

PARTS LIST & MATERIAL SPECIFICATION

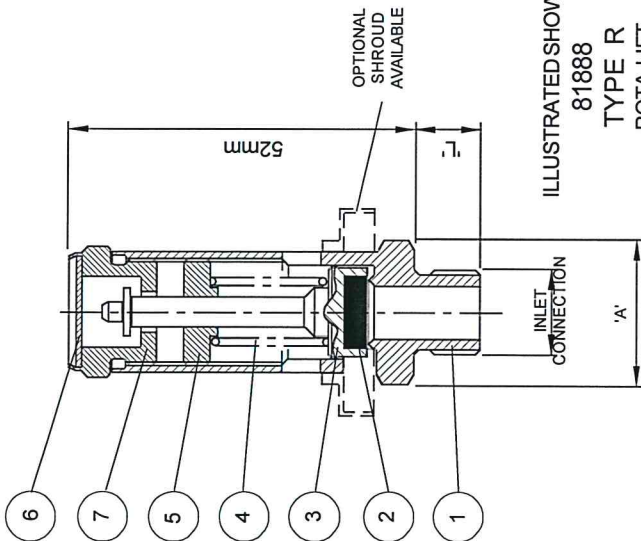
1	BODY	81888, 81788, 81188	82888, 82788, 82188
2	ELASTOMER SEAL	BRASS BS EN 12164 CW614N	
3	VALVE DISC	VITON	
4	SPRING	BRASS BS EN 12164 CW614N	
5	ADJUSTER	ST.STL BS EN 10270-3 1.4310 (302)	
6	NAMEPLATE	BRASS BS EN 12164 CW614N	
7	CAP	AL-ALLOY	
8	DOWTY SEAL	BRASS BS EN 12164 CW614N	VITON
9	ADAPTOR	N/A	ST.STL.

APPROVALS

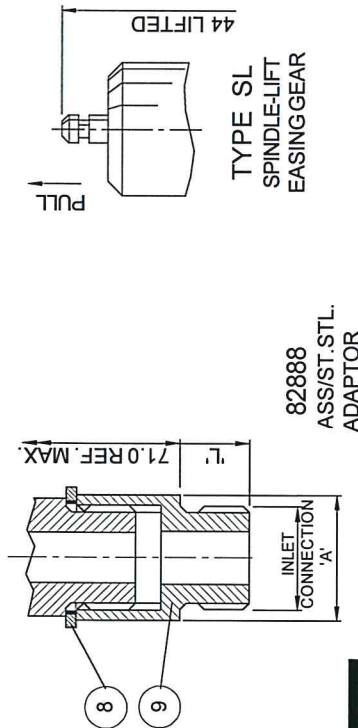
AD 2000-Merkblatt A2: (TÜV GERMANY) TÜV.SV.12-893.8.D/G.*.p (* = Variable α_w below 3 Bar.g)
 Designed in accordance with BS EN ISO 4126-1 & BS 6759 Part 2, but not approved.
 P.E.D. 97/23/EC
 Type examination module B, Cert No. 01 202 642-B-10015
 Quality management system module D, Cert. No. EDS 0002011/01
 Meeting the requirements of the A.S.M.E. Boiler & Pressure Vessel Code section VIII for air/gas.
 UV Cert. of Authorisation: 35757
 Capacities certified by the National Board of Boiler & Pressure Vessel Inspectors.

TECHNICAL DATA

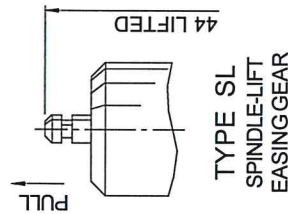
Relieving pressure = Set pressure +10% (0.1 Bar.g below 1.0 Bar.g)
 Reseating pressure = Set pressure -10% (0.3 Bar.g below 3.0 Bar.g)
 Maximum set pressure = 21 Bar.g
 Minimum set pressure = 0.55 Bar.g (A.S.M.E. 3.0 Bar.g)
 Flow area = 50.27 mm²
 Inlet bore diameter = 8mm
 Temperature range = -15°C to 200°C
 TÜV Derated coefficient of discharge α_w = 0.67 From 3 Bar.g Below 3 Bar.g see graph.
 NB Rated discharge coefficient K_d = 0.748
 Minimum lift at 10% overpressure = 1.4mm
 FOR FURTHER TECHNICAL INFORMATION, CONVERSION FACTORS, INSTALLATION AND OPERATING INSTRUCTIONS ETC. SEE TECHNICAL INFORMATION SECTION.



ILLUSTRATED SHOWING
 81888
 TYPE R
 ROTA-LIFT
 EASING GEAR



82888
 ASS/ST.STL.
 ADAPTOR



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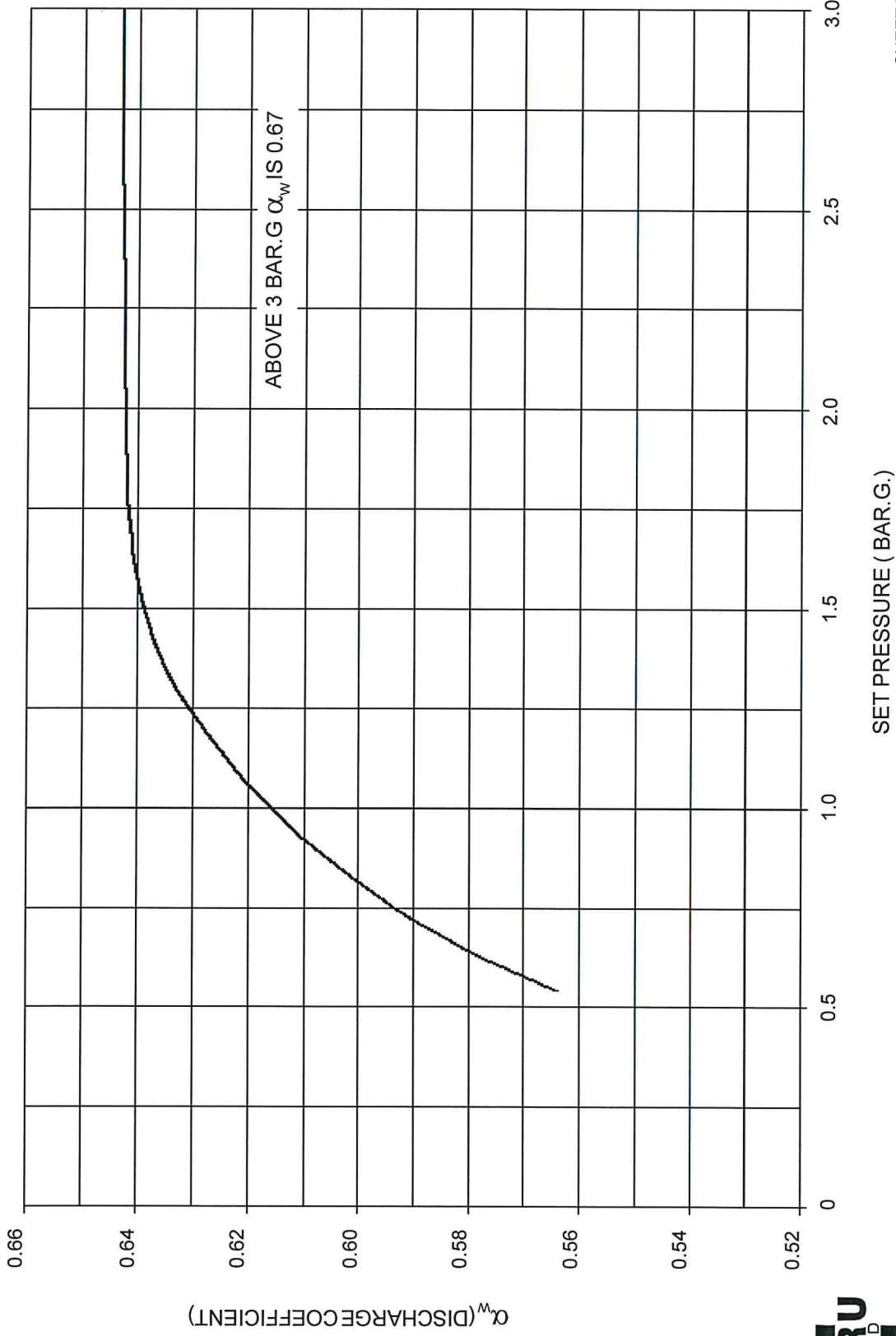
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 www.see-tru.com enquires@see-tru.com

8mm Nom. Bore BRASS CONSTRUCTION
 DIRECT SPRING LOADED ATMOSPHERIC
 DISCHARGE SAFETY VALVE FOR
 COMPRESSED AIR OR GASES.

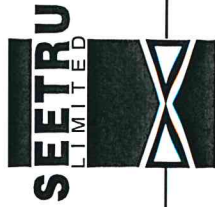
SERIES E VALVE
 TYPE 81888, 81788, 81188
 BRASS
 TYPE 82888, 82788, 82188
 BRASS/ST.STL.

SHEET 1 OF 3 SHEETS

PRESSURE/DISCHARGE CURVE FOR VALVE 81888
0.55 - 3.0 BAR.G.



SHEET 3 OF 3 SHEETS



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BRASS
TYPE 82888, 82788, 82188
BRASS/STL.



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Flow Calculations for a '81888' on Air at 3.8 bar g. and 15°C, sized to BS EN ISO 4126

P	Pressure (bar a.)	5.19 (3.8 x 1.1 + 1.013)
Pb	Back Pressure (bar a.)	1.013
Kb	Critical Flow	1
T	Temperature (°K)	288.15 (15°C + 273.15)
A	Flow Area (mm²)	50.27 (8mm Bore)
M	Molecular Mass	28.97
k	Isentropic Exponent	1.4
C	Dimensionless Factor	2.7 Function of the Isentropic Exponent, k
Z	Compressibility Factor	1
Kdr	Coefficient of Discharge	0.67

Gas Calculations (Mass)

$$Qm = P.C.A.Kdr.Kb.\sqrt{\frac{M}{Z.T}}$$

∴ Qm = 149.92 kg/hour

Qm x 2.2046 = 330.50 lb/hour

Conversions to Volumetric flows

$Qv = 6.568 \times \frac{Qm}{M} = 33.99$ litres/sec. at 1.013 bar a. and 15°C

$Qv = 13.936 \times \frac{Qm}{M} = 72.12$ SCFM at 14.7 psi a. and 60°F

$Qv = 22.414 \times \frac{Qm}{M} = 115.99$ Nm³/hour at 1.013 bar a. and 0°C

These flows are calculated to the applicable standard stated in the appropriate valve data sheet. For display purposes values are shown to 2 decimal places.

PARTS LIST & MATERIAL SPECIFICATION

	81810, 81710, 81110	82810, 82710, 82110
1 BODY	BRASS BS EN 12164 CW614N	
2 ELASTOMER SEAL	VITON	
3 PLUNGER	BRASS BS EN 12164 CW614N	
4 SPRING	ST.STL BS EN 10207-3 1.4310 (302)	
5 ADJUSTER	BRASS BS EN 12164 CW614N	
6 LIFTING CAP	BRASS BS EN 12164 CW614N	
7 NAMEPLATE	AL.ALLOY	
8 WIRE & SEAL	ST.STL & LEAD	
9 ADAPTOR	N/A	ST.STL.
10 DOWTY SEAL	N/A	VITON

APPROVALS

AD 2000-Merkblatt A2: (TÜV GERMANY) TÜV.SV.12-893.10.D/G. * .p. [* = Variable α_w below 3 Bar.g.]
 Designed in accordance with BS EN ISO 4126-1 & BS 6759 Part 2, but not approved.
 P.E.D.97/23/EC

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 Quality management system module D, Cert. No. EDS 0002011/01
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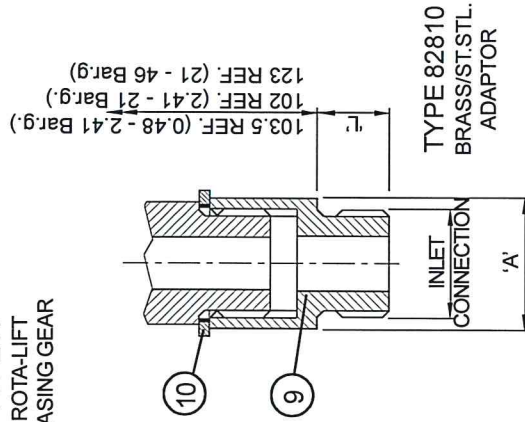
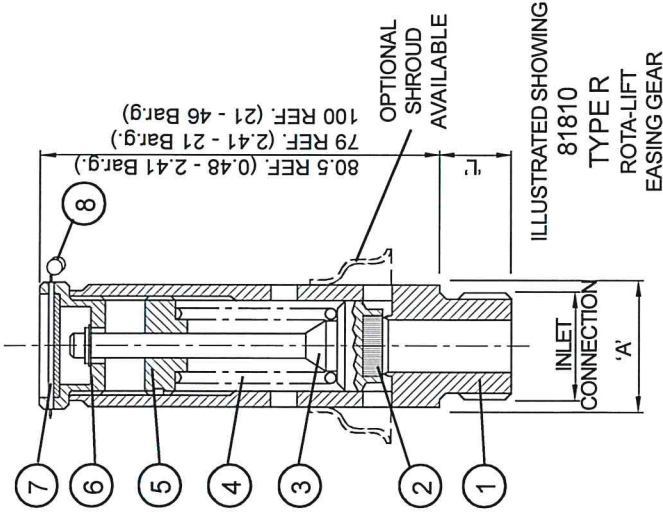
TECHNICAL DATA

Relieving pressure = Set pressure +10% (0.1 Bar.g below 1.0 Bar.g.)
 Reseating pressure = Set pressure -10% (0.3 Bar.g below 3.0 Bar.g.)
 Maximum Set pressure = 46.0 Bar.g
 Minimum Set pressure = 0.48 Bar.g (A.S.M.E. 2.4 Bar.g.)
 Flow area = 78.54 mm²
 Inlet bore diameter = 10 mm
 Temperature range = -15°C to 200°C
 Derated coefficient of discharge α_w = 0.67 From 2.4 Bar.g. Below 2.4 Bar.g see graph.
 NB Certified rated slope = 1.66 scfm/psia
 Minimum lift at 10% over pressure = 2.1mm
 FOR FURTHER TECHNICAL INFORMATION, CONVERSION FACTORS, INSTALLATION AND OPERATING INSTRUCTIONS ETC. SEE TECHNICAL INFORMATION SECTION.

SHEET 1 OF 3 SHEETS

10mm Nom. Bore BRASS CONSTRUCTION
 DIRECT SPRING LOADED ATMOSPHERIC
 DISCHARGE SAFETY VALVE FOR
 COMPRESSED AIR OR GASES

SERIES E VALVE
 TYPE 81810, 81710, 81110
 BRASS
 TYPE 82810, 82710, 82110
 BRASS/STL ADAPTOR



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FLOWCHART (P.E.D.)

- TO CALCULATE INTERMEDIATE FLOWS SEE TECHNICAL INFORMATION SECTION

- FOR GREATER FLOWS REFER TO 13mm BORE TYPE 81813 DATA SHEET, FOR LOWER FLOWS REFER TO 8mm BORE TYPE 81808 DATA SHEET

SET PRESSURE (Bar.g)	PRESSURE RANGE																						
	BELOW 2.4 BAR.G									ABOVE 2.4 BAR.G													
	0.48	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	25	30	35	40	45	46
RATED DISCHARGE CAPACITY IN ACCORDANCE WITH BS EN 4126, AIR AT 15°C AND 1013 mbar Std.Litres/s	18	23	33	43	54	65	77	88	100	111	122	133	144	155	167	178	232	288	344	400	455	511	522
RATED DISCHARGE CAPACITY IN ACCORDANCE WITH TUV, AIR AT 0°C AND 1013mbar Normal m³/h	28.5	66.7	108	154.6	194.0	233.5	272.8	312.3	351.7	391.2	430.6	470.0	509.4	548.9	588.3	627.7	824.9	1022	1219	1416	1613	1811	1850

FLOWCHART (A.S.M.E.)

SET PRESSURE Psig	35	40	50	60	70	80	90	100	150	200	250	300	350	400	450	500	550	600	650	667
RATED DISCHARGE CAPACITY IN ACCORDANCE WITH A.S.M.E., AIR AT 60°F AND 14.7 psia/scfm	88	97	116	134	152	170	189	207	298	390	481	572	664	755	846	937	1029	1120	1211	1242

VALVE TYPE OPTIONS:

- 81810, 82810 = TUV, B.S. (P.E.D.)
- 81710, 82710 = A.S.M.E. & N.B.
- 81110, 82110 = A.S.M.E. & N.B., TUV, B.S. (P.E.D.)

VALVE SELECTION CHART

INLET CONNECTION	ORDERING CODE	TOP FITTING CODE	81 TYPE		82 TYPE		81 TYPE		82 TYPE		81 TYPE		82 TYPE	
			DIM'N 'A' A/F HEX (mm)	DIM'N 'A' A/F HEX (mm)	HIGH P DIM'N 'A' A/F HEX (mm)	HIGH P DIM'N 'A' A/F HEX (mm)	DIM'N 'A' A/F HEX (mm)	DIM'N 'A' A/F HEX (mm)	DIM'N 'A' A/F HEX (mm)	DIM'N 'A' A/F HEX (mm)	DIM'N 'L' DIM'N 'L'	DIM'N 'L' DIM'N 'L'		
G 1/2 (1/2" BSP PARALLEL)	81810	0873												14
R 1/2 (1/2" BSP TAPER)	81710	0883		24		27.9		25.6		27.9				15
1/2" NPT	81110	0893												
G 3/4 (3/4" BSP PARALLEL)	82810	0903												14
R 3/4 (3/4" BSP TAPER)	82710	0913		30		30		30		30				19
3/4" NPT	82110	0923												



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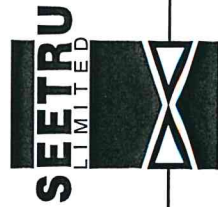
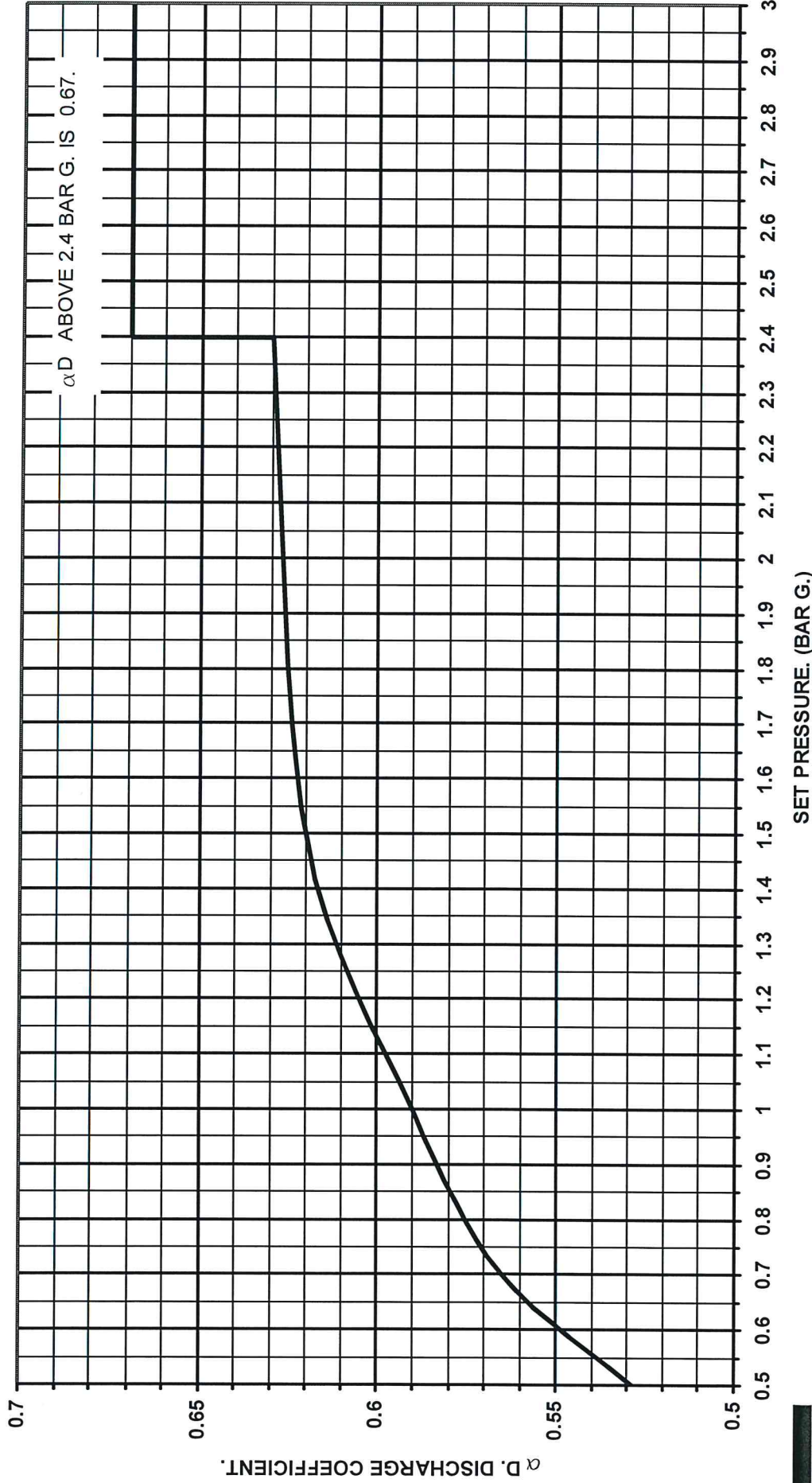
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 TYPE 81810, 81710, 81110
 BRASS
 TYPE 82810, 82710, 82110
 BRASS/ST.STL. ADAPTOR

SHEET 2 OF 3 SHEETS

Example: Ordering code 81810 0913 is:- Wirelocked Rota-Lift type construction, with 10mm bore, 3/4" BSP Taper inlet connection and Viton® seals.
 Note: This range of products are available with Viton® seals only.

DISCHARGE COEFFICIENT FOR VALVE 81810 BELOW 2.4 BAR G. SET PRESSURE.



SHEET 3 OF 3 SHEETS

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P	Pressure (bar a.)	5.19 (3.8 x 1.1 + 1.013)
Pb	Back Pressure (bar a.)	1.013
Kb	Critical Flow	1
T	Temperature (°K)	288.15 (15°C + 273.15)
A	Flow Area (mm²)	78.54 (10mm Bore)
M	Molecular Mass	28.97
k	Isentropic Exponent	1.4
C	Dimensionless Factor	2.7 Function of the Isentropic Exponent, k
Z	Compressibility Factor	1
Kdr	Coefficient of Discharge	0.67

Gas Calculations (Mass)

$$Qm = P.C.A.Kdr.Kb.\sqrt{\frac{M}{Z.T}}$$

$$\therefore Qm = 234.24 \text{ kg/hour}$$

$$Qm \times 2.2046 = 516.41 \text{ lb/hour}$$

Conversions to Volumetric flows

$$Qv = 6.568 \times \frac{Qm}{M} = 53.11 \text{ litres/sec. at 1.013 bar a. and 15°C}$$

$$Qv = 13.936 \times \frac{Qm}{M} = 112.68 \text{ SCFM at 14.7 psi a. and 60°F}$$

$$Qv = 22.414 \times \frac{Qm}{M} = 181.23 \text{ Nm³/hour at 1.013 bar a. and 0°C}$$

These flows are calculated to the applicable standard stated in the appropriate valve data sheet. For display purposes values are shown to 2 decimal places.