

# High Pressure Centrifugal In-line Fans (BS)

## Features and Benefits

- Performance range up to 9m<sup>3</sup>/s
- Static pressure development up to 1,400Pa
- Suitable for either internal or external mounting
- Optional IP65 service isolator
- Operating Temperatures up to +55°C
- Rigid anodised aluminium extruded frame casing
- Motors suitable for Inverter Speed Control where permissible
- Quality Assurance to BS EN ISO 9001
- Performance tested to BS 848 Part 1

BS units are constructed to the highest manufacturing standards and developed around a rigid anodised aluminium extruded frame. Panels are manufactured from prime quality galvanised or plastisol sheet steel, fixed to the frame, ensuring a robust casing, for those tough site conditions.

## Motor Sizes:

0.55 kW = D	4.00 kW = K
0.75 kW = E	5.50 kW = L
1.10 kW = F	7.50 kW = M
1.50 kW = G	11.0 kW = N
2.20 kW = H	15.0 kW = P
3.00 kW = J	

Note:

220-240V/1ph/50Hz units are only available up to 1.5kW.

## Fan & Motor Assembly

Units are forward curved, double inlet double width centrifugal impellers, belt driven by totally enclosed fan ventilated motors, wound

to suit 220-240V/1/50Hz or 380-415V/3/50Hz electrical supply, with special voltage motors available on request. The fan and motors are assembled on a rigid angle iron framework, fitted with anti-vibration mounts and a flexible connection between the unit casing and frame to ensure vibration free operation.

The motors are protected to IP55, against dust and water jets complying with BS EN 60529. With motor insulation Class F as a minimum, suitable for operating temperatures up to +55°C. All belt driven fans have metric pulleys to ISO 4183 and wedge belts to ISO 4184 and DIN 7753. Protection of the motor is provided by a current overload protection switch such as a D.O.L. starter or equivalent which is required on all installations or the product guarantee will be invalidated.

## Performance

The fan performance, shall be tested in accordance with BS 848 Part 1.

## Sound Levels

Fan sound levels are measured in a reverberant chamber in accordance with BS 848 Part 2. Published dB(A) figures are free field sound pressure levels at 3m with spherical propagation at a reference level of  $2 \times 10^{-5}$ Pa (20 micro-Pascal). The inlet and outlet sound power level spectra figures are dB with a reference of  $10^{-12}$  Watts (1 pico-watt).

## Quality Assurance

Design and manufacture shall be in accordance with the standard for quality management systems BS EN ISO 9001.

## Accessories

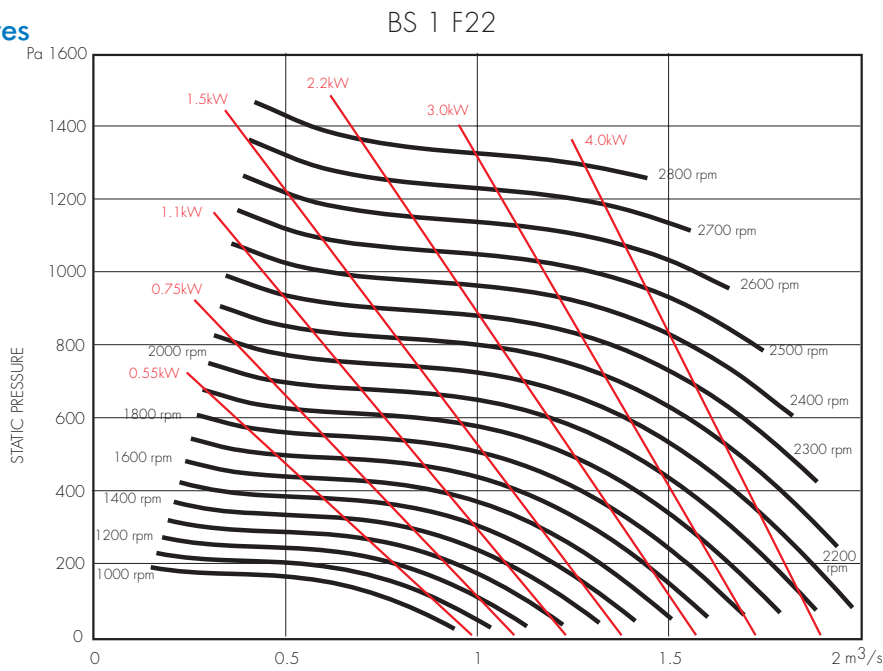
Full ranges of optional accessories are available, such as:

- Inverter Speed Controllers where permissible.
- Motor Isolators.
- D.O.L. Starters.
- Inlet Dampers.
- Flexible Connections.
- Attenuators



# High Pressure Centrifugal In-Line Fans (BS)

## Performance Curves



## Sound Power Level Spectra dB (ref 10<sup>-12</sup> Watts)

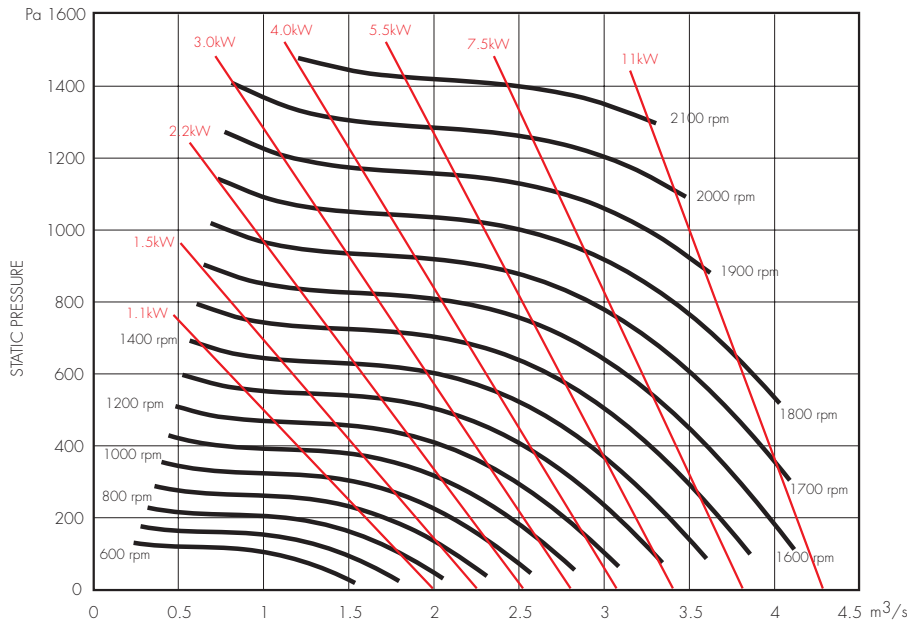
AIR VOLUME

r.p.m		dBA								
		63	125	250	500	1k	2k	4k	8k @ 3m	
1000	Inlet	70	71	72	72	71	67	65	58	55
1000	Outlet	76	70	70	69	68	66	63	58	53
1000	Breakout	62	63	56	42	41	34	32	25	31
1100	Inlet	72	73	74	74	73	69	67	60	57
1100	Outlet	78	72	72	71	70	68	65	60	55
1100	Breakout	64	65	58	44	43	36	34	27	33
1200	Inlet	75	76	77	77	76	72	70	63	60
1200	Outlet	81	75	75	74	73	71	68	63	58
1200	Breakout	67	68	61	47	46	39	37	30	36
1300	Inlet	76	77	78	78	77	73	71	64	61
1300	Outlet	82	76	76	75	74	72	69	64	59
1300	Breakout	68	69	62	48	47	40	38	31	37
1400	Inlet	78	79	80	80	79	75	73	66	63
1400	Outlet	84	78	78	77	76	74	71	66	61
1400	Breakout	70	71	64	50	49	42	40	33	39
1500	Inlet	79	80	81	81	80	76	74	67	64
1500	Outlet	85	79	79	78	77	75	72	67	62
1500	Breakout	71	72	65	51	50	43	41	34	40
1600	Inlet	81	82	83	83	82	78	76	69	66
1600	Outlet	87	81	81	80	79	77	74	69	64
1600	Breakout	73	74	67	53	52	45	43	36	42
1700	Inlet	82	83	84	84	83	79	77	70	67
1700	Outlet	88	82	82	81	80	78	75	70	65
1700	Breakout	74	75	68	54	53	46	44	37	43
1800	Inlet	83	84	85	85	84	80	78	71	68
1800	Outlet	89	83	83	82	81	79	76	71	66
1800	Breakout	75	76	69	55	54	47	45	38	44
1900	Inlet	82	84	85	84	85	83	79	75	69
1900	Outlet	89	84	83	82	81	81	78	73	67
1900	Breakout	74	76	69	54	55	50	46	42	44

r.p.m		dBA								
		63	125	250	500	1k	2k	4k	8k @ 3m	
2000	Inlet	83	85	86	85	86	84	80	76	70
2000	Outlet	90	85	84	83	82	82	79	74	68
2000	Breakout	75	77	70	55	56	51	47	43	45
2100	Inlet	84	86	87	86	87	85	81	77	71
2100	Outlet	91	86	85	84	83	83	80	75	69
2100	Breakout	76	78	71	56	57	52	48	44	46
2200	Inlet	85	87	88	87	88	86	82	78	72
2200	Outlet	92	87	86	85	84	84	81	76	70
2200	Breakout	77	79	72	57	58	53	49	45	47
2300	Inlet	85	87	88	87	88	86	82	78	72
2300	Outlet	92	87	86	85	84	84	81	76	70
2300	Breakout	77	79	72	57	58	53	49	45	47
2400	Inlet	86	88	89	88	89	87	83	79	73
2400	Outlet	93	88	87	86	85	85	82	77	71
2400	Breakout	78	80	73	58	59	54	50	46	48
2500	Inlet	86	88	89	88	89	87	83	79	73
2500	Outlet	93	88	87	86	85	85	82	77	71
2500	Breakout	78	80	73	58	59	54	50	46	48
2600	Inlet	87	89	90	89	90	88	84	80	74
2600	Outlet	94	89	88	87	86	86	83	78	72
2600	Breakout	79	81	74	59	60	55	51	47	49
2700	Inlet	87	89	90	89	90	88	84	80	74
2700	Outlet	94	89	88	87	86	86	83	78	72
2700	Breakout	79	81	74	59	60	55	51	47	49
2800	Inlet	87	89	90	89	90	88	84	80	74
2800	Outlet	94	89	88	87	86	86	83	78	72
2800	Breakout	79	81	74	59	60	55	51	47	49

## Performance Curves

BS 2 F31



## Sound Power Level Spectra dB (ref 10<sup>-12</sup> Watts) AIR VOLUME

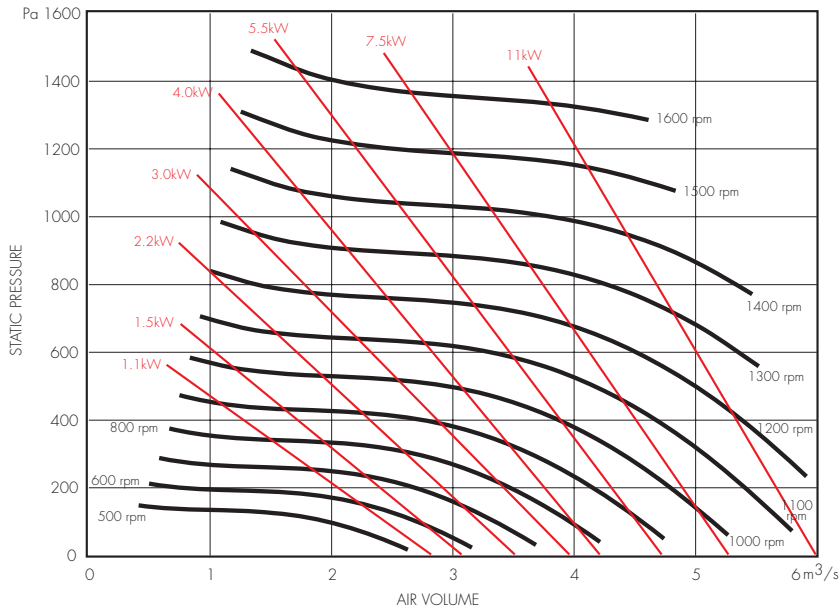
r.p.m		dBA								
		63	125	250	500	1k	2k	4k	8k	@ 3m
600	Inlet	70	71	70	69	69	65	62	56	53
600	Outlet	75	69	68	66	67	63	61	56	51
600	Breakout	62	63	54	39	39	32	29	23	30
700	Inlet	73	74	73	72	72	68	65	59	56
700	Outlet	78	72	71	69	70	66	64	59	54
700	Breakout	65	66	57	42	42	35	32	26	33
800	Inlet	76	77	76	75	75	71	68	62	59
800	Outlet	81	75	74	72	73	69	67	62	57
800	Breakout	68	69	60	45	45	38	35	29	36
900	Inlet	77	78	79	79	78	74	72	65	62
900	Outlet	83	77	77	76	75	73	70	65	60
900	Breakout	69	70	63	49	48	41	39	32	38
1000	Inlet	79	80	81	81	80	76	74	67	64
1000	Outlet	85	79	79	78	77	75	72	67	62
1000	Breakout	71	72	65	51	50	43	41	34	40
1100	Inlet	81	82	83	83	82	78	76	69	66
1100	Outlet	87	81	81	80	79	77	74	69	64
1100	Breakout	73	74	67	53	52	45	43	36	42
1200	Inlet	83	84	85	85	84	80	78	71	68
1200	Outlet	89	83	83	82	81	79	76	71	66
1200	Breakout	75	76	69	55	54	47	45	38	44
1300	Inlet	85	86	87	87	86	82	80	73	70
1300	Outlet	91	85	85	84	83	81	78	73	68
1300	Breakout	77	78	71	57	56	49	47	40	46

r.p.m		dBA								
		63	125	250	500	1k	2k	4k	8k	@ 3m
1400	Inlet	87	88	89	89	88	84	82	75	72
1400	Outlet	93	87	87	86	85	83	80	75	70
1400	Breakout	79	80	73	59	58	51	49	42	48
1500	Inlet	88	89	90	90	89	85	83	76	73
1500	Outlet	94	88	88	87	86	84	81	76	71
1500	Breakout	80	81	74	60	59	52	50	43	49
1600	Inlet	89	90	91	91	90	86	84	77	74
1600	Outlet	95	89	89	88	87	85	82	77	72
1600	Breakout	81	82	75	61	60	53	51	44	50
1700	Inlet	89	90	91	91	90	86	84	77	74
1700	Outlet	95	89	89	88	87	85	82	77	72
1700	Breakout	81	82	75	61	60	53	51	44	50
1800	Inlet	90	91	92	92	91	87	85	78	75
1800	Outlet	96	90	90	89	88	86	83	78	73
1800	Breakout	82	83	76	62	61	54	52	45	51
1900	Inlet	88	90	91	90	91	89	85	81	75
1900	Outlet	95	90	89	88	87	87	84	79	73
1900	Breakout	80	82	75	60	61	56	52	48	50
2000	Inlet	89	91	92	91	92	90	86	82	76
2000	Outlet	96	91	90	89	88	88	85	80	74
2000	Breakout	81	83	76	61	62	57	53	49	51
2100	Inlet	89	91	92	91	92	90	86	82	76
2100	Outlet	96	91	90	89	88	88	85	80	74
2100	Breakout	81	83	76	61	62	57	53	49	51

# High Pressure Centrifugal In-Line Fans (BS)

## Performance Curves

BS 3 F40



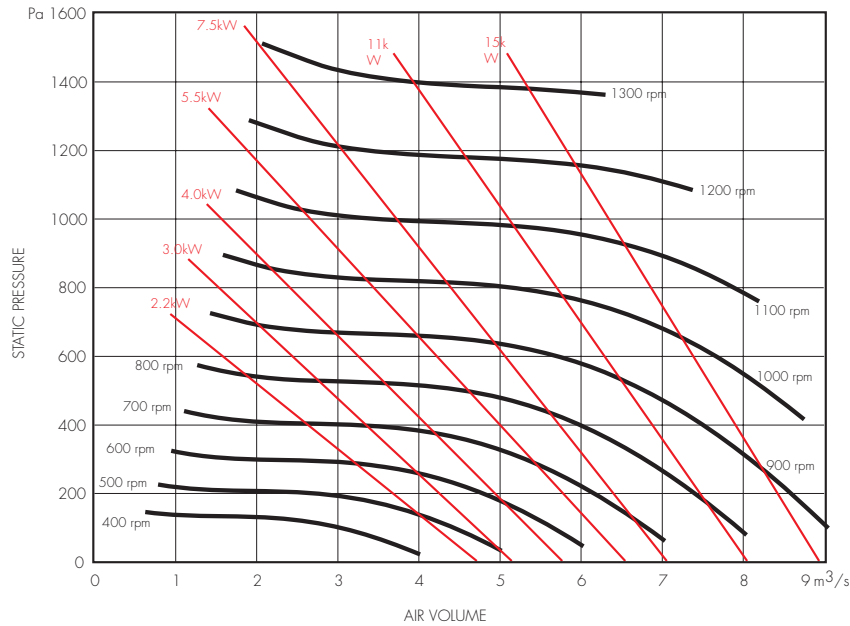
## Sound Power Level Spectra dB (ref 10<sup>-12</sup> Watts)

r.p.m		63	125	250	500	1k	2k	4k	8k	dBA @ 3m
500	Inlet	73	74	73	72	72	68	65	59	56
500	Outlet	78	72	71	69	70	66	64	59	54
500	Breakout	65	66	57	42	42	35	32	26	33
600	Inlet	77	78	77	76	76	72	69	63	60
600	Outlet	82	76	75	73	74	70	68	63	58
600	Breakout	69	70	61	46	46	39	36	30	37
700	Inlet	80	81	80	79	79	75	72	66	63
700	Outlet	85	79	78	76	77	73	71	66	61
700	Breakout	72	73	64	49	49	42	39	33	40
800	Inlet	83	84	83	82	82	78	75	69	66
800	Outlet	88	82	81	79	80	76	74	69	64
800	Breakout	75	76	67	52	52	45	42	36	43
900	Inlet	84	85	86	86	85	81	79	72	69
900	Outlet	90	84	84	83	82	80	77	72	67
900	Breakout	76	77	70	56	55	48	46	39	45
1000	Inlet	86	87	88	88	87	83	81	74	71
1000	Outlet	92	86	86	85	84	82	79	74	69
1000	Breakout	78	79	72	58	57	50	48	41	47

r.p.m		63	125	250	500	1k	2k	4k	8k	dBA @ 3m
1100	Inlet	88	89	90	90	89	85	83	76	73
1100	Outlet	94	88	88	87	86	84	81	76	71
1100	Breakout	80	81	74	60	59	52	50	43	49
1200	Inlet	89	90	91	91	90	86	84	77	74
1200	Outlet	95	89	89	88	87	85	82	77	72
1200	Breakout	81	82	75	61	60	53	51	44	50
1300	Inlet	89	90	91	91	90	86	84	77	74
1300	Outlet	95	89	89	88	87	85	82	77	72
1300	Breakout	81	82	75	61	60	53	51	44	50
1400	Inlet	90	91	92	92	91	87	85	78	75
1400	Outlet	96	90	90	89	88	86	83	78	73
1400	Breakout	82	83	76	62	61	54	52	45	51
1500	Inlet	90	91	92	92	91	87	85	78	75
1500	Outlet	96	90	90	89	88	86	83	78	73
1500	Breakout	82	83	76	62	61	54	52	45	51
1600	Inlet	91	92	93	93	92	88	86	79	76
1600	Outlet	97	91	91	90	89	87	84	79	74
1600	Breakout	83	84	77	63	62	55	53	46	52

## Performance Curves

BS 4 F50



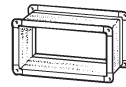
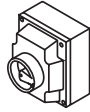
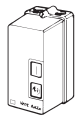
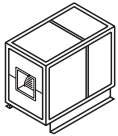
## Sound Power Level Spectra dB (ref 10<sup>-12</sup> Watts)

r.p.m		63	125	250	500	1k	2k	4k	8k	dBA @ 3m
400	Inlet	74	75	74	73	73	69	66	60	57
400	Outlet	79	73	72	70	71	67	65	60	55
400	Breakout	66	67	58	43	43	36	33	27	34
500	Inlet	79	80	79	78	78	74	71	65	62
500	Outlet	84	78	77	75	76	72	70	65	60
500	Breakout	71	72	63	48	48	41	38	32	39
600	Inlet	83	84	83	82	82	78	75	69	66
600	Outlet	88	82	81	79	80	76	74	69	64
600	Breakout	75	76	67	52	52	45	42	36	43
700	Inlet	86	87	86	85	85	81	78	72	69
700	Outlet	91	85	84	82	83	79	77	72	67
700	Breakout	78	79	70	55	55	48	45	39	46
800	Inlet	89	90	89	88	88	84	81	75	72
800	Outlet	94	88	87	85	86	82	80	75	70
800	Breakout	81	82	73	58	58	51	48	42	49

r.p.m		63	125	250	500	1k	2k	4k	8k	dBA @ 3m
900	Inlet	88	89	90	90	89	85	83	76	73
900	Outlet	94	88	88	87	86	84	81	76	71
900	Breakout	80	81	74	60	59	52	50	43	49
1000	Inlet	89	90	91	91	90	86	84	77	74
1000	Outlet	95	89	89	88	87	85	82	77	72
1000	Breakout	81	82	75	61	60	53	51	44	50
1100	Inlet	90	91	92	92	91	87	85	78	75
1100	Outlet	96	90	90	89	88	86	83	78	73
1100	Breakout	82	83	76	62	61	54	52	45	51
1200	Inlet	90	91	92	92	91	87	85	78	75
1200	Outlet	96	90	90	89	88	86	83	78	73
1200	Breakout	82	83	76	62	61	54	52	45	51
1300	Inlet	91	92	93	93	92	88	86	79	76
1300	Outlet	97	91	91	90	89	87	84	79	74
1300	Breakout	83	84	77	63	62	55	53	46	52

# High Pressure Centrifugal In-Line Fans (BS)

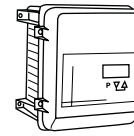
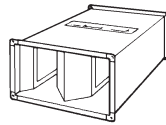
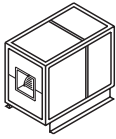
## Accessories



Motor Size	Motor Phase	Motor kW	DOL Starter & Overload Stock Ref	Isolator (Factory Fitted) Stock Ref	Flexible Connection Stock Ref	Inlet Damper Stock Ref	Discharge Spigot Including Diffuser Stock Ref
<b>BS1F22</b>							
D	1	0.55	444744 + 444703	71ISOL4	FCBS1	CDBS1	BCBS1
D	3	0.55	444747 + 444701	71ISOL4	FCBS1	CDBS1	BCBS1
E	1	0.75	444744 + 444704	71ISOL4	FCBS1	CDBS1	BCBS1
E	3	0.75	444747 + 444701	71ISOL4	FCBS1	CDBS1	BCBS1
F	1	1.1	444744 + 444705	71ISOL4	FCBS1	CDBS1	BCBS1
F	3	1.1	444747 + 444702	71ISOL4	FCBS1	CDBS1	BCBS1
G	1	1.5	444744 + 444706	71ISOL4	FCBS1	CDBS1	BCBS1
G	3	1.5	444747 + 444702	71ISOL4	FCBS1	CDBS1	BCBS1
H	3	2.2	444747 + 444703	71ISOL4	FCBS1	CDBS1	BCBS1
J	3	3	444747 + 444704	71ISOL4	FCBS1	CDBS1	BCBS1
K	3	4	444747 + 444705	71ISOL4	FCBS1	CDBS1	BCBS1
<b>BS2F31</b>							
F	1	1.1	444744 + 444705	71ISOL4	FCBS2	CDBS2	BCBS2
F	3	1.1	444747 + 444702	71ISOL4	FCBS2	CDBS2	BCBS2
G	1	1.5	444744 + 444706	71ISOL4	FCBS2	CDBS2	BCBS2
G	3	1.5	444747 + 444702	71ISOL4	FCBS2	CDBS2	BCBS2
H	3	2.2	444747 + 444703	71ISOL4	FCBS2	CDBS2	BCBS2
J	3	3	444747 + 444704	71ISOL4	FCBS2	CDBS2	BCBS2
K	3	4	444747 + 444705	71ISOL4	FCBS2	CDBS2	BCBS2
L	3 *	5.5	444748 + 444706	71ISOL6	FCBS2	CDBS2	BCBS2
M	3 *	7.5	444748 + 444707	71ISOL6	FCBS2	CDBS2	BCBS2
N	3 *	11	444749 + 444708	71ISOL6	FCBS2	CDBS2	BCBS2
<b>BS3F40</b>							
F	1	1.1	444744 + 444705	71ISOL4	FCBS3	CDBS3	BCBS3
F	3	1.1	444747 + 444702	71ISOL4	FCBS3	CDBS3	BCBS3
G	1	1.5	444744 + 444706	71ISOL4	FCBS3	CDBS3	BCBS3
G	3	1.5	444747 + 444702	71ISOL4	FCBS3	CDBS3	BCBS3
H	3	2.2	444747 + 444703	71ISOL4	FCBS3	CDBS3	BCBS3
J	3	3	444747 + 444704	71ISOL4	FCBS3	CDBS3	BCBS3
K	3	4	444747 + 444705	71ISOL4	FCBS3	CDBS3	BCBS3
L	3 *	5.5	444748 + 444706	71ISOL6	FCBS3	CDBS3	BCBS3
M	3 *	7.5	444748 + 444707	71ISOL6	FCBS3	CDBS3	BCBS3
N	3 *	11	444749 + 444708	71ISOL6	FCBS3	CDBS3	BCBS3
<b>BS3F40</b>							
H	3	2.2	444747 + 444703	71ISOL4	FCBS4	CDBS4	BCBS4
J	3	3	444747 + 444704	71ISOL4	FCBS4	CDBS4	BCBS4
K	3	4	444747 + 444705	71ISOL4	FCBS4	CDBS4	BCBS4
L	3 *	5.5	444748 + 444706	71ISOL6	FCBS4	CDBS4	BCBS4
M	3 *	7.5	444748 + 444707	71ISOL6	FCBS4	CDBS4	BCBS4
N	3 *	11	444749 + 444708	71ISOL6	FCBS4	CDBS4	BCBS4
P	3 *	15	444750 + 444709	71ISOL6	FCBS4	CDBS4	BCBS4

\* Overloads sized to suit a Star/Delta Starter

### Accessories



Motor Size	Motor Phase	Motor kW	Matching Attenuator				**eDemand Controller		
			900mm Stock Ref	1200mm Stock Ref	1500mm Stock Ref	1800mm Stock Ref	Voltage Control Stock Ref.	1/3 Phase Inverter Stock Ref.	3 Phase Inverter Stock Ref.
<b>BS1F22</b>									
D	1	0.55	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	-	-	-
D	3	0.55	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	444166	444177	444172
E	1	0.75	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	-	-	-
E	3	0.75	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	444166	444177	444172
F	1	1.1	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	-	-	-
F	3	1.1	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	444166	444177	444173
G	1	1.5	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	-	-	-
G	3	1.5	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	444166	444177	444173
H	3	2.2	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	444167	-	444174
J	3	3	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	444167	-	444174
K	3	4	BSBS1-900	BSBS1-1200	BSBS1-1500	BSBS1-1800	444167	-	444175
<b>BS2F31</b>									
F	1	1.1	BSBS2-900	BSBS2-1200	BSBS2-1500	BSBS2-1800	-	-	-
F	3	1.1	BSBS2-900	BSBS2-1200	BSBS2-1500	BSBS2-1800	444166	444177	444173
G	1	1.5	BSBS2-900	BSBS2-1200	BSBS2-1500	BSBS2-1800	-	-	-
G	3	1.5	BSBS2-900	BSBS2-1200	BSBS2-1500	BSBS2-1800	444166	444177	444173
H	3	2.2	BSBS2-900	BSBS2-1200	BSBS2-1500	BSBS2-1800	444167	-	444174
J	3	3	BSBS2-900	BSBS2-1200	BSBS2-1500	BSBS2-1800	444167	-	444174
K	3	4	BSBS2-900	BSBS2-1200	BSBS2-1500	BSBS2-1800	444167	-	444175
L	3 *	5.5	BSBS2-900	BSBS2-1200	BSBS2-1500	BSBS2-1800	444168	-	444175
M	3 *	7.5	BSBS2-900	BSBS2-1200	BSBS2-1500	BSBS2-1800	-	-	444176
N	3 *	11	BSBS2-900	BSBS2-1200	BSBS2-1500	BSBS2-1800	-	-	-
<b>BS3F40</b>									
F	1	1.1	BSBS3-900	BSBS3-1200	BSBS3-1500	BSBS3-1800	-	-	-
F	3	1.1	BSBS3-900	BSBS3-1200	BSBS3-1500	BSBS3-1800	444166	444177	444173
G	1	1.5	BSBS3-900	BSBS3-1200	BSBS3-1500	BSBS3-1800	-	-	-
G	3	1.5	BSBS3-900	BSBS3-1200	BSBS3-1500	BSBS3-1800	444166	444177	444173
H	3	2.2	BSBS3-900	BSBS3-1200	BSBS3-1500	BSBS3-1800	444167	-	444174
J	3	3	BSBS3-900	BSBS3-1200	BSBS3-1500	BSBS3-1800	444167	-	444174
K	3	4	BSBS3-900	BSBS3-1200	BSBS3-1500	BSBS3-1800	444167	-	444175
L	3 *	5.5	BSBS3-900	BSBS3-1200	BSBS3-1500	BSBS3-1800	444168	-	444175
M	3 *	7.5	BSBS3-900	BSBS3-1200	BSBS3-1500	BSBS3-1800	-	-	444176
N	3 *	11	BSBS3-900	BSBS3-1200	BSBS3-1500	BSBS3-1800	-	-	-
<b>BS3F40</b>									
H	3	2.2	BSBS4-900	BSBS4-1200	BSBS4-1500	BSBS4-1800	444167	-	444174
J	3	3	BSBS4-900	BSBS4-1200	BSBS4-1500	BSBS4-1800	444167	-	444174
K	3	4	BSBS4-900	BSBS4-1200	BSBS4-1500	BSBS4-1800	444167	-	444175
L	3 *	5.5	BSBS4-900	BSBS4-1200	BSBS4-1500	BSBS4-1800	444168	-	444175
M	3 *	7.5	BSBS4-900	BSBS4-1200	BSBS4-1500	BSBS4-1800	-	-	444176
N	3 *	11	BSBS4-900	BSBS4-1200	BSBS4-1500	BSBS4-1800	-	-	-
P	3 *	15	BSBS4-900	BSBS4-1200	BSBS4-1500	BSBS4-1800	-	-	-

\* Overloads sized to suit a Star/Delta Starter

\*\* For full range of speed controller options, see Accessories & Controllers Section