor with max. width = 1.5 m
Orientation	Pendent
Nozzle I.D.	AA (5-12-51-69-29-57)
Working pressure	60 bar
K-factor	2.88
Max ceiling height	2.5m
Nozzle spacing	5m
Release temperature	57°C
Maximum distance to bulk head	Symmetrical
Tested in accordance with	IMO Res.A.800, IMO MSC 265
Approved by	DNV, ABS, BV, LR
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8068627

Data Sheet No.:
001-01-00017

Nozzle Type HNDP-0-12-6.56-57 (BM)

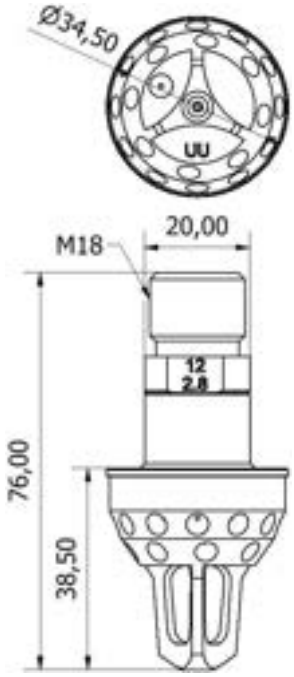


Nozzle Information	
Application	Public space
Orientation	Pendent
Nozzle I.D.	BM
Working pressure	60 bar
Release temperature	57°C
K-factor	6.56
Max ceiling height	2.5m
Nozzle spacing	5.30m
Maximum distance to bulk head	2.65m
Tested in accordance with	IMO MSC/Circ.265
Approved by	DNV
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8068613

Data Sheet No.:
001-01-00018

Nozzle Type HNDP-0-12-3.19-57 (UU)

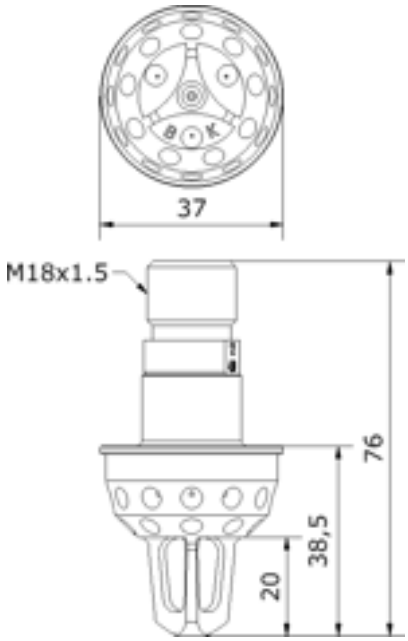


Nozzle Information	
Application	Public space
Orientation	Pendent
Nozzle I.D.	UU
Working pressure	60 bar
K-factor	3.19
Release temperature	57°C
Max ceiling height	2.5m
Nozzle spacing	4.0m
Maximum distance to bulk head	2.0m
Tested in accordance with	IMO MSC/Circ.265
Approved by	DNV, ABS, LR, RMRS
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8074117

Data Sheet No.:
001-01-00019

Nozzle Type HNDP-0-12-6.69-57(BK)



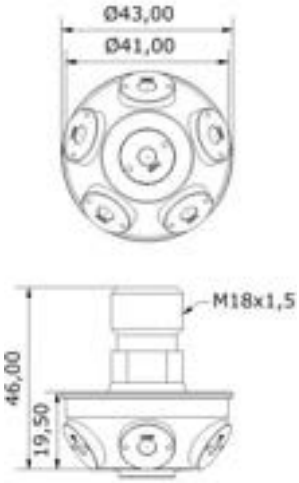
Nozzle Information	
Application	Public space
Orientation	Pendent
Nozzle I.D.	BK
Working pressure	60 bar
K-factor	6.69
Max ceiling height	5.0m
Release temperature	57°C
Nozzle spacing	5.05m
Maximum distance to bulk head	2.5m
Tested in accordance with	IMO MSC 265
Approved by	DNV GL, ABS, LR, RMRS
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8068628

Total Flooding 100 bar

Data Sheet No.:
001-03-00020

Nozzle Type HNMP-6-10-2.40-00 (H)

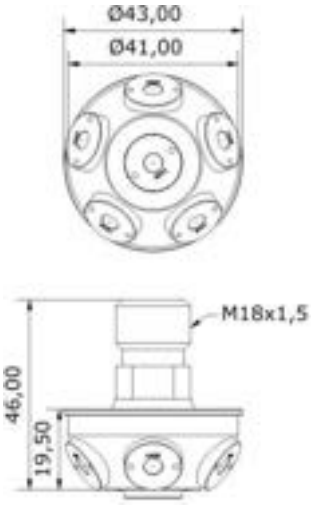


Nozzle Information	
Application	Machinery space total flooding
Orientation	Pendent
Nozzle I.D.	H (7-01-56-6-1928)
Working pressure	100 bar
K-factor	2.40
Max ceiling height	10.1m
Release temperature	N/A
Nozzle spacing	4.0m
Maximum distance to bulk head	2.0m for others 4.0m for DNV and ABS
Tested in accordance with	IMO 1165
Approved by	DNV, ABS, LR
Pipe connection	Ø 10mm DIN 2353 M10S
Material	AISI 303 (stainless steel)

Ordering Information
8017693

Data Sheet No.:
001-03-00021

Nozzle Type HNMP-6-10-1.43-00 (R)

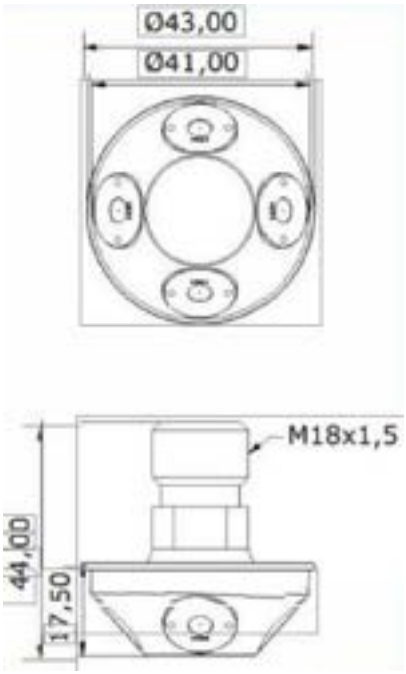


Nozzle Information	
Application	Machinery space total flooding
Orientation	Pendent
Nozzle I.D.	R (7-01-56-6-1934)
Working pressure	100 bar
K-factor	1.43
Max ceiling height	7.5m
Release temperature	N/A
Nozzle spacing	3.5m
Maximum distance to bulk head	2.0m for others 3.5m for DNV and ABS
Tested in accordance with	IMO 1165
Approved by	DNV, ABS
Pipe connection	Ø 10mm DIN 2353 M10S
Material	AISI 303 (stainless steel)

Ordering Information
8008740

Data Sheet No.:
001-03-00022

Type HNMP-4-10-0.45-00 (N)

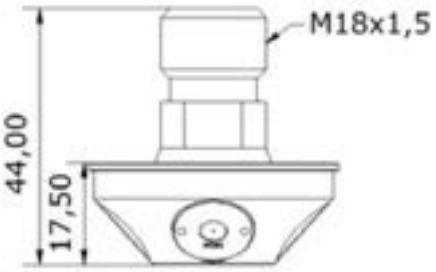


Nozzle Information	
Application	Machinery space total flooding
Orientation	Pendent
Nozzle I.D.	N (7-01-48-4-6-00)
Working pressure	100 bar
K-factor	0.45
Max ceiling height	4.0m
Release temperature	N/A
Nozzle spacing	3.0m
Maximum distance to bulk head	1.5m for others 3.0m for DNV and ABS
Tested in accordance with	IMO 1165
Approved by	DNV, ABS, BV
Pipe connection	Ø 10mm DIN 2353 M10S
Material	AISI 303 (stainless steel)

Ordering Information
8004009

Data Sheet No.:
001-03-00006

Nozzle Type HNMP-4-10-0.95-00 (K)

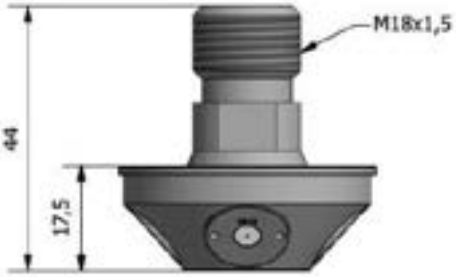


Nozzle Information	
Application	Machinery space total flooding 500 m^3
Orientation	Pendent
Nozzle I.D.	K (7-01-48-4-12-00)
Working pressure	100 bar
K-factor	0.95
Max ceiling height	5.0m
Release temperature	N/A
Nozzle spacing	3.0m
Maximum distance to bulk head	2.0 m
Tested in accordance with	IMO 668 & 728
Approved by	BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	AISI 303 (stainless steel)

Ordering Information
8004007

Data Sheet No.:
001-03-00008

Nozzle Type HNMP-4-10-0.17-00 (L)



Nozzle Information	
Application	Machinery space total flooding 1838 m^3
Orientation	Pendent
Nozzle I.D.	L (7-01-48-4-2-00)
Working pressure	100 bar
K-factor	0.17
Max ceiling height	7.5 m
Release temperature	N/A
Nozzle spacing	3.35 m
Maximum distance to wall	2.0 m
Tested in accordance with	IMO 668 & 728
Approved by	BV
Pipe connection	Ø10mm DIN 2353 M10S
Material	AISI 303 (stainless steel)

Ordering Information
8004008

Total Flooding 60 bar

Data Sheet No.:
001-01-00023

Nozzle Type HNDP-0-12-3.27-00 (CA)

Nozzle Information	
Application	Machinery space
Orientation	Pendent
Nozzle I.D.	CA
Working pressure	60 bar
K-factor	3.27
Flow at working pressure	25.3 l/min
Nozzle spacing	4.0m between nozzles and between pipes
Release temperature	N/A
Maximum distance to wall/bulk head	Full spacing
Maximum distance to bulk head	4.0m
Occupancy classification	Net volume = 3740 m^3 Gross volume[1] = 4413 m^3 Scaled net volume[2] = 7143 m^3 Scaled gross volume[1,2] = 8429 m^3
Tested in accordance with	IMO MSC.1/Circ. 1165
Approved by	DNV GL, LR
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (Brass) coated with NiSn Nozzle top: AISI 316L
Max ceiling height	11.0m

Ordering Information
8077173

Data Sheet No.:
001-01-00024

Nozzle Type HNDP-0-12-2.21-00 (BY)

Nozzle Information	
Application	Machinery space
Orientation	Pendent
Nozzle I.D.	BY
Working pressure	60 bar
K-factor	2.21
Flow at working pressure	17.1 l/min
Max ceiling height	8.0m
Nozzle spacing	4.0m between nozzles and between pipes
Release temperature	N/A
Maximum distance to wall/bulk head	Full spacing
Maximum distance to bulk head	4.0m
Occupancy classification	Net volume = 2720 m^3 Gross volume[1] = 3210 m^3 Scaled net volume[2] = 5440 m^3 Scaled gross volume[1,2] = 6419 m^3
Tested in accordance with	IMO MSC.1/Circ. 1165
Approved by	DNV GL, LR
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (Brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8077175

Data Sheet No.:
001-01-00025

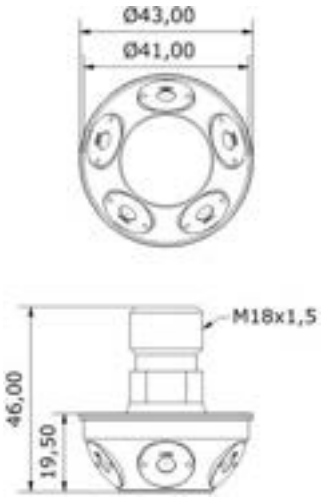
Nozzle Type HNDP-0-12-1.53-00 (CB)

Nozzle Information	
Application	Machinery space
Orientation	Pendent
Nozzle I.D.	CB
Working pressure	60 bar
K-factor	1.53
Flow at working pressure	11.9 l/min
Max ceiling height	5.0m
Nozzle spacing	4.0m between nozzles and between pipes
Release temperature	N/A
Maximum distance to wall/bulk head	Full spacing
Maximum distance to bulk head	4.0m
Occupancy classification	Net volume = 1700 m^3 Gross volume[1] = 2006 m^3 Scaled net volume[2] = 3400 m^3 Scaled gross volume[1,2] = 4012 m^3
Tested in accordance with	IMO MSC.1/Circ. 1165
Approved by	DNV GL, LR
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (Brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8077174

Data Sheet No.:
001-03-00026

Nozzle Type HNMP-5-10-1.19-00 (P)

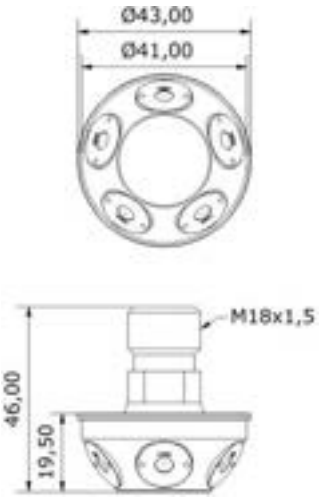


Nozzle Information	
Application	Local Application
Orientation	Pendent
Nozzle I.D.	P (7-01-56-5-12-00)
Working pressure	100 bar
K-factor	1.19
Max ceiling height	N/A
Nozzle spacing	4.0m
Release temperature	N/A
Distance to hazard	Min. 1.0m Max. 3.0m
Tested in accordance with	IMO 1387
Approved by	DNV, LR, ABS, BV, RINA, USCG, RMRS
Pipe connection	Ø 10mm DIN 2353 M10S
Material	AISI 303 (stainless steel)

Ordering Information
8001736

Data Sheet No.:
001-03-00027

Nozzle Type HNMP-5-10-1.87-00 (S)



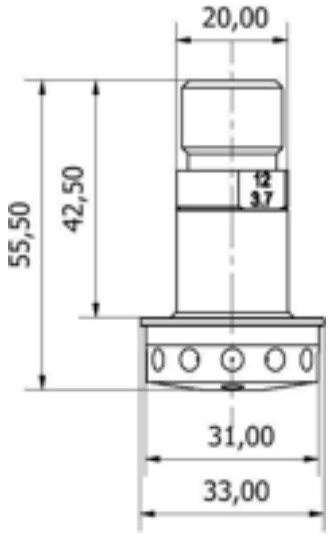
Nozzle Information	
Application	Local Application
Orientation	Pendent
Nozzle I.D.	S (7-01-56-5-19.5-00)
Working pressure	100 bar
K-factor	1.87
Max ceiling height	N/A
Nozzle spacing	4.0m
Release temperature	N/A
Distance to hazard	Min. 1.9m Max. 10.6m
Tested in accordance with	IMO 1387
Approved by	DNV, LR, ABS, BV, RINA, USCG, RMRS
Pipe connection	Ø 10mm DIN 2353 M10S
Material	AISI 303 (stainless steel)

Ordering Information
8031838

Bilge Protection 60 bar

Data Sheet No.:
001-01-00028

Nozzle Type HNDP-0-12-1.26-00 (BT Ø12)

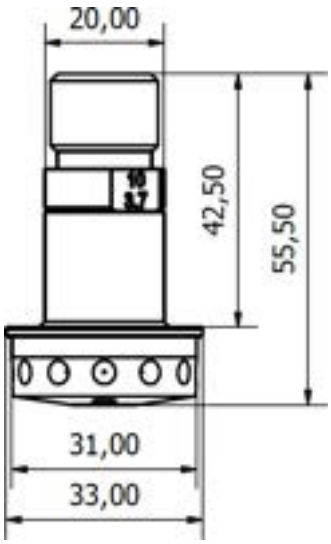


Nozzle Information	
Application	Bilge
Orientation	Pendent
Nozzle I.D.	BT
Working pressure	60 bar
K-factor	1.258
Max ceiling height	1.5m
Nozzle spacing	2.7m x 3m
Maximum distance to bulk head	Half spacing
Tested in accordance with	IMO MSC/Circ. 1165
Approved by	DNV, LR, ABS, RMRS
Pipe connection	Ø 12mm DIN 2353 M12L
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8068629

Data Sheet No.:
001-01-00029

Nozzle Type HNDP-0-10-1.26-00 (BT Ø10)



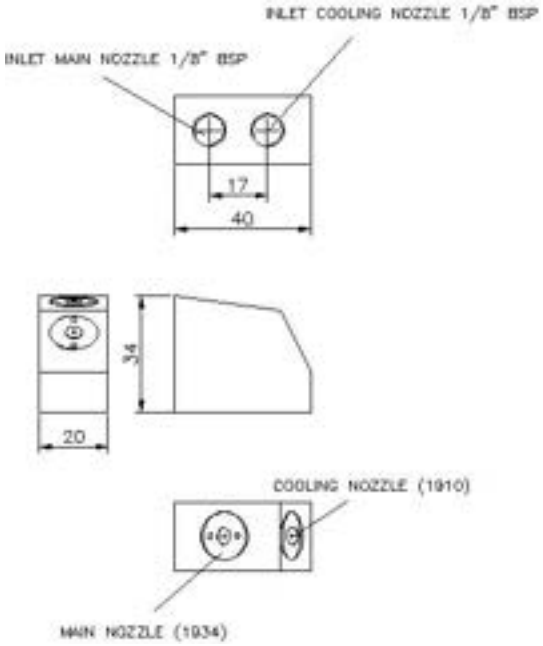
Nozzle Information	
Application	Bilge
Orientation	Pendent
Nozzle I.D.	BT
Working pressure	60 bar
K-factor	1.26
Max ceiling height	1.5m
Nozzle spacing	2.7m x 3m
Maximum distance to bulk head	Symmetrical
Tested in accordance with	IMO MSC/Circ. 1165
Approved by	DNV
Pipe connection	Ø 10mm DIN 2353 M10S
Material	Nozzle head: CuZn36Pb2As (brass) coated with NiSn Nozzle top: AISI 316L

Ordering Information
8068492

Deep Fat Dryer

Data Sheet No.:
001-01-00030

Nozzle Deep Fat Fryer 27

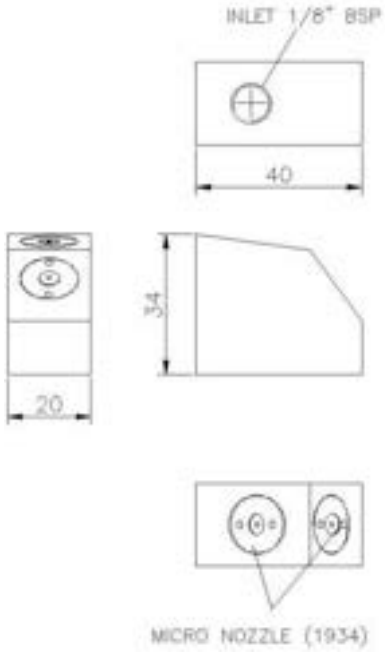


Nozzle Information	
Nozzle I.D.	Deep fat fryer nozzle 27
Weight	0,18 kg
Input thread	1/8

Ordering Information
8018881

Data Sheet No.:
001-01-00031

Deep Fat Fryer 36

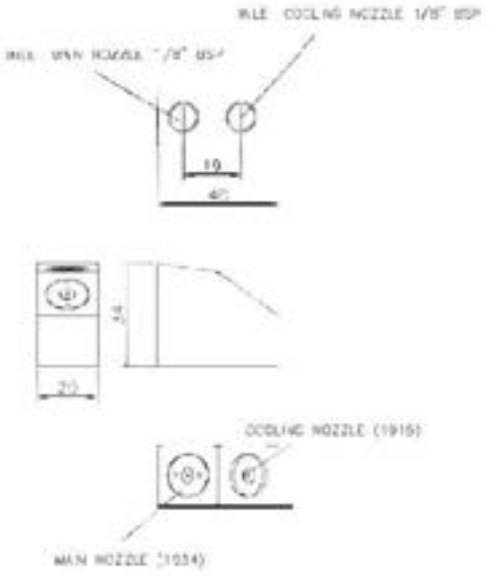


Nozzle Information	
Nozzle I.D.	Deep fat fryer nozzle 36
Weight	0,18 kg
Input thread	1/8

Ordering Information
8018880

Data Sheet No.:
001-01-00032

Deep Fat Fryer 54



Nozzle Information	
Nozzle I.D.	Deep fat fryer nozzle 54
Weight	0,18 kg
Input thread	1/8

Ordering Information
8020237

SEM-SAFE SPARE PARTS

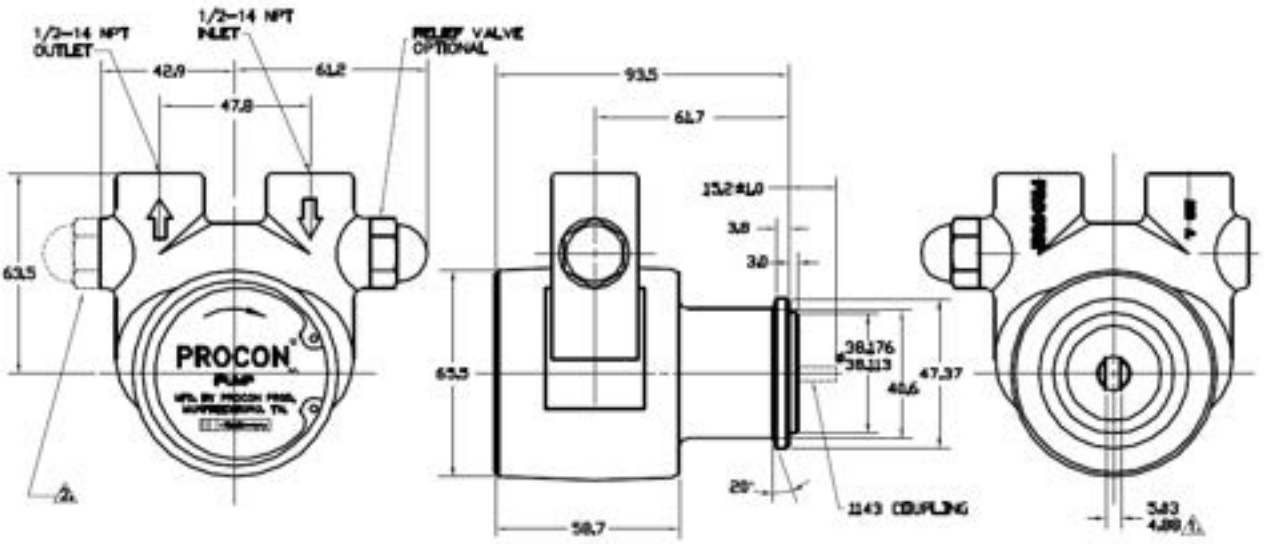
PROCON®

Procon Series 4 & 5 Pumps

- Positive Displacement Rotary Vane Pump
- Flow ranging from 115 to 330 gallons per hour (330 GPH
- pump requires 20 psi inlet pressure)
- Self Priming
- Maintenance Free
- Low Vibration and Pulsation Characteristics
- Stainless Steel, Brass and Low Lead Brass (0.25% Max Lead)
- Models compatible with 48YZ Frame and 56C Frame Motors
- (Adapter and Coupling required for 56C Frame Mounting)

Specifications

Body Material	Type 303 stainless steel or brass
Capacity	115 to 330 GPH
Nominal Speed	1725 RPM
Typical Horsepower Required	.25 to 1.5 HP
Maximum Discharge Pressure	250 PSI
Rotation (viewed from nameplate end)	Clockwise
Dry Weight	Approximately 4.5 lbs.
Dimensions	4.1” x 3.88” x 4.48”
Self Priming (water)	6 ft. Maximum Lift
Port Size	1/2 NPT Inlet and Outlet



Applications

- Circulation
- Reverse Osmosis
- Booster Pumps
- Solar Applications
- Hydraulic Systems
- Desalination

Series 4 & 5 Nominal Volume at 1725 RPM										
FLOW RATE (GPH)	GALLONS PER HOUR					BRAKE HORSEPOWER				
	PRESSURE (PSI)					PRESSURE (PSI)				
	50	100	150	200	250	50	100	150	200	250
300	331	330	328	327	326	.33	.55	.78	1.00	1.22
265	265	263	261	259	257	.24	.43	.63	.82	1.01
240	243	240	236	232	228	.21	.37	.54	.70	.86
215	218	215	211	207	203	.20	.35	.50	.65	.80
190	193	190	186	182	178	.18	.33	.47	.61	.75
165	168	165	161	157	153	.17	.30	.43	.57	.7
140	143	140	136	132	128	.016	.28	.40	.52	.64
115	118	115	111	103	103	.15	.25	.35	.45	.55

Ordering info	
Manufacturer's p/n	**Semco p/n**
134E240F11BA200	8004425

Series 1 - 6 Rotary Vane pumps - Model Number Matrix

1 1 1 A 100 E 1 1 A A 180

PRODUCT CLASSIFICATION
1 - ROTARY VANE PUMP

AGENCY APPROVALS
0 - NON-FOOD GRADE (1.5% Max. Lead)- NO AGENCY APPROVAL
1 - NSF STD. 169 LISTED (1.5% Max Lead) - (SEE NOTE 1)
2 - WRC
3 - FOOD GRADE - (1.5% Max. Lead) NO AGENCY LISTING
P- SPARE PARTS KIT
Z - NON-FOOD GRADE (.20% Max. Lead)- NO AGENCY APPROVAL
4 - NSF STD. 169 LISTED (.20% Max. Lead) - (SEE NOTE 1)
Y - NON-FOOD GRADE (.10% Max. Lead)- NO AGENCY APPROVAL
5 - NSF STD. 169 LISTED (.10% Max. Lead) - (SEE NOTE 1)
W - 254 SMO (316 S/S) - NO AGENCY APPROVAL

SERIES
1 - SERIES 1 BRASS - INTEGRAL STRAINER
2 - SERIES 2 BRASS
3 - SERIES 3 STAINLESS STEEL
4 - SERIES 4 BRASS
5 - SERIES 5 STAINLESS STEEL
6 - SERIES 6 STAINLESS STEEL
7 - SERIES 7 BRASS MINI PRO
8 - SERIES 8 STAINLESS STEEL - INTEGRAL STRAINER
9 - SERIES 9 BRASS SHORT PUMP

MOUNTING AND DRIVE CONFIGURATION
A - CLAMP ON WITH .188" DOUBLE FLAT DRIVE
B - CLAMP ON WITH 1143 BRONZE COUPLING
C - CLAMP ON WITH 1143-2 PLASTIC COUPLING
D - CLAMP ON WITH SLOTTED SHAFT ONLY - NO COUPLING
E - BOLT ON WITH SINGLE FLAT DRIVE (SERIES 1-5 ONLY)
J - BOLT ON WITH .25 DOUBLE FLAT DRIVE (SEE NOTE 2)
K - BOLT ON WITH 3018 BRONZE COUPLING
L - BOLT ON WITH 3018-1 OVERSIZE BRONZE COUPLING
M - BOLT ON WITH SLOTTED SHAFT ONLY
N - BOLT ON WITH KEY SLOT DRIVE (SERIES 6 ONLY)
P - CLAMP ON WITH 1143-3 OVERSIZE BRONZE COUPLING
R - LONG CLAMP ON WITH DOUBLE FLAT DRIVE (SEE NOTE 11)
S - CLAMP ON WITH SINGLE FLAT DRIVE
T - BOLT ON WITH FAEMA STYLE MOUNT

FLOWRATE (SEE NOTE 10)

SERIES 1, 2 AND 3

015 - 15 GPH	(45 LPH)
025 - 25 GPH	(75 LPH)
035 - 35 GPH	(100 LPH)
050 - 50 GPH	(150 LPH)
060 - 60 GPH	(180 LPH)
070 - 70 GPH	(210 LPH)
080 - 80 GPH	(240 LPH)
100 - 100 GPH	(300 LPH)
110 - 110 GPH (HIGH FLOW)	(330 LPH)
125 - 125 GPH (HIGH FLOW)	(375 LPH)
140 - 140 GPH (HIGH FLOW)	(425 LPH)

SERIES 4 AND 5

115 - 115 GPH	(350 LPH)
140 - 140 GPH	(425 LPH)
165 - 165 GPH	(500 LPH)
190 - 190 GPH	(575 LPH)
215 - 215 GPH	(650 LPH)
240 - 240 GPH	(725 LPH)
265 - 265 GPH	(800 LPH)
330 - 330 GPH (HIGH FLOW) - NO RELIEF VALVE	(1000 LPH)

SERIES 6

300 - 300 GPH - NO RELIEF VALVE	(900 LPH)
360 - 360 GPH - NO RELIEF VALVE	(1080 LPH)
420 - 420 GPH - NO RELIEF VALVE	(1260 LPH)
480 - 480 GPH - NO RELIEF VALVE	(1440 LPH)
540 - 540 GPH - NO RELIEF VALVE	(1620 LPH)
600 - 600 GPH - NO RELIEF VALVE	(1800 LPH)
660 - 660 GPH - NO RELIEF VALVE	(2000 LPH)

PRESSURE SETTING (RELIEF VALVE) (SEE NOTE 5)
PRESSURE SETTING IN PSI (POUNDS PER SQ. IN.)

PRESSURE RANGE (RELIEF VALVE SPRING)
A - 151 TO 250 PSI - DEFAULT SETTING 170 PSI (SEE NOTE 4)
10 to 17 BAR - DEFAULT SETTING 14 BAR
B - 100 TO 150 PSI - DEFAULT SETTING 130 PSI
7 TO 10 BAR - DEFAULT SETTING 10 BAR
C - 60 TO 99 PSI - DEFAULT SETTING 99 PSI
4 TO 7 BAR - DEFAULT SETTING 7 BAR
D - 30 TO 59 PSI - DEFAULT SETTING 50 PSI (SEE NOTE 6)
2 TO 4 BAR - DEFAULT SETTING 3.5 BAR
X - NO SETTING

VALVE TYPE AND CONFIGURATION
A - PLASTIC, HI TEMP-BYPASS
B - PLASTIC, HI TEMP-SOLID
C - PLASTIC, HI TEMP BALANCED BYPASS
D - PLASTIC, HI TEMP BALANCED SOLID
F - PLASTIC, HI TEMP-EXTERNAL ADJUST BYPASS
G - PLASTIC, HI TEMP-EXTERNAL ADJUST SOLID
P - BRASS, HI TEMP-SOLID
R - STAINLESS STEEL, HI TEMP-SOLID
1 - PLASTIC, LOW TEMP-BYPASS
2 - PLASTIC, LOW TEMP-SOLID
3 - PLASTIC, LOW TEMP BALANCED BYPASS
4 - PLASTIC, LOW TEMP BALANCED SOLID
5 - PLASTIC, LOW TEMP-EXTERNAL ADJUST BYPASS
6 - PLASTIC, LOW TEMP-EXTERNAL ADJUST SOLID
X - NO RELIEF VALVE

CLEARANCES
1 - STANDARD CLEARANCE
2 - SPCL CLEARANCE (1x) LINER & BRGS
3 - SPECIAL CLEARANCE (2x) LINER & (1x) BRGS.
4 - STANDARD CLEARANCE WITH SEAL CIRCULATION
5 - SPCL CLEARANCE (1x) LINER AND (1x) SEAL CIRC. BRGS.
6 - SPCL CLEARANCE (1x) LINER AND (2x) SEAL CIRC. BRGS.

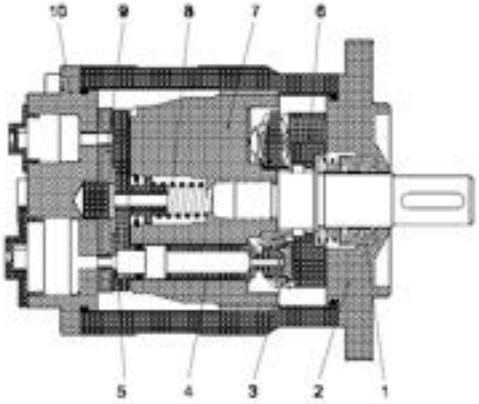
ROTATION / SLINGER / PASSIVATION / STRAINER
1 - CLOCKWISE
2 - COUNTERCLOCKWISE
3 - CLOCKWISE / SLINGER
4 - COUNTERCLOCKWISE / SLINGER
7 - CLOCKWISE / COARSE STRAINER
8 - CLOCKWISE / SLINGER / COARSE STRAINER

ELASTOMER
F - FDA GRADE NITRILE - TYPE 21 OR TYPE 2106
USED INTERCHANGEABLY
G - ETHYLENE PROPYLENE - TYPE 21 SEAL (SEE NOTE 8)
R- -FLUOROCARBON - TYPE 21 SEAL
S - NEOPRENE - TYPE 21 SEAL (SEE NOTE 9)
W - ETHYLENE PROPYLENE - TYPE 21 SEAL -
WRC APPROVED COMPOUND

NOTES:
1. Brass pumps are NSF listed for potable water only. Stainless steel pumps are NSF listed for potable and carbonated water. (Nitrile elastomer only.)
2. Bolt on model with .25" double flat drive for use in Japan only. (No NSF available.)
3. Counterclockwise rotation not available for Series 1 pumps.
4. For the Beverage Industry - the default relief valve pressure setting is 250 PSI.
5. The relief valve pressure setting is not part of the model matrix number. It is for customer reference only.
6. This pressure range is not available in valve configurations C, D, K or L.
7. Passivation is defined as a passivated housing only. No other parts are passivated.
8. The EP elastomer is no longer available for Series 6 pumps.
9. Neoprene elastomer not available for the following relief valve configurations: C, D, F, 3, 4, 5, and 6.
10. GPH rating at 60HZ (1750 RPM) - LPH rating at 50HZ (1400 RPM).
11. Long clamp on pumps are series 1 and 4 only

PAH Pumps 50-100

1: Shaft sealing
2: Mounting flange/ housing with bearing
3: Retaining ring
4: Piston/shoe
5: Valve trust plate
6: Swash plate
7: Cylinder barrel8:
8: Spring
9: Port plate
10: Connecting flange



The Danfoss range of PAH high-pressure pumps is designed to supply water flow under high pressure for a variety of tap water applications.
Danfoss PAH pumps are positive displacement pumps, with axial pistons that move a fixed amount of water in each cycle. Flow is proportional to the number of input shaft revolutions (rpm). Unlike centrifugal pumps, they produce the same flow at a given speed no matter what the discharge pressure.

Benefits

•Zero risk of lubricant contamination:
-Oil lubricants are replaced with the pumped medium, water, so there is no contamination risk from the pump.
•Low maintenance costs:
-Efficient design and all-stainless steel construction ensure exceptionally long lifetime. When Danfoss specifications are met, service intervals of up to 8,000 hours can be expected. Service is easy, and can be carried out on site due to the simple design and few parts.
•Low energy costs:
-The highly efficient axial piston design provides the lowest energy consumption of any comparable pump on the market.
•Easy installation:
-The lightest and most compact design available.
-Pump can be installed horizontally or vertically.
-No pulsation dampeners necessary due to extremely low-pressure pulsation.
-Powered by electric motors or combustion engines.
-Suitable for both boosted inlet pressure and water supply from a tank.
-No need for cooling circuits due to very high mechanical efficiency.
•Certified quality:
Certificates:
ISO 9001, ISO 14001, ITF 16949
ATEX available on request
ABS and DNV GL certifications on request

Application examples

•Stationary and mobile hydraulic systems
•High-pressure systems
•Fire fighting
•Flushing and cleaning processes
•Humidification systems

Technical Data

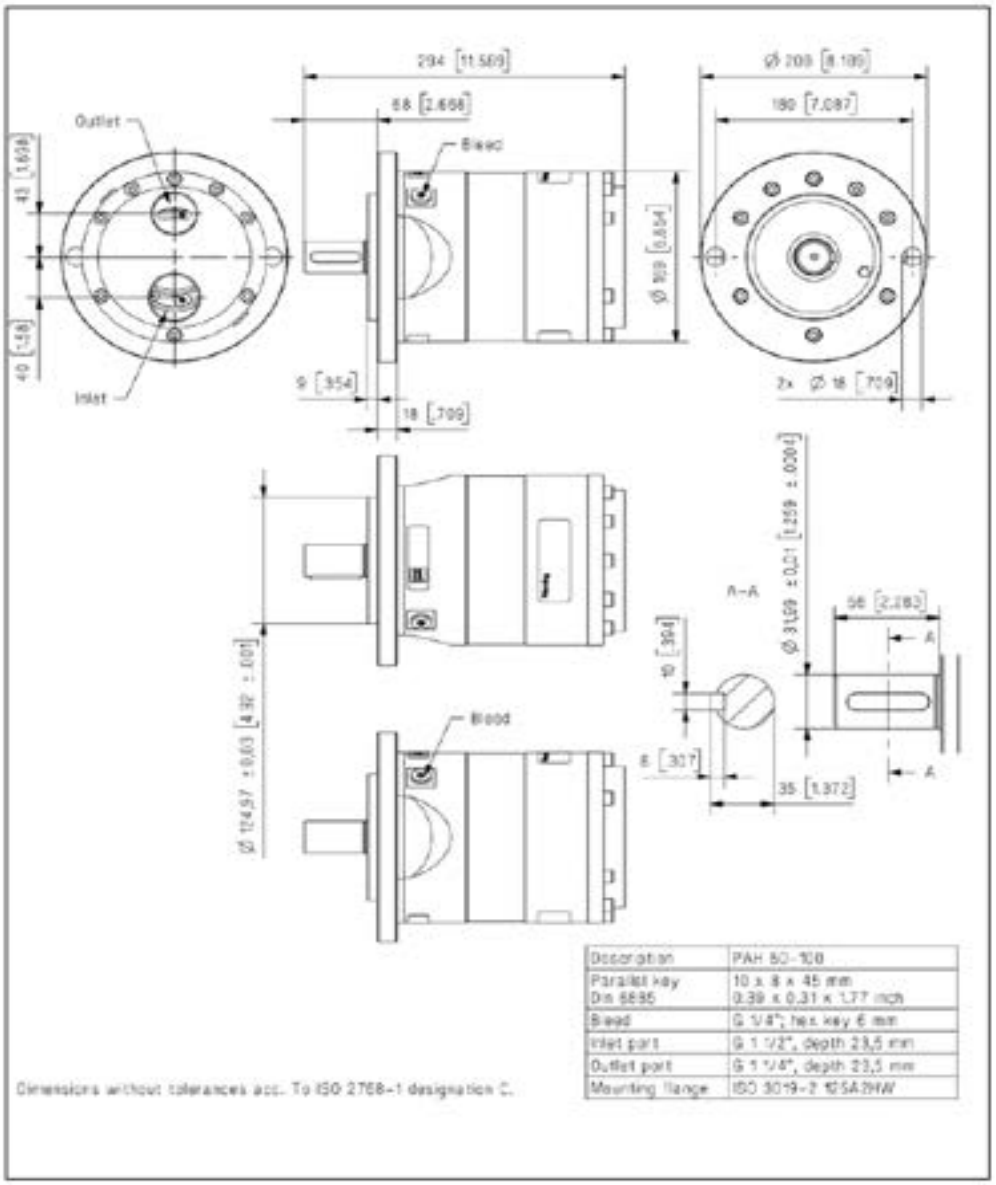
PAH 50-100

Pump size		50	63	70	80	100
Code number		180B0047	180B0040	180B0042	180B0041	180B0076
Code number ATEX[2)]		180B6147	180B6140	180B6142	180B6141	180B6176
Housing material		AISI 304	AISI 304	AISI 304	AISI 304	AISI 304
Geometric displacement	cm^3/rev	50	63	70	80	100
	in^3/rev	3.05	3.84	4.27	4.88	6.00
Pressure						
Min. outlet pressure	barg	30	30	30	30	30
	psig	435	435	435	435	435
Max. outlet pressure	barg	80	160	160	160	80
	psig	1160	2321	2321	2321	1160
Inlet pressure, continuous	barg	0-4	0-4	0-4	0-4	0-4
	psig	0-58	0-58	0-58	0-58	0-58
Speed						
Min. speed, continuous	rpm	700	700	700	700	700
Max. speed	rpm	1800	1800/2400[3)]	1800/2400[3)]	1800/2400[3)]	1500
Typical flow - Flow curves available in section 5						
1000 rpm at max. pressure	l/min	47.0	56.2	63.4	73.9	96.7
1500 rpm at max. pressure	l/min	72.1	87.9	98.5	114.1	146.9
1200 rpm at max. pressure	gpm	14.8	17.9	20.1	23.4	30.4
1800 rpm at max. pressure	gpm	22.7	27.8	31.1	35.9	-
2400 rpm at max. pressure	l/min	-	145	162	187	-
Typical motor size						
1500 rpm at max. pressure	kW	10.6	26.8	29.8	34.0	42.6
1800 rpm at max. pressure	hp	17.1	43.1	47.9	54.8	-
Torque at max. spec.	Nm	67.8	170.8	189.7	216.8	135.5
	lbf-ft	50.0	126.0	140.0	160.0	100.0

Pump size		50	63	70	80	100
Media temperature	°C	2-50	2-50	2-50	2-50	2-50
	°F	36-122	36-122	36-122	36-122	36-122
Ambient temperature	°C	0-50	0-50	0-50	0-50	0-50
	°F	32-122	32-122	32-122	32-122	32-122
Sound pressure level 1)	dB(A)	80	80	80	80	81
Weight	kg	31	31	31	31	31
	lbs	68	68	68	68	68

1) Measurements according to EN ISO 3744: 2010 / dB(A) [LPA, 1m] values are calculated. Measured at max pressure and rpm for a motor pump unit.
2) Category 2, Zone 1 or Category 3, Zone 2.
3) If PAH 63/70/80 run 1800 - 2400 rpm the following conditions apply:
Inlet pressure 2 -4 barg, outlet pressure max. 140 barg for a maximum of 500 hours in between service inspection

Dimensions and connections



Service

Danfoss PAH pumps are designed for long periods of service-free operation to ensure low maintenance and life cycle costs. Provided that the pump is installed and operated according to Danfoss specifications, Danfoss PAH pumps typically run 8,000 hours between service. However, the service schedule for your Danfoss PAH pump may vary according to the application and other factors. The life of a pump may be greatly shortened if Danfoss recommendations concerning system design and operation are not followed**. Poor filtration is the number one cause of pump damage.**

Other factors that affect pump performance and lifetime include:

- running the pump at speeds outside specifications
- supplying the pump with water at temperatures higher than recommended
- running the pump at inlet pressures outside specifications
- running the pump at outlet pressures
- outside the specifications.

Danfoss recommends that you inspect your pump after 8,000 hours of operation even if it is running without any noticeable problems. Replace any worn parts if necessary, including pistons and shaft seals, to keep your pump running efficiently and to prevent breakdown. If worn parts are not replaced, then our guidelines recommend more frequent inspection.

Ordering information

Manufacturer's p/n	Decription	Semco p/n
180B0041	DANFOSS High Pressure Pump PAH 80, Stainless	8030426

Pressure Relief Valve Series 81P

General Application

Specific valve types are available for gas, vapor, liquid; gas or liquid thermal relief, cryogenic and chemically active applications.

Technical Data

Sizes:	½" x 1" to 2" x 3" (DN 15 to 50)
Orifices:	0.049 to 1.287 in^2 (0.316 to 8.303 cm^2)
Connections:	NPT, Flanged
Temperature range:	-65°F to + 400°F (-54°C to + 205°C)
Set pressures:	50 to 6,000 psig (3.34 to 413.7 barg)
Code:	ASME VIII

Features

Type 81P spindle design balanced against the effects of back pressure without the use of a bellows, reducing both initial purchase and associated long-term maintenance costs.

Seat Tightness Performance Specifications

All pressure relief valves are checked for seat leakage per procedures outlined in API 527. The following operating pressures will allow for bubble-tight seat sealing performance.

Ordering information

Manufacturer's p/n	Description	Semco p/n
81PSF68-8	Pressure Relief Valve, spring operated, type 81PSF68-8,3/4 Inch FNPT x 1 InchFNPT, CF8M/316 Seat PTFE, Set pr. 120 barg	8046996

Selection guide

Example:	81P	S1	N	S	8	A	16	A	-8	L

Valve type

81	Plastic seated, gas service
83	O-ring seated, gas service
81P	Plastic seated, liquid service
63	O-ring seated, gas service

Body material

S	316 SS
S1	CS with 316 SS trim
B	Brass (NPT only)

NACE

N	Materials to meet ANSI/NACE MR0175/ISO 15156-1:2015
Blank	Standard (without NACE)

Port type

F	Threaded FNPT inlet and outlet
M	Threaded MNPT inlet and threaded FNPT outlet
J	Threaded MS-33649 inlet and outlet (military standard)
S	Slip-on flanged inlet and outlet[163]
W	Weldneck flanged inlet and outlet
U	Weldneck flanged inlet and integral cast flanged outlet
L	Lap joint flanged inlet and integral cast flanged outlet
T	Weldneck flanged inlet and FNPT outlet
X	Slip-on flanged inlet and FNPT outlet
Y	Slip-on flanged inlet and weldneck flanged outlet
Blank	Special

Inlet size, ⅛"

4	½" [DN 15]	**12**	1½" [DN 40]
6	¾" [DN 20]	**16**	2" [DN 50]
8	1" [DN 25]		

Inlet flange rating

A	150#	**D**	900#
B	300#	**E**	1500#
C	600#	**F**	2500#
Blank	Not applicable (threaded inlet)		

Outlet size, ⅛"

6	¾" [DN 20]
8	1" [DN 25]
12	1½" [DN 40]
16	2" [DN 50]
24	3" [DN 80]

Outlet flange rating

A	150#	**D**	900#
B	300#	**E**	1500#
C	600#	**F**	2500#
Blank	Not applicable (threaded outlet)		

Orifice

-4	0.049 in² [0.32 cm²]	**-E**	0.196 in² [1.27 cm²] (Types 81 and 81P set over 4000 psig [276 barg])
-5	0.077 in² [0.50 cm²] (Type 63B only)	**-F**	0.307 in² [1.98 cm²]
-6	0.110 in² [0.71 cm²] (D)	**-G**	0.503 in² [3.25 cm²]
-7	0.150 in² [0.968 cm²] (Type 63B only)	**-H**	0.785 in² [5.07 cm²]
-8	0.196 in² [1.27 cm²] (Types 81 and 81P to 4000 psig [276 barg] and Type 83 to 2000 psig [137.8 barg])	**-J**	1.287 in² [8.30 cm²]

Lift lever

L	Packed lift lever
Blank	Standard, without lift lever

Filter Element for Sem-Safe, 10my, 40 Inch

Description	Filter Cartridge 40", 10µm abs.
Product name	Filters
Product group	Accessory
Net weight	3.81 kg
Gross weight	4.29 kg

Ordering information

Manufacturer's p/n	Decription	Semco p/n
180Z0011	Filter Element for Sem-Safe, 10my, 40 Inch	8003351