FOR INFORMATION

Rev	Description	Date	Prepd	Chkd	Apprd	Author
C	For Information	16-03-2016	DHOL	RPEE		
B	For Information	26-02-2016	DHOL	RPEE		
A	For Information	26-11-2015	AROI	RPEE		

Owner:

ام الحـــول للطـــاقـــة
UMM AL HOUL POWER

Owner's Engineer:

Mott MacDonald

Project Title:

UMM AL HOUL POWER IWPP

Consortium Member:

SAMSUNG
SAMSUNG C&T
Engineering & Construction Group

Hitz
Hitachi Zosen

Subcontractor:

NEM
OUR ENERGY, YOUR POWER
NEM Power-Systems

Drawing/Document Title

Technical Data Sheet

Drawing/Document No.

UHP-NPS-M13-MBR-K-0051

Reference No.

11948-00-1401

List of Contents

1 General Data Sheet

Technical Data Sheet

GENERAL DATA SHEET

					Rev.
1	General	Number of Bypass systems	[PCS]	6	
2		Manufacturer / Country of Manufacturing		NEM Power-Systems / Qatar&UAE	
3		Codes and Regulations		ASME, AWS, DIN, ASCE 7-10	
4		Design Code for Pressure Parts		Not applicable	
5		Design Code for Steel Structure		ASCE 7-10	
6		Environment		See UHP-SCT-M00-HNE-I-0003	
7		Coating		See UHP-NPS-M13-MBR-H-8026	b
8		Aircraft Warning Lights		See UHP-NPS-E13-MBR-K-0065	b
9	Design	Medium		Flue Gas	
10		Corrosion allowance (carbon steel/alloy)	[mm]	1,6 / 0	
11		Operating temperature	[°C]	617	
12		Operating pressure	[mbar]	35	
13		Design temperature (mechanical)	[°C]	650	
14		Design pressure (mechanical)	[mbar]	- 20 / + 54	
15		Operating flow	[kg/s]	652	
16		Design flow	[m³/s]; [kg/s]	1670; 715	
17		Seismic Zone	UBC	1	
18	Utilities	Electrical (Continuous)	[kW]	See electric load list UHP-NPS-E10-MBR-E-2002	b
19		Electrical (maximum intermittent)	[kW]	See electric load list UHP-NPS-E10-MBR-E-2002	b
20		Compressed air	[Nm³/h]	Not applicable	
21	Dimensions	Main dimension with platforms (LxWxH)	[m x m x m]	See UHP-NPS-G10-MBR-D-0001	
22		Main dimension of largest module	[m x m x m]	See UHP-NPS-G10-MBR-D-0002 and UHP-NPS-M13-MBR-D-0011	
23		Total weight of Bypass stack + Aux.	[kg]	Approx. 330.000	
24		Shipping Volume largest item	[m³]	See UHP-NPS-G10-MBR-D-0002 and UHP-NPS-M13-MBR-D-0011	
25		Weight of largest item to be shipped	[t]	See packing lists	
26		Weight largest item dismantled during maintenance	[t]	See packing lists	
27	Performance	Pressure loss between diverter inlet flange to outlet of stack for guarantee	[mbar]	<10	
28					
29					
30					
31					
32	Remarks				
33					
34					
35					
36					

2 Diverter Damper

OUR ENERGY, YOUR POWER

Technical Data Sheet

DIVERTER DAMPER

				Rev.
1	General	Tag Number	13MBR10AA001	
			14MBR10AA001	
			15MBR10AA001	
			23MBR10AA001	
			24MBR10AA001	
			25MBR10AA001	
2		General Arrangement (GA) Drawing	UHP-NPS-G10-MBR-D-0002	
3		Unit /Quantity per unit	6 / 1	
4		Manufacturer	NEM Power-Systems	
5		Type	Diverter	
6		By Model	UP-L- LL 6.500 x 6.500	
7		Gas path dimension (L x W x H) [m x m x m]	8.908 x 6.500 x 6.500	
8		Casing thickness [mm]	8	
9		Weight per damper [kg]	approx. 105.500	
10		Drive type	Hydraulic driven by four hydraulic cylinders	
11		Number of blades / shafts [pcs]	1 / 1	
12		Design data	See Technical Data Sheet - General Data Sheet	
13	Construction	Material: - Frame	A36 and S275JR	
14		- Cladding plates	1.4512 (AISI 409)	
15		- Shaft and toggle arms	1.4878 (AISI 321H) shaft / AISI 347H (trunnions)	
16		- Blade	1.4541 (AISI 321)	
17		- Sealing Lamellas	Inconel 625	
18		Insul. thickness casing / cladding thickness [mm]	200 / 3	
19		Insul. thickness Blade / cladding thickness [mm]	2 x 75 / 2 (backside) and 3 (frontside)	
20		Type of insulation	Insulfrax S-blanket, 128kg/m³, thickness: 38 mm and 50 mm	
21		Holding elements	Insulation pins with cladding, washers and nuts	
22	Sealing	Sealing system	Pressurized air	
23		Seal type	double lamella	
24		Seal air fans	See seal air fan data sheet	
25		Air sealing butterfly valve	yes, 1 for HRSG close, 1 for bypass close	
26		Actuator butterfly valve	Auma (for more information see UHP-NPS-E13-MBR-K-2022)	
27		Ducting	H.D.G. 2 mm circular piping	
28		Pressure transmitter / Manometer	Yes / Yes	
29		Sealing efficiency with sealing air %	100	b
30		Sealing efficiency without sealing air %	99,975	b
31	Actuation	Type of drive	Hydraulic driven by four hydraulic cylinders	
32		Function	Open / Close diverter and intermediate positions	
33		Manufacturer of hydraulic power unit	Pleiger	
34		Model	HYK3363	
35		Swing angle [°]	130	
36		Damper normal operating time (closing/opening) [s]	60	
37		Damper emergency operating time [s]	20	
38		Manual operation diverter blade	handpump	
39	Instrumentation	Quantity of limit switches - damper (closed/open)	3 / 3	
40		Manufacturer of limit switches	Siemens	
41		Number of position transmitter	1 (4 - 20mA)	
42				
43				
44				
45				
46	Remarks			
47				
48				
49				

3 Blanking Plate

Technical Data Sheet

BLANKING PLATE

				Rev.
1	General	Tag Number	13MBR10AA002	
			14MBR10AA002	
			15MBR10AA002	
			23MBR10AA002	
			24MBR10AA002	
			25MBR10AA002	
2		General Arrangement (GA) Drawing	UHP-NPS-G10-MBR-D-0002	
3		Unit /Quantity per unit	6 / 1	
4		Manufacturer	NEM Power-Systems	
5		Type	Guillotine, type blanking plate	
6		Damper model	BP-F 6.500 x 6.500	
7		Number of blades / Shafts	1/ NA	
8	Construction	Inner dimension (W x H) [mm]	7.254 x 6.378	
9		Weight casing and blanking plate [kg]	Approx. 25.500	
10		Duct orientation	Horizontal	
11		Type of installation	Horizontal	
12		Seal air damper type	Not applicable	
13		Seal air damper flange	Not applicable	
14		Casing Insul. thickness / Cladding thickness [mm]	200 / 3	
15		Blade Insul. thickness / Cladding thickness [mm]	50 / 1,5	
16		Material: - Frame	A36 or S275 JR	
17		- Cladding plates casing	1.4512 (AISI 409)	
18		- Cladding plates blanking plate	1.4512 (AISI 409)	
19		- Blanking plate cover	Carbon steel S275 JR internal insulated	
20		- Blanking plate	Carbon steel S275 JR	
21		- Sealing Lamellas	Inconel 625	
22		Type of Insulation	Insulfrax S-blanket, 128kg/m³, thickness: 50 mm	
23		Vent Valve	DN250, hand operated	
24	Design	Medium	Seal Air	
25		Corrosion allowance (carbon steel/alloy) [mm]	1,6 / 0	
26		Operating temperature [°C]	60	
27		Operating pressure [mbar]	10	
28		Design temperature (mechanical) [°C]	100	
29		Design pressure (mechanical) [mbar]	10	
30		Operating flow [kg/s]	N/A	
31		Design flow [kg/s]	N/A	
32		Vent Valve	DN250, hand operated	
33	Actuation	Type of drive	Electric Chain Hoist	
34		Quantity of hoists per damper	1	
35		Model	Planeta 111/54	
36		Design Data of electric chain hoist	See Technical Data Sheet - Electric Chain Hoist Data Sheet	
37		Swing angle [°]	Vertical lifting	
38		Quantity of limit switches - duct cover closed	3	
39		Quantity of limit switches - blanking plate open	2	
40				
41	Remarks			
42				
43				
44				

4 Bypass Stack

Technical Data Sheet

BYPASS STACK

					Rev.
1	General	Tag Number		13MBR10BR001	
				14MBR10BR001	
				15MBR10BR001	
				23MBR10BR001	
				24MBR10BR001	
				25MBR10BR001	
2		General Arrangement (GA) Drawing		UHP-NPS-G10-MBR-D-0002	
3		Unit /Quantity per unit		6 / 1	
4		Manufacturer		NEM Power-Systems	
5		Type		Bypass stack	
6		By model		internally insulated, supported by steel structure	
7		Silencer type		baffles	
8	Construction	Inner dimension stack	[mm]	ø 7.143	
9		Inner dimension Silencer housing	[mm]	ø 9.091	
10		Weight	[kg]	Approx. 143.500	
11		Type of installation		Vertical, supported by steel structure	
12		Height of Stack	[m]	45	
13		Height at which CEMS ports are located	[m]	35,8 / 36 / 36,2	
14		CEMS ports (type / number)		8 CEMS (Dust Analyzer Sender/Reciever, Dust Analyzer Reflector, Gas Probe, Temp Element, Pressure Element, Flow Element, O2 Analyzer, Spare Port)	
15		Insul. thickness / Cladding thickness stack	[mm]	150 / 2 Stack pipe	
16		Insul. thickness / Cladding thickness stack	[mm]	200 / 2 Silencer	
17		Material - Shell Stack		A36	
18		- Shell Silencer housing		A36	
19		- Insulation wool		Insulfrax S-blanket, 128kg/m³, thickness: 38 mm und 50 mm	
20		- Cladding plates		1.4512 (AISI 409)	
21	Design	Design data		See Technical Data Sheet - General Data Sheet	
22		Codes and Regulations		See UHP-SCT-M00-HNE-I-0003	
23		Design Code for Steel Structure		See UHP-SCT-M00-HNE-I-0003	
24		Design Wind velocity	[m/s]	See UHP-SCT-M00-HNE-I-0003	
25		Design Seismic Load		See UHP-SCT-M00-HNE-I-0003	
26		Allowance on dimensions			
27		- Height	[mm]	See ASME STS-1-2006 Chapter 8.5	
28		- Out of Roundness Diameter	[mm]	See ASME STS-1-2006 Chapter 8.5	
29		- Out of Plumb	[mm]	dy=L/1000	
30	Remarks				
31					
32					
33					

5 Silencer

OUR ENERGY, YOUR POWER

Technical Data Sheet for

SILENCER

					Rev.
1	General	Tag Number		13MBR10BS001	
				14MBR10BS001	
				15MBR10BS001	
				23MBR10BS001	
				24MBR10BS001	
				25MBR10BS001	
2		Silencer type		absorbtion	
3		Silencer code		L19760	
4		Design data		See Technical Data Sheet - General Data Sheet	
5		Flow direction		bottom to top	
6	Silencer Information	Number of splitters		9	
7		Active length of splitter	[mm]	3.900	
8		Splitter thickness	[mm]	465	
9		Air spacing between splitters	[mm]	545	
10		Splitter frame material		AISI 321H stainless steel	
11		Filling protection material		glass cloth	
12		Perforated sheet material		AISI 321H stainless steel	
13		Filling material		glass wool pillows	
14		Filling material density	[kg/m³]	125	
15		Perforated sheet thickness	[mm]	2	
16		Inlet splitter shape		round	
17		Outlet splitter shape		tapered	
18		Total weight	[kg]	32.000	
19	Remarks	Noise requirement (@ 1 m from stack)	dB (A)	85	
20		Noise requirement (@ plant boundary limit)	dB (A)	75	
21					
22					
23					
24					
25					
26					
27					
28					
29					

Acoustical Design (Sound power level GT outlet)

32	64	125	250	500	1000	2000	4000	8000	f / Hz
142	144	144	145	146	147	152	152	127	Lw / dB

6 Seal Air Fans

Technical Data Sheet for

SEAL AIR FAN

				Rev.
1	General	Driven equipment type	Seal air fans	
2		Tag Number	13MBR20AN001 / 13MBR20AN002	
3			14MBR20AN001 / 14MBR20AN002	
4			15MBR20AN001 / 15MBR20AN002	
5			23MBR20AN001 / 23MBR20AN002	
6			24MBR20AN001 / 24MBR20AN002	
7			25MBR20AN001 / 25MBR20AN002	
8		Unit / Quantity per unit	6 / 2	
9		Manufacturer	Reitz	
10		Type	Radial fans	
11		Fan Data	See attached fan data sheet	
12		Model	MXE100-010030-00	
13		Fan Motor	See UHP-NPS-E13-MBR-K-2022	
14	Construction	Type of Construction	2 fans on common base frame	
15		Accessories	Tubular silencer, suction filter, non-return valves,	
16			anti vibration mounts, drain valves, measuring points	
17		Approx. external dimensions [mm]	3278x2920x1570	
18		Ducting	H.D.G. 2 mm circular piping	
19	Remarks			
20				
21				
22				

FAN DATA

Liste 2012 80Grad

quotation item	05151705-02 - 1.02
designation	seal air fan
date	16.12.2015 / rumwfc

fan type	FK serial no.	comm. no.
MXE100-010030-00		-
your order no.	**type of control**	**codeword**
-	valve	11948 Umm al Houl Power

fan type MXE100-010030-00

		OP 1		units acc. to customer's specification	
type of connection		free inlet			
operating condition		discharge operation			
handled gas		clean air			
designated volume flow		94	m³/min	84,9	Nm³/min
designated total pressure increase		979	daPa	97,9	mbar
humidity		0	g/kg	0	g/kg
gas constant	R	287	J/(kg K)	287	J/(kg K)
coefficient of adiabatic compressibility Kappa	K	1,4	-	1,4	-
inlet temperature	T1	30	°C	30	°C
discharge temperature	t2	41	°C	41	°C
altitude	h	0	m	0	m
abs. atmos. pressure	P0	101,33	kPa	101,33	kPa
athmos. density	ρ0	1,165	kg/m³	1,165	kg/m³
density at inlet	ρ1	1,165	kg/m³	1,165	kg/m³
volume flow	V1	94	m³/min	94,23	m³/min
total pressure increase	Δpt	991	daPa	99,14	mbar
dynamic pressure	pd2	83	daPa	8,34	mbar
dynamic pressure	pd1	0	daPa	0	mbar
static pressure increase	Δpst	908	daPa	90,8	mbar
shaft power	PW	20,9	kW	20,9	kW
impeller speed	nI	2950	rpm	2950	rpm
rec. motor power	PM	30	kW	30	kW
motor synchronous speed	nM	2955	rpm	2955	rpm
tip speed	u2	114	m/s	114	m/s
C-weighted meas.surf.sound pressure level at 1m distance with					
both sides ducted	LpCm	82	dB(C)		
free inlet	LpC5	100	dB(C)		
free discharge	LpC6	105	dB(C)		
A-weighted total sound power level					
inlet	LwAi1	103	dB(A)		
discharge	LwAi2	108	dB(A)		
correct.value A-weight.dB(A)	dLkA	7	dB(A)		
A-weighted meas.surf.sound pressure level at 1m distance with					
both sides ducted	LpAm	76	dB(A)		
free inlet	LpA5	94	dB(A)		
free discharge	LpA6	99	dB(A)		
superficial dimension	Ls-k	15	dB		
suction box	AN/BN	-	mm		
inlet size	A ø	315	mm		
discharge size	B1/B2	224/180	mm		
diffusor*	B1'/B2'	315/250	mm		
thickness of fan housing	sGv/sSp	5/4	mm		
blade thickness	sSch	4	mm		
shroud thickness	sD	3	mm		
main plate thickness	sTs	5	mm		
impeller diameter	D2	754	mm		
blade effective diameter	D2s	739	mm		
shaft diameter	Dw	0	mm		
no. of blades	z	11	-		
massmoment of inertia	I	3,29	kgm²		
characteristic curve type		5/5	-		
weight without motor	MXE	241	kg		
weight with motor	MXE	441	kg		
value incl. diffusor*					
diffusor (L=280mm ,ζ=0,200 ,α=8,1°)					
total pressure increase	Δpt diffusor	975	daPa	97,47	mbar
static pressure increase	Δpst diffusor	953	daPa	95,28	mbar

* diffusor on-site

DN3 SFV1.0 EV1.0 RE1.0 AKZ1.0 AKZ2.0 AKZ1.1 2.2.0.81

Tolerances dependent on class of accuracy in accordance to DIN 24166 in range of efficiency η >= 0,9 x ηmax.. Coordination for class of accuracy (G.Kl.) see product specification.
At any rate, please pay attention to the techn. indications made in our catalogue.

pressure units : 1 daPa = 10 Pa = 10 N/m² = 0,1 mbar = 1,0197 mmWC

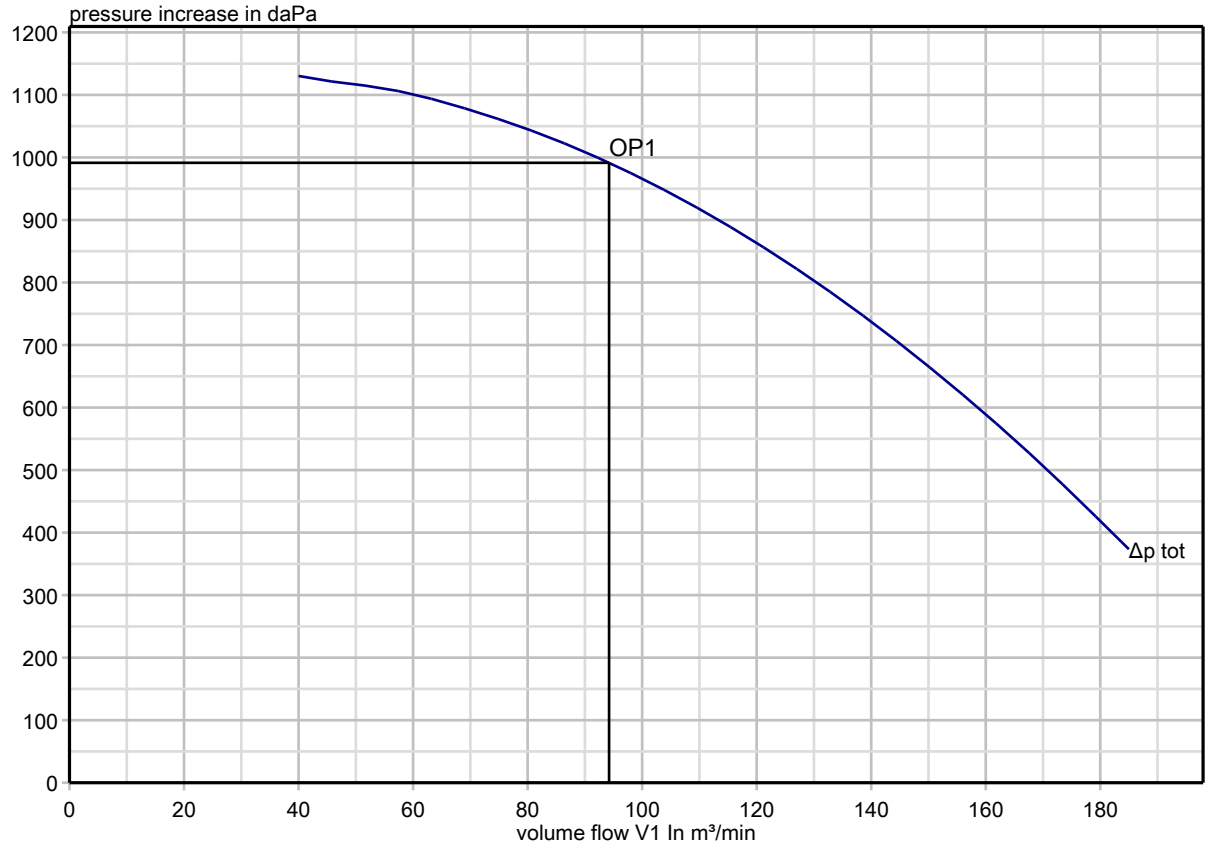
class of accuracy		1	2	3
Δpt und V1	[%]	+/- 2,5	+/- 5	+/- 10
PW	[%]	+ 3	+ 8	+ 16
Lw und Lp	[dB]	+ 3	+ 4	+ 6

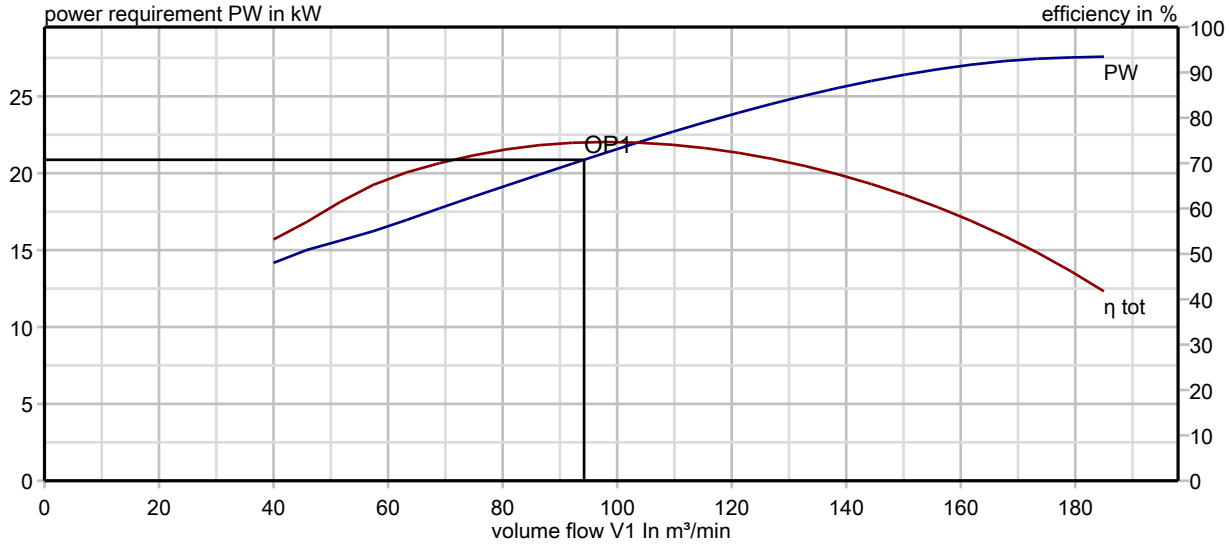
FAN CHARACTERISTIC CURVE

Liste 2012 80Grad

quotation item	05151705-02 - 1.02
designation	seal air fan
date	16.12.2015 / rumwfc

fan type MXE100-010030-00	FK serial no.	comm. no. -
your order no. -	type of control valve	codeword 11948 Umm al Houl Power





		NP	OP 1	OP 2	OP 3	OP 4	OP 5	OP 6
volume flow V1	m³/min		94,2					
total pressure increase Δpt	daPa		991					
density at inlet ρ1	kg/m³		1,165					
impeller speed nl	rpm		2950					
inletguidevane/damp.								

DN3 SFV1.0 EV1.0 RE1.0 AKZ1.0 AKZ2.0 AKZ1.1

2.2.0.81

Tolerances dependent on class of accuracy in accordance to DIN 24166 in range of efficiency η >= 0,9 x ηmax.. Coordination for class of accuracy (G.Kl.) see product specification.
At any rate, please pay attention to the techn. indications made in our catalogue.

pressure units : 1 daPa = 10 Pa = 10 N/m² = 0,1 mbar = 1,0197 mmWC

class of accuracy		1	2	3
Δpt und V1	[%]	+/- 2,5	+/- 5	+/- 10
PW	[%]	+ 3	+ 8	+ 16
Lw und Lp	[dB]	+ 3	+ 4	+ 6

SOUND DATA

Liste 2012 80Grad

quotation item	05151705-02 - 1.02
designation	seal air fan
date	16.12.2015 / rumwfc

fan type: MXE100-010030-00	FK serial no.	comm. no.: -
your order no.: -	type of control: valve	codeword: 11948 Umm al Houl Power

technical data of fan at ρ-1 =1,165 kg/m³ (OP 1) :

total pressure increase	Δpt	991	daPa	volume flow	V1	94,23	m³/min
impeller speed	nl	2950	rpm	shaft power	PW	20,9	kW
no. of blades	z	11	-	main residual frequency	f	541	Hz
drive motor	PM	30,0	kW	motor speed	nM	2955	rpm

sound data:

superficial dimension	Ls-k	15,5	dB	corr. value A-weighting	dlkA	7,2	dB(A)
A-weighted total sound power level at inlet:	LwAi1	103,3	dB(A)	at discharge	LwAi2	108,1	dB(A)
A-weighted free inlet resp. free discharge sound pressure level at 1m distance from hemisphere radius at inlet:	LpA5	94,0	dB(A)	at discharge	LpA6	98,8	dB(A)
A-weighted external sound power level					LwAa	91,8	dB(A)
A-weighted meas. surf. sound pressure level					LpA	76,3	dB(A)
A-weight. meas.surface sound pressure level of drive				LpAMo		71,0	dB(A)
A-weight. meas. surface sound press.level fan and drive				LpAMo+LpA			dB(A)

sound correction value

speed correction	dLn	0	dB	deviation of nominal point	dLbp	0	dB
density correction	dLt	0	dB	other corrections	dLs	0	dB

octave spectrum

frequency	fm in Hz	63	125	250	500	1000	2000	4000	8000	Dim
main residual frequ.	dLD-okt	0,0	0,0	0,0	2,3	0,5	0,1	0,0	0,0	dB
relative octave spectrum	dLw-okt	-4,7	-5,4	-7,1	-9,7	-13,2	-17,6	-22,9	-29,1	dB
A-weighting	dLA	-26,2	-16,1	-8,6	-3,2	0,0	1,2	1,0	-1,1	dB
total sound power	Lwi2-okt	110,3	109,5	107,8	107,6	102,2	97,4	92,0	85,8	dB
	Lwi1-okt	105,4	104,7	103,0	102,7	97,4	92,6	87,2	81,0	dB
	LwAi2-okt	84,1	93,4	99,2	104,4	102,2	98,6	93,0	84,7	dB(A)
	LwAi1-okt	79,2	88,6	94,4	99,5	97,4	93,8	88,2	79,9	dB(A)
A-weighted external sound power level	LwAa-okt	67,7	77,1	82,9	88,0	85,9	82,3	76,7	68,4	dB(A)
A-weighted meas. surf. sound pressure level	LpA-okt	52,3	61,6	67,4	72,6	70,4	66,8	61,2	52,9	dB(A)

Remark : The rounding of the values to whole figures results necessarily in differences of further calculations.
At calculation of the sound pressure level a reduction of 3 dB for self shielding of the fan housing is to be taken into account.
LpA = LwAa - Ls - 3 dB(A)
DN3 SFV1.0 EV1.0 RE1.0 AKZ1.0 AKZ2.0 AKZ1.1

2.2.0.81

Tolerances dependent on class of accuracy in accordance to DIN 24166 in range of efficiency η >= 0,9 x ηmax.. Coordination for class of accuracy (G.Kl.) see product specification.
At any rate, please pay attention to the techn. indications made in our catalogue.
pressure units : 1 daPa = 10 Pa = 10 N/m² = 0,1 mbar = 1,0197 mmWC

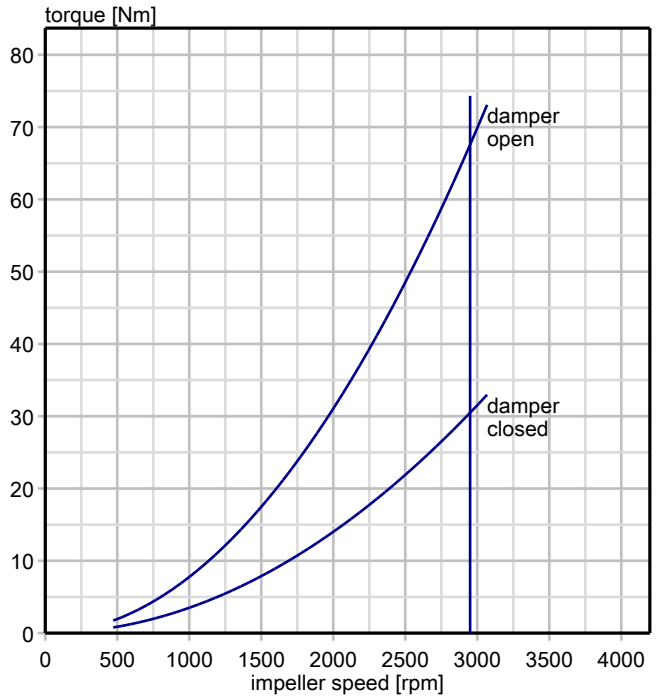
class of accuracy		1	2	3
Δpt und V1	[%]	+/- 2,5	+/- 5	+/- 10
PW	[%]	+ 3	+ 8	+ 16
Lw und Lp	[dB]	+ 3	+ 4	+ 6

TORQUE DIAGRAM

Liste 2012 80Grad

quotation item	05151705-02 - 1.02
designation	seal air fan
date	16.12.2015 / rumwfc

fan type MXE100-010030-00	FK serial no.	comm. no. -
your order no. -	type of control valve	codeword 11948 Umm al Houl Power



design point : OP1 ——

V1	=	94	m³/min
Δpt	=	991	daPa
PW	=	20,87	kW
nI	=	2950	rpm
ρ1	=	1,165	kg/m³
J (imp.)	=	3,29	kgm²

DN3 SFV1.0 EV1.0 RE1.0 AKZ1.0 AKZ2.0 AKZ1.1

2.2.0.81

Tolerances dependent on class of accuracy in accordance to DIN 24166 in range of efficiency η >= 0,9 x ηmax.. Coordination for class of accuracy (G.Kl.) see product specification.
At any rate, please pay attention to the techn. indications made in our catalogue.

pressure units : 1 daPa = 10 Pa = 10 N/m² = 0,1 mbar = 1,0197 mmWC

class of accuracy		1	2	3
Δpt und V1	[%]	+/- 2,5	+/- 5	+/- 10
PW	[%]	+ 3	+ 8	+ 16
Lw und Lp	[dB]	+ 3	+ 4	+ 6

MOTOR DATA / START-UP

Liste 2012 80Grad

quotation item	05151705-02 - 1.02
designation	seal air fan
date	16.12.2015 / rumwfc

fan type MXE100-010030-00	FK serial no.	comm. no. -
your order no. -	type of control valve	codeword 11948 Umm al Houl Power

The following data apply to the fan nominal point.

Start-up data

rated output motor torque	97,0	Nm
torque Y	65,5	Nm
torque Δ	242,5	Nm
load torque in NP	72,2	Nm
load torque closed damper	36,1	Nm
moment of inertia relative to nM	3,4	kgm²
start-up time in NP Y	29,1	s
start-up time closed damper Y	20,9	s
start-up time in NP Δ	5,0	s
start-up time closed damper Δ	4,7	s
theoretical starting time	6,5	s

Δ-start-up possible (DOL start-up)

YΔ-start-up possible (star-delta start-up)

Drive power is sufficient. Please take into consideration the start-up times depending on the starting type Δ- or YΔ of the motor. Have the start-up behaviour checked and approved by the motor producer if a certain number of cold start-ups or restarts are required

Tolerances dependent on class of accuracy in accordance to DIN 24166 in range of efficiency η >= 0,9 x ηmax.. Coordination for class of accuracy (G.Kl.) see product specification.
At any rate, please pay attention to the techn. indications made in our catalogue.
pressure units : 1 daPa = 10 Pa = 10 N/m² = 0,1 mbar = 1,0197 mmWC

class of accuracy		1	2	3
Δpt und V1	[%]	+/- 2,5	+/- 5	+/- 10
PW	[%]	+ 3	+ 8	+ 16
Lw und Lp	[dB]	+ 3	+ 4	+ 6

7 Hydraulic Power Unit

NEM Power-Systems

Technical Data Sheet

HYDRAULIC POWER UNIT

				Rev.
1	General	Tag Numbers	13MBR40GH001	
			14MBR40GH001	
			15MBR40GH001	
			23MBR40GH001	
			24MBR40GH001	
			25MBR40GH001	
2		Manufacturer	Pleiger	
3		Type	Hydraulic Power Unit including LCP	
4		Model	HYK3363	
		Unit /Quantity per unit	6/1	
5		Location	Outdoor at diverter casing	
6		General Arrangement (GA) Drawing	UHP-NPS-G10-MBR-D-0002	
7	Construction	Dimensions of the Hydraulic Power Unit	3100 x 2500 x 1700	
8		GA drawing Hydraulic Power Unit	UHP-NPS-M13-MBR-D-0009	
9		Material of frame and housing	S235JR	
10		Type of drive	Hydraulic driven by four hydraulic cylinders	
11		Function	Open / Close diverter and intermediate positions	
12		Swing angle [°]	130	
13		Damper normal operating time (closing/opening) [s]	60	
14		Damper emergency operating time [s]	20	
15		Manual operation diverter blade	handpump	
16		Position transmitter	Yes	
17		Cylinder dimensions:		
18		ø piston [mm]	140	
19		ø rod [mm]	100	
20		stroke [mm]	1.250	
21		Cylinder acting	parallel acting	
22		Max. required torque by damper [Nm]	387.195	
23		Design torque [Nm]	431.929	
24	Remarks			
25				
26				
27				
28				

8 Electric Chain Hoist

PLANETA Hebetechnik GmbH
Resser Str. 17-23
44653 Herne-Germany

Technical data sheet

General data

power supply		**415 / 3 / 50**	**V / ph / Hz**
main fuse		**25**	**A**
control voltage		**24**	**V**
Weight		**ca. 165**	**kg**

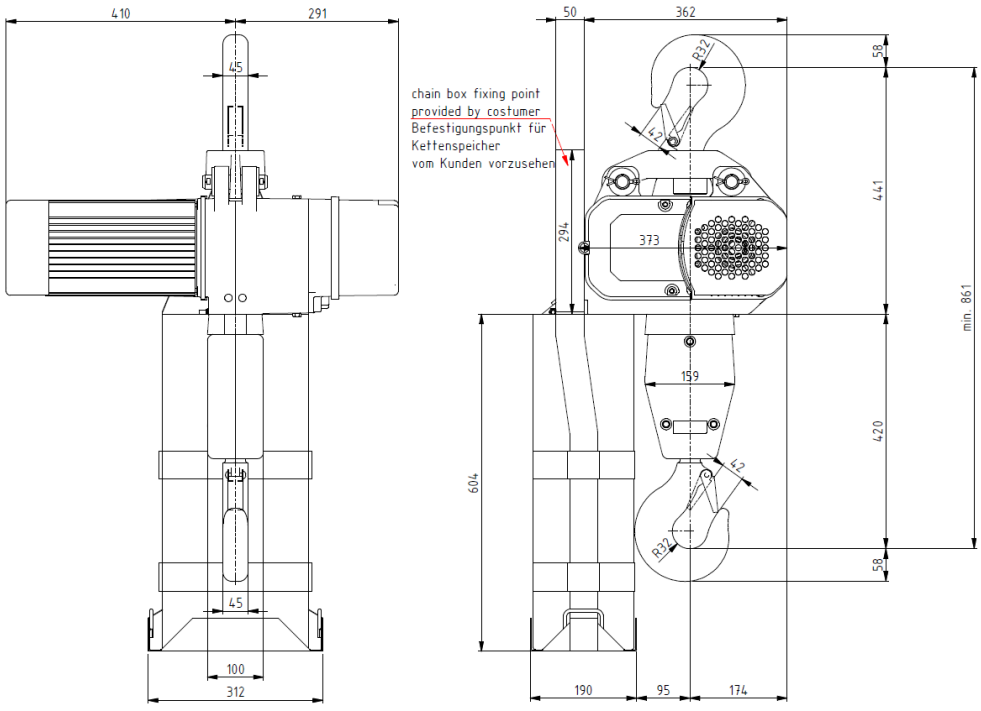
Electric chain hoist

type		**111/54**	
working load		**6300**	**kg**
no. of load falls		**2**	
lifting speed(s)		**4 / 1**	**m/min**
duty group		**1BM / M3**	**FEM / ISO**
duty rate		**25 / 25**	**%**
starts per hour		**150**	**S/h**
IP protection class		**55**	
motor type		**100LV8-2**	
motor power		**4,40 / 1,10**	**kW**
nominal current		**10,50 / 4,20**	**A**
motor speed		**2840 / 665**	**1/min**
cos phi		**0,81 / 0,62**	

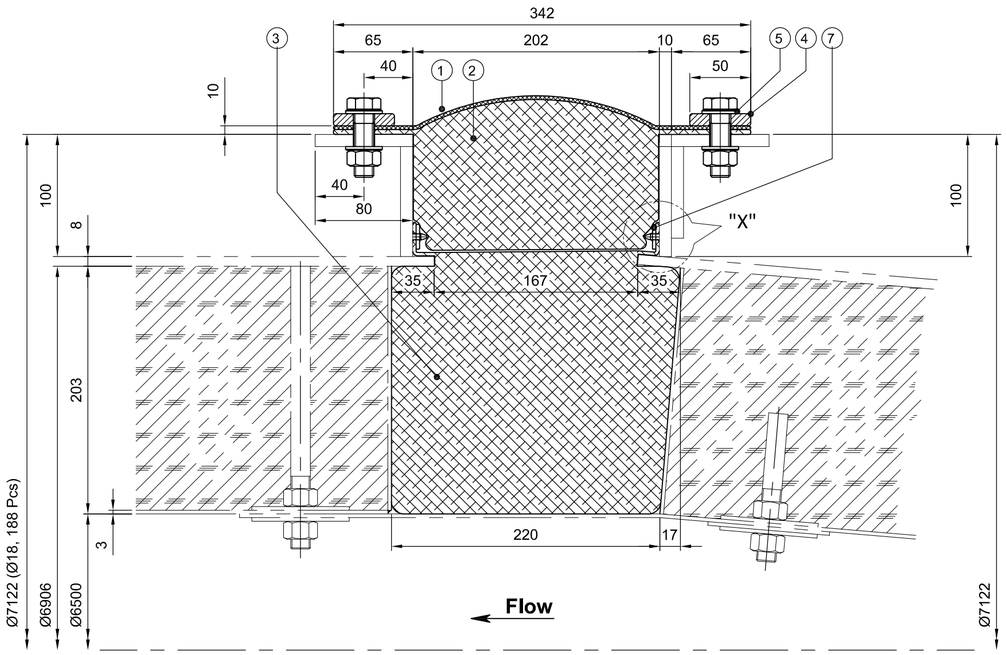
Trolley

type		**-**	
working load		**-**	**kg**
travelling speed(s)		**-**	**m/min**
IP protection		**-**	
motor type		**-**	
motor power		**-**	**kW**
nominal current		**-**	**A**
motor speed		**-**	**1/min**
cos phi		**-**	

Dimensions in mm

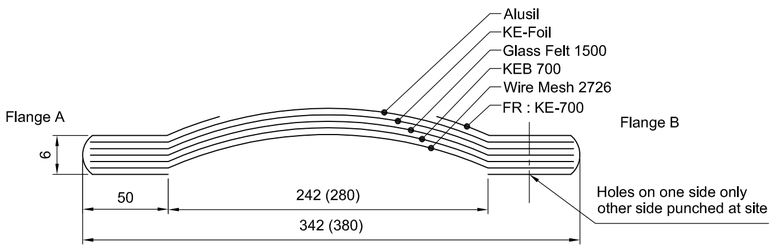


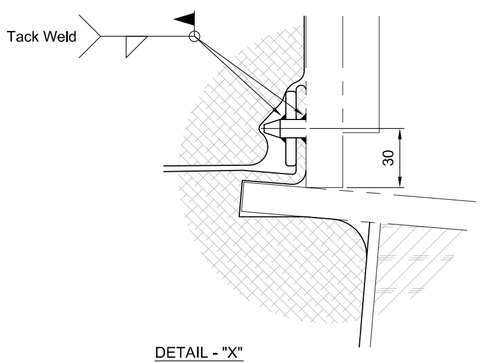
9 Expansion Joint EJ01 (Diverter Inlet)



1 Expansion Joint

Fluaflex Customized - Layer Details :

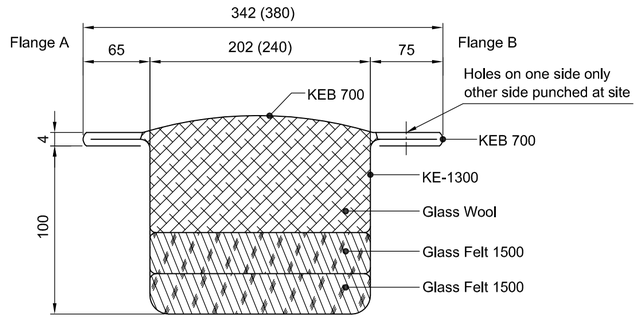




DETAIL - "X"

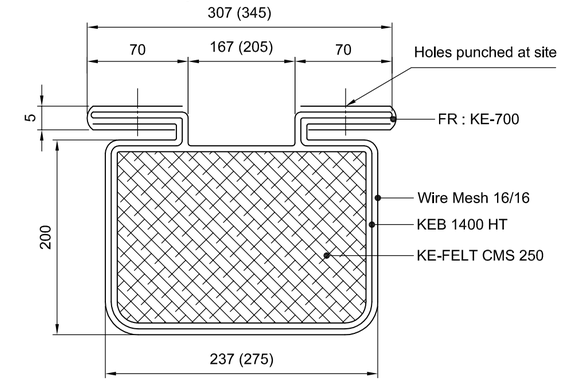
2 Bolster-1 Customised

Construction and layer details :



3 Bolster-2 Customised

Construction and layer details :



Notes

Pos 1 Expansion Joint to be delivered with one split including Joining Kit.

Pos 2 Bolster 1 to be delivered with two Split including Joining Kit.

Pos 3 Bolster 2 to be delivered with two Split including Joining Kit.

Notes

Erection Tolerance: ±10mm

Pos.	Description	Qnt.	Material	Remark
7	Stud & Washer DIN 9021	-	AISI 304	
6	Protection Sheet Assembly	1	S235JR, Hot Dip Galvanized	At top 180°+1m each side Drg No: DKVD002781-012
5	Bolt, Nut & Washers DIN933, DIN934 & DIN125	376	M16x60mm 8.8	Hot Dip Galvanized
4	Backing Flange	1	50x10mm S235JR	Hot Dip Galvanized Drg No: DKVD002781-011
3	Bolster-2 Customised	1		
2	Bolster-1 Customised	1		
1	Expansion Joint Thermoflex C40 (IW)	1		

Surface: ISO 1302 √Rz 12.5	Generel tolerances: EN/ISO 13920-B	Geometric.tolerances: EN/ISO 13920-F	Geometric. symbols: ISO 1101	Welding symbols: EN 22553	Welding Quality: EN 25817- Welding Quality	Other tolerances: Other Tol

Dust: mg/m^3	Note:		
Medium:	Temp.: 650 C°	Ax. movement: (Design) -20 mm	
Pressure: mmWG	Velocity: m/s	Lat. movement: (Design) ± 20 mm	

Date	Revision Text	Rev.No.	Init.
07-03-2016	Note added and text added for axlal and lateral	01	Ed

Customer: NEM Power System / Recklinghausen

Ref.:

Project: UMM Al Houl Power IWPP

Order No.: | Quotation No.: DKVQ0014915

Description: Expansion Joint EJ-01
Main Drawing

Approved status: | Date: | Project Manager:

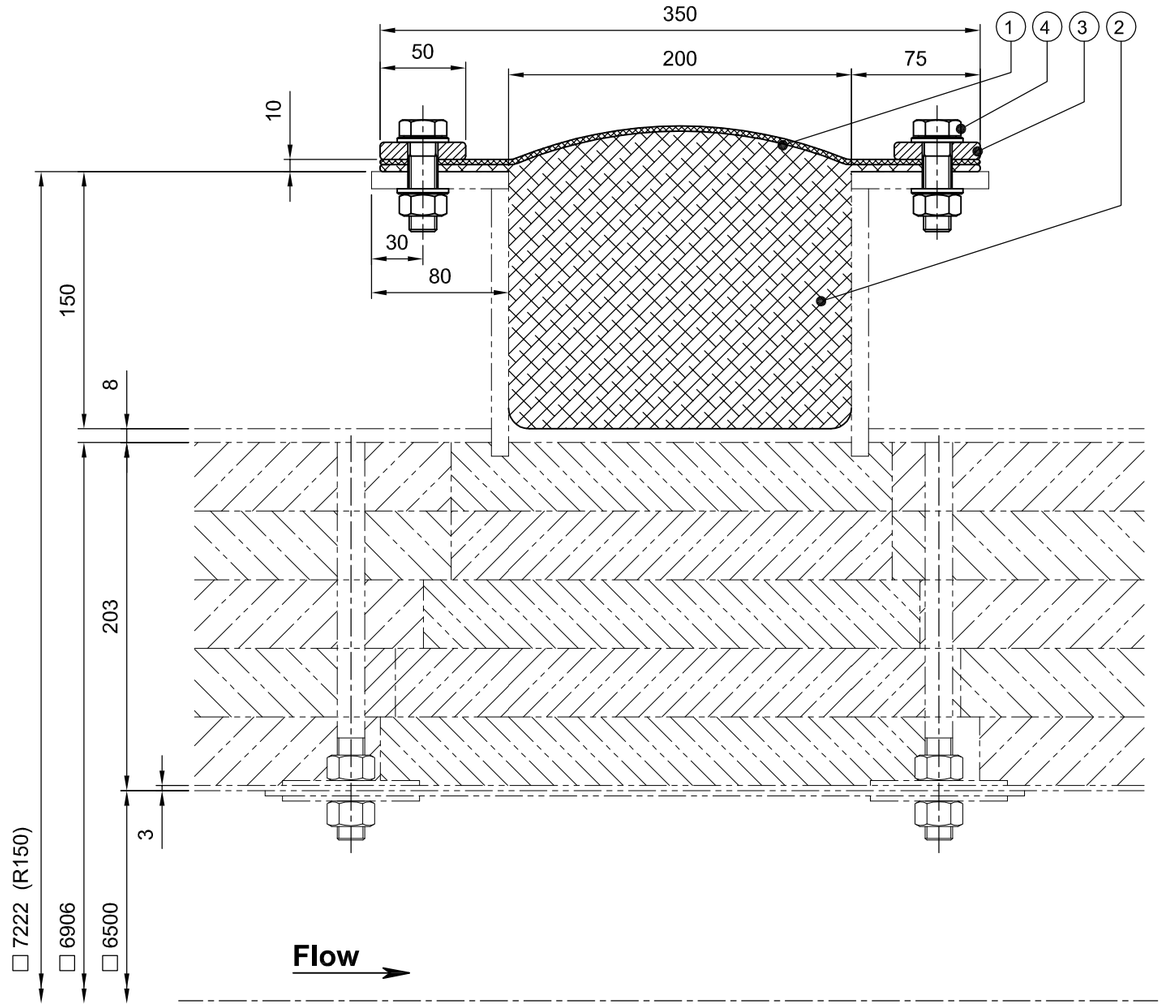
EagleBurgmann®
expansion joint solution
EagleBurgmann KE A/S
Expansion Joints Solutions
Park Allé 34, DK-6600 Vejen
Web: www.eagleburgmann-ej.com

Name:	Date:	Quantity:
GIB / Ed	23-02-2016	1

Scale:	Papersize:	Sheet no:	
NTS	A2	1	(DS/ISO 128)

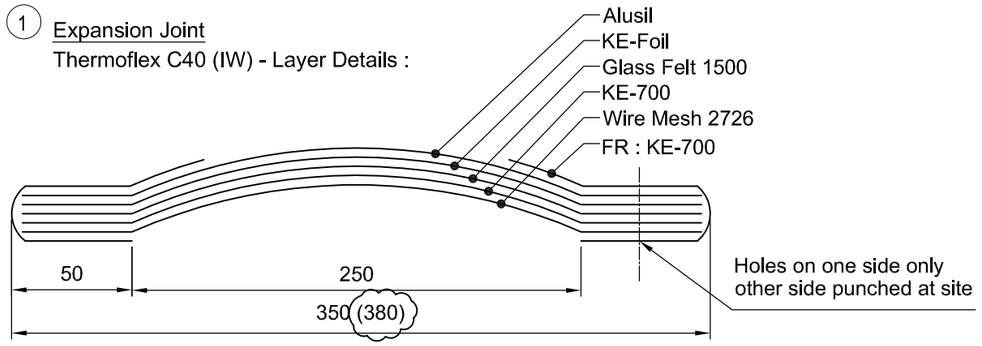
Drow. no.: DKVD002815-010 | Rev.: 01

10 Expansion Joint EJ02 (Diverter Outlet to Bypass Stack)



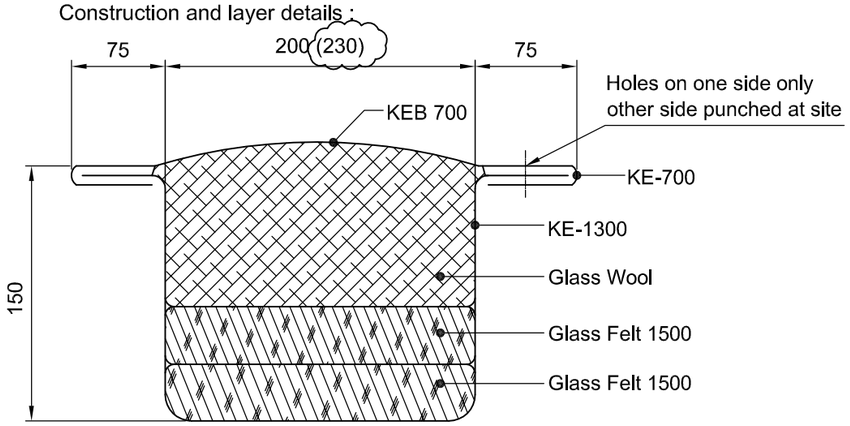
1 Expansion Joint

Thermoflex C40 (IW) - Layer Details :



2 Bolster-1 Customised

Construction and layer details :



Notes

Pos 1 Expansion Joint to be delivered with one split including Joining Kit.

Pos 2 Bolster 1 to be delivered with two Split including Joining Kit.

Notes

Erection Tolerance: ±10mm

Pos.	Description	Qnt.	Material	Remark
4	Bolt, Nut & Washers DIN933, DIN934 & DIN125	520	M16x60mm 8.8	Hot Dip Galvanized
3	Backing Flange	1	50x10mm S235JR	Hot Dip Galvanized
2	Bolster-1 Customised	1		
1	Expansion Joint Thermoflex C40 (IW)	1		

Surface: ISO 1302 √Rz 12.5	Generel tolerances: EN/ISO 13920-8	Geometric.tolerances: EN/ISO 13920-F	Geometric. symbols: ISO 1101	Welding symbols: EN 22553	Welding Quality: EN 25817- Welding Quality	Other tolerances: Other Tol

Dust: mg/m^3	Note:	
Medium:	Temp.: 650 C°	Ax. movement: (Design) -25 mm
Pressure: mmWG	Velocity: m/s	Lat. movement: (Design) ± 20 mm

Date	Revision Text	Rev.No.	Init.
07-03-2016	highlighted portions changed	01	Ed

Customer: NEM Power System / Recklinghausen

Ref.:

Project: UMM Al Houl Power IWPP

Order No.: | Quotation No.: DKVQ0014915

Description: Expansion Joint EJ-02
Main Drawing

Approved status: | Date: | Project Manager:

EagleBurgmann®
expansion joint solution
EagleBurgmann KE A/S
Expansion Joints Solutions
Park Allé 34, DK-6600 Vejen
Web: www.eagleburgmann-ej.com

Name:	Date:	Quantity:
GIB / Ed	23-02-2016	1

Scale:	Papersize:	Sheet no:	(DS/ISO 128)
NTS	A3	1	

Draw. no.: DKVD002815-020 | Rev.: 01