

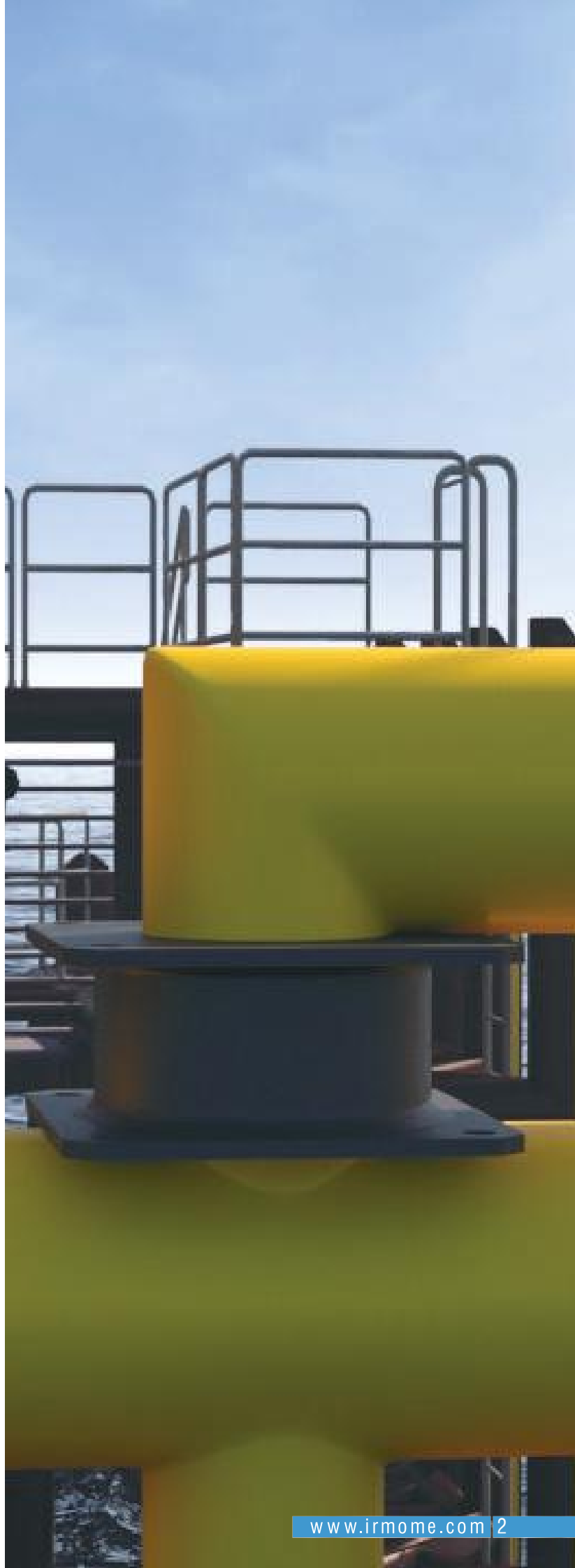
IRM OFFSHORE PRODUCTS

IRM Offshore products cover the entire range of rubber products required for platform launching and protection for offshore oil exploration. Our major achievement is 'Absolute customer confidence' due to our track record. A robust design with matching safety considerations makes our products ultimate in reliability. An active interaction is continuously maintained with all the stake holders like Oil companies, EPC contractors, Consultants, experts and research agencies for the continuous improvement of products and services in line with the changing technologies and process parameters. With the perpetual patronage from our esteemed clientele, we could develop and supply various cost effective and reliable products for offshore industry like non inflatable Grout Seal in lieu of Inflatable Grout Packers (which obsoletes the requirement of inflation lines & equipments with an inherent risk), Pile gripper, LMU, DSU etc. We have also developed special compression fenders with lesser load transmitted to the structure, Shock Pads for loading & transportation of platform decks etc. This catalogue generally covers the entire range of Offshore products manufactured by IRM.

Being a pioneer in the field IRM also undertake survey of offshore structure in case of replacements of Barge Bumper, Shock Cells, Shear Fenders, Boat Landing Rubber Strips etc. to ensure an accurate measurement for retrofit. IRM also provide supervision during their installation and do have an experienced team for the same. We have a full-fledged team to carry out design activities including FEA to arrive at the most suitable solutions for our clientele with great economy.

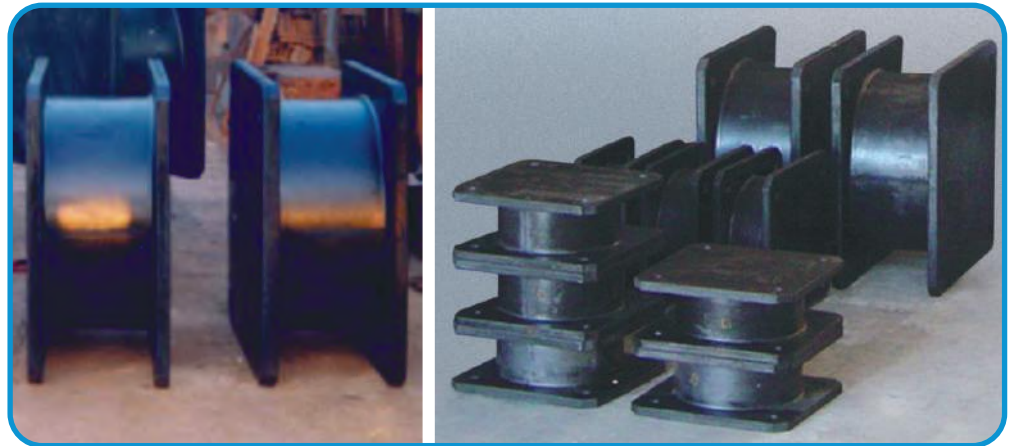
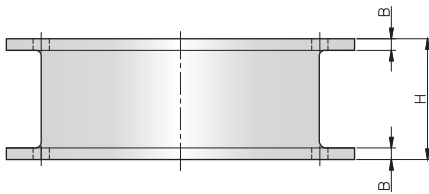
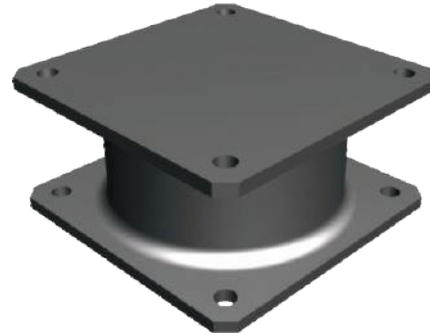
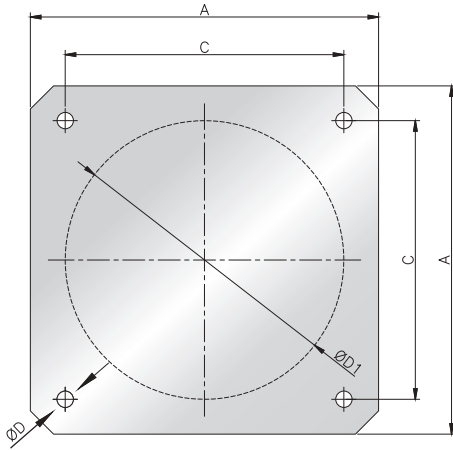
CONTENTS.

Introduction	1
Shear Fenders - SF Series	3
Shear Fenders - SQ Series	4
Rotating Rubber Ring DRR Series	5
Jacket Leg Rub Strips	6
Surge and Sway Fenders	7
Boat Landing Rub Strips DRS Series	8
D-Type Boat Landing Fenders DD Series	9
Shock Absorber SA Series	10
Shock Absorber With ERR SAE Series	11
Barge Bumper Assembly	12
Barge Bumper Assembly With ERR	13
Barge Bumper Assembly With DRR	14
Shock Pad	15
Deck Support Unit	16
Leg Mating Unit	17
Diaphragm Closure	19
Pile Gripper	21
Inflatable Grout Packer	23
Grout Seal	25
Wiper Grout Seals	27



SHEAR FENDERS SF SERIES

DSF series Shear Fenders are designed to take heavy loads of Barge Bumpers / Boat landing structures axially and at the same time to absorb berthing energy laterally. They are generally used in offshore installations where extreme duty conditions prevail. These Fenders deflect more than 100% in Shear and absorb energy of lateral impact. Shear fenders has got excellent mechanical properties and sea water resistance rendering it's virtually maintenance free. It is easy to install and got excellent load bearing capacity in axial compression too. Square and circular profiles are commonly used. DSF series Shear Fenders are available in two different models as shown here. Custom made Shear Fender can also be manufactured as per client's requirements.



DIMENSION TABLE

ALL DIMENSIONS ARE IN MM.

MODEL NO.	A	B	C	D	ØD1	H	APPROX WEIGHT
SF 270H	680	35	510	50	510	270	240
SF 500H Type-A	1020	45	820	70	820	500	815
SF 500H Type-B	1200	45	1000	70	920	500	1250
SF 500H Type-C	1500	45	1200	70	1200	500	1900

PERFORMANCE TABLE

(R : REACTION FORCE E : ENERGY ABSORPTION TOLERANCE ± 10%)

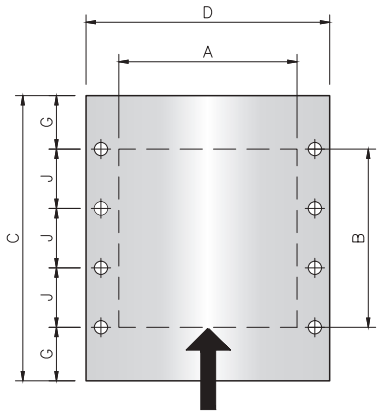
MODEL NO.	SF 270H	SF 500H Type-A	SF 500H Type-B	SF 500H Type-C
DEFLECTION (MM)	270	500	500	500
E(T-M)	4.8	12.5	15.6	20
R(T)	34.5	50.5	62.5	100

THE PERFORMANCE AND WEIGHT VALUES MENTIONED ARE SUBJECT TO CHANGE WITHOUT NOTICE.

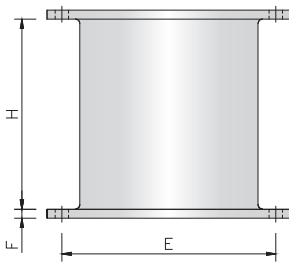
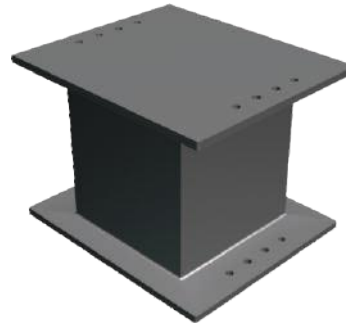
NOTE: INTERMEDIATE PERFORMANCE WITH SIMILAR E/R RATIO ARE AVAILABLE IN BETWEEN GRADES WITH GRADIENT OF 10% AS DOCUMENTED ELSEWHERE IN THE ARCHIVE

SHEAR FENDERS SQ SERIES

DSQ series Shear Fenders are used to take berthing loads of Barge Bumpers / Boat landing structures axially and at the same time to absorb berthing energy laterally. They are generally used in offshore installations. These Fenders can also deflect more than 100% in Shear and absorb energy of lateral impact. Shear fenders has got excellent mechanical properties and sea water resistance rendering it virtually maintenance free. It is easy to install and got excellent load bearing capacity in axial compression too. DSQ series Shear Fenders are available in four different models as shown here. Custom made Shear Fender can also be manufactured as per client's requirements.



DIRECTION OF FORCE AND DEFLACTION



NOTE : Different flange dimensions are available for fitment

DIMENSION TABLE

ALL DIMENSIONS ARE IN MM.

MODEL NO.	A	B	C	D	E	F	G	H	J
SQ 265H	600	600	700	820	720	30	80	265	180
SQ 390H	600	600	700	820	720	30	80	390	180
SQ 515H	600	600	700	820	720	30	80	515	180
SQ 640H	600	600	700	820	720	30	80	640	180
SQ 740H	600	600	700	820	720	30	80	740	180

PERFORMANCE TABLE

(R : REACTION FORCE E : ENERGY ABSORPTION TOLERANCE ± 10%)

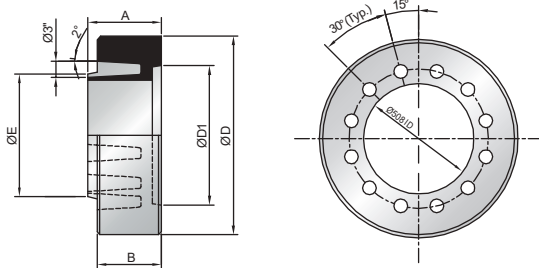
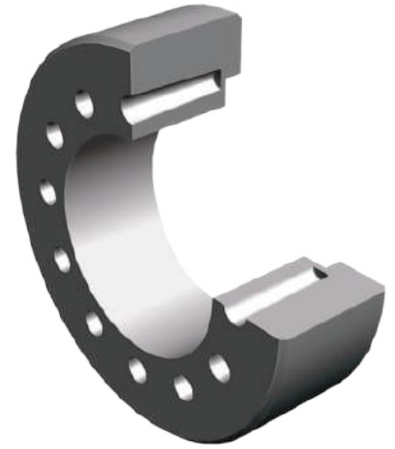
MODEL NO.	SQ 265H	SQ 390H	SQ 515H	SQ 640H	SQ 740H
DEFLECTION MM.	245	370	495	620	700
E(T-M)	4.4	6.6	8.8	11.0	15.2
R(T)	36.0	38.0	40.0	42.0	66.1

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NOTE: INTERMEDIATE PERFORMANCE WITH SIMILAR E/R RATIO ARE AVAILABLE IN BETWEEN GRADES WITH GRADIENT OF 10% AS DOCUMENTED ELSEWHERE IN THE ARCHIVE

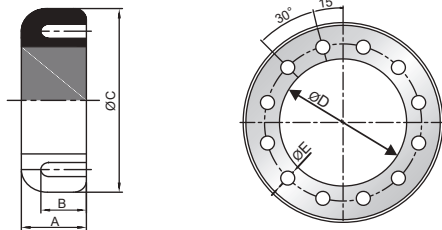
ROTATING RUBBER RING DRR SERIES

DRR series Rotating Rubber Rings are the part of Barge Bumpers, which absorbs and dissipate berthing energy while rotating on to the Contact Post of Barge Bumpers. Its rotating movement reduces Shear force to be exerted by rubbing of Barges / Boats while berthing. They find extensive application in different configuration & Barge Bumper Assemblies. Rotating Rubber Rings are versatile and can be used for different function & specification depending upon exact duty and working conditions. Our DRR series Rotating Rubber Rings are available in 3 different models as shown here. These rings can also be supplied from high abrasive resistant polyurethane rubber.



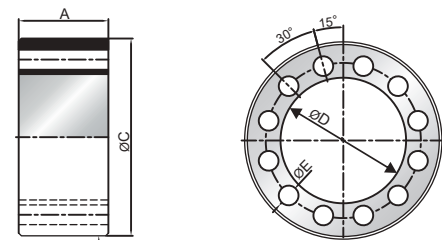
DIMENSION TABLE

MODEL NO.	A	B	ØE	ØD	UNIT:MM
					ØD1
DRR 2036	337	305	641	914	648



DIMENSION TABLE

MODEL NO.	A	B	ØC	ØD	UNIT:MM
					ØE
DRR 1931	250	175	815	475	62.5



DIMENSION TABLE

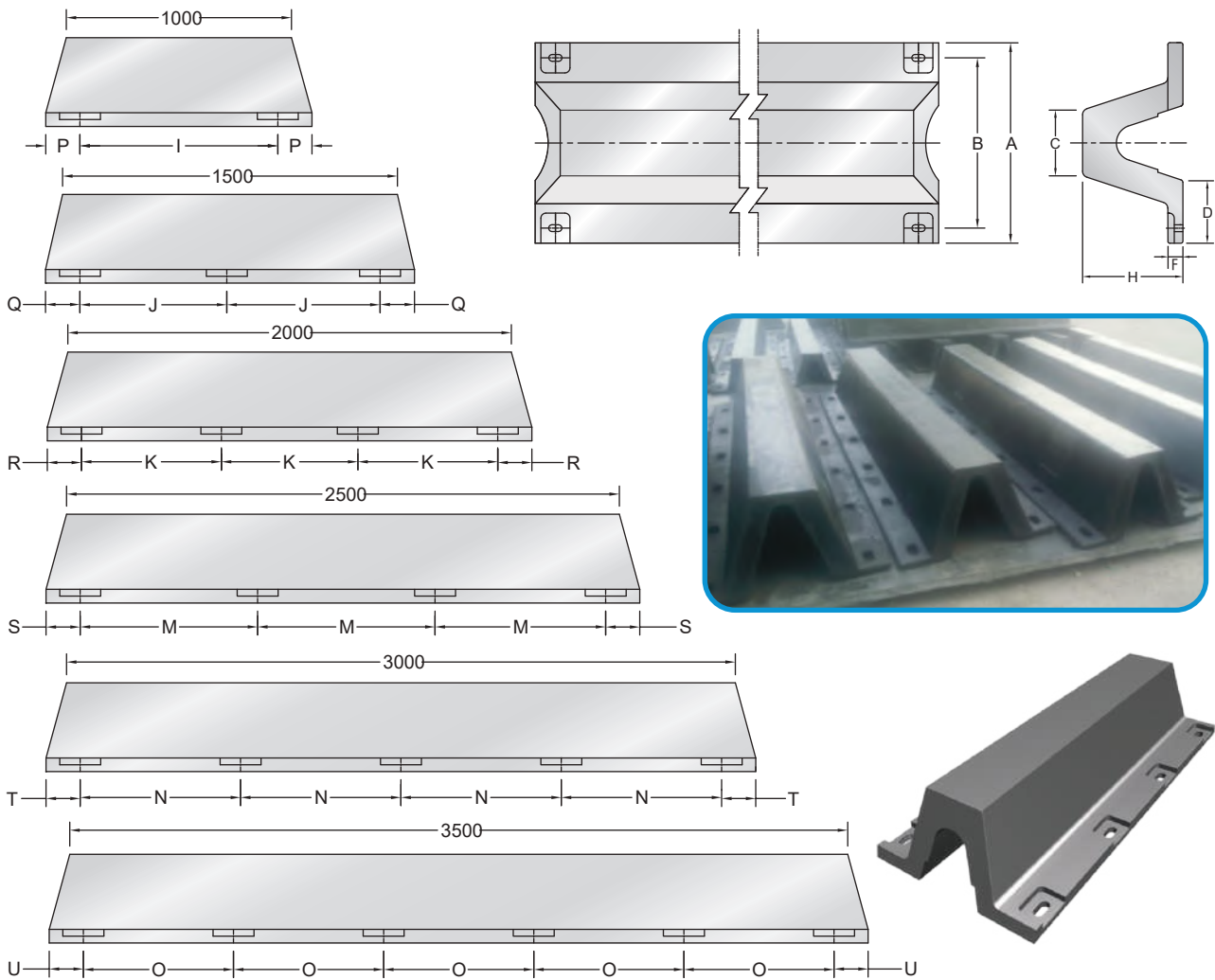
MODEL NO.	A	ØC	ØD	UNIT:MM
				ØE
DRR 528	500	856	528	70
DRR 533	300	864	533	80
DRR 700	500	1100	700	110
DRR 800	500	1200	800	110
DRR 900	500	1300	900	110

EURATHENE FACING



JACKET LEG RUB STRIPS

DA series Jacket Leg Rub Strips are custom built Arch Fender for protecting the offshore platform transportation and launching. They absorb considerable shock and protect the Offshore Jacket Legs from the Barges and Vessel while transporting / launching. They have long life and reliability and offers excellent resistance to sea water. They work effectively even on extreme climate condition without any short fall in performance. Our DA series Jacket Leg Rub Strips are available in 300mm height in different lengths as shown here. Custom made Jacket Leg Rub Strips can also be designed and manufactured as per requirement.



DIMENSION TABLE

ALL DIMENSIONS ARE IN MM.

MODEL NO.	A	B	C	D	F	W	P	Q	R	S	T	U	I	J	K	M	N	O	WEIGHT Kg/Mt.
DA 300H	600	490	197	192	45	M30	140	140	137.5	140	145	140	870	685	625	790	715	674	132

PERFORMANCE TABLE

RUBBER GR.	R1				R2				R3				R4			
PERFOR.	45%		50%		45%		50%		45%		50%		45%		50%	
MODEL	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)
DA 300H	22.5	2.7	34.4	3.2	22	2.5	30.1	2.7	16.5	1.9	22.6	2.0	11.4	1.3	15.4	1.5

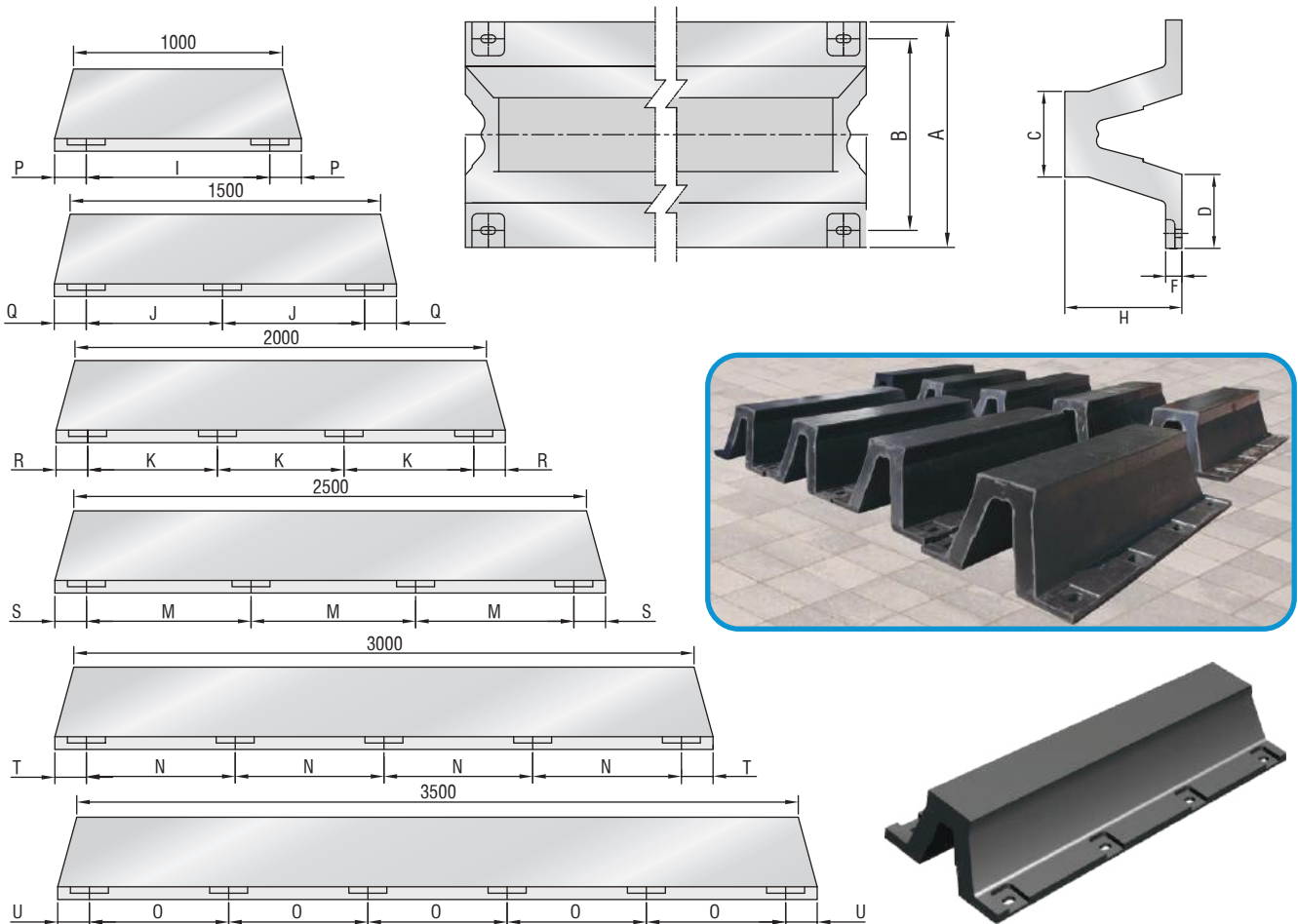
PERFORMANCE VALUES ARE FOR 1000 MM. LENGTH

(R : REACTION FORCE E : ENERGY ABSORPTION TOLERANCE ± 10%)

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SURGE AND SWAY FENDERS

Surge & Sway Fenders are generally used during float over operation. They have excellent capacity to resist the impact / force and absorb the energy during the operation. The positioning of these fenders may differ depending on the operation philosophy and the structural constraints. They can perform under extreme climatic conditions. They are available in different lengths & heights.



DIMENSIONS TABLE

ALL DIMENSIONS ARE IN MM

MODEL NO.	H	A	B	C	D	F	W	P	Q	R	S	T	U	I	J	K	M	N	O	APPROX WEIGHT Kgs/Mtr.
DYA 400H	400	800	670	300	260	40	M36	150	150	147.5	150	150	150	900	700	635	800	725	680	208
DYA 600H	600	1200	1010	450	390	54	M48	170	170	167.5	170	170	170	960	730	655	820	740	692	480
DYA 800H	800	1600	1340	600	520	72	M56	180	180	180	182.5	180	-	1040	770	680	845	760	-	875

THE PERFORMANCE AND WEIGHT VALUES MENTIONED ARE SUBJECT TO CHANGE WITHOUT NOTICE.

PERFORMANCE TABLE

RUBBER GRADE	R1				R2				R3				R4			
	52%		55%		52%		55%		52%		55%		52%		55%	
MODEL NO.	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)	R(T)	E(T-M)
DYA 400H	43.2	7.3	60.0	7.8	33.2	5.6	46.1	6.0	27.5	4.6	38.2	4.9	23.6	4.0	32.8	4.3
DYA 600H	64.7	16.3	89.9	17.5	49.8	12.6	69.2	13.5	41.2	10.4	57.2	11.1	35.4	8.9	49.2	9.5
DYA 800H	86.4	29.0	120	31.1	66.4	22.3	92.2	23.9	55.0	18.5	76.4	19.8	47.2	15.9	65.6	17.0

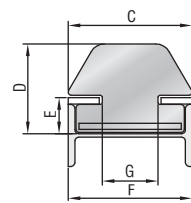
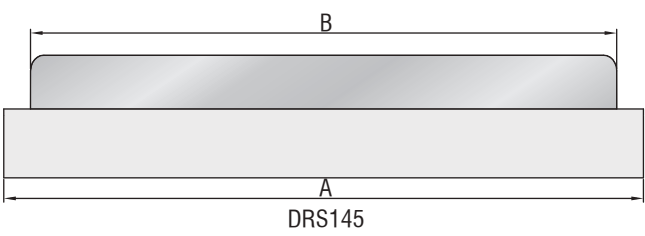
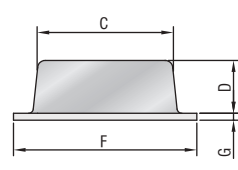
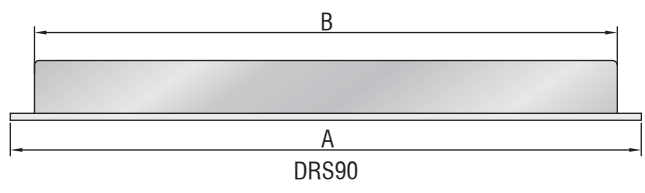
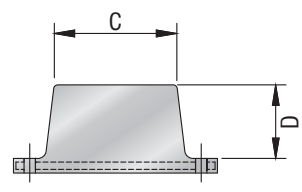
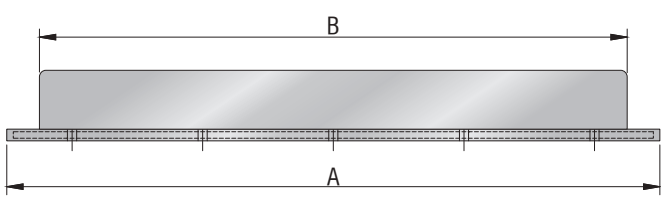
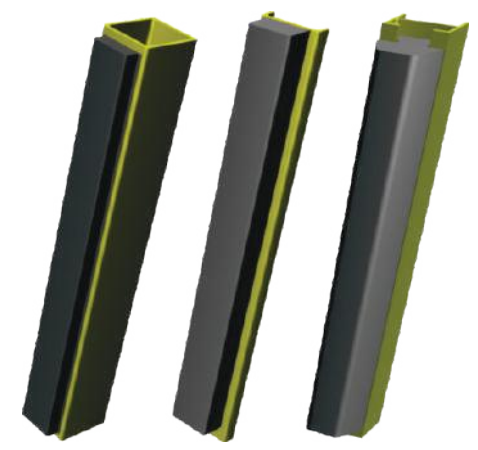
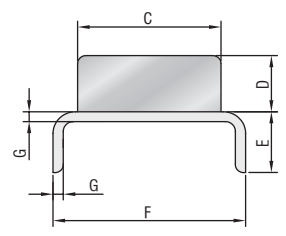
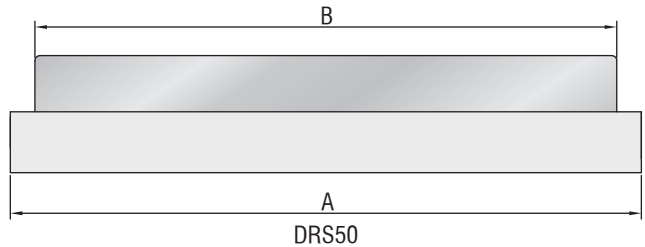
PERFORMANCE VALUES ARE FOR 1000 MM. LENGTH

(R : REACTION FORCE E : ENERGY ABSORPTION TOLERANCE ± 10%)

NOTE: INTERMEDIATE PERFORMANCE WITH SIMILAR E/R RATIO ARE AVAILABLE IN BETWEEN GRADES WITH GRADIENT OF 10% AS DOCUMENTED ELSEWHERE IN THE ARCHIVE. BIGGER SIZES AND DIFFERENT PROFILES ARE AVAILABLE TO SUIT INDIVIDUAL APPLICATIONS.

BOAT LANDING RUB STRIPS DRS SERIES

DRS series Rub Strips are made of solid low friction Rubber for the rough & tough use. These are used to act as a buffer between Boat Landing of Offshore Structure and the Barges and Supply Boats which are coming in contact with them. The installations of Rub-Strips are extremely rugged, reliable and maintenance free. They are manufactured from high quality rubber for rough weather. Moreover they are manufactured by compression moulding process which further enhances the life of rubber and make its ideal for offshore applications.



NOTE : Bolted connections are available for easy fitment & replacements.

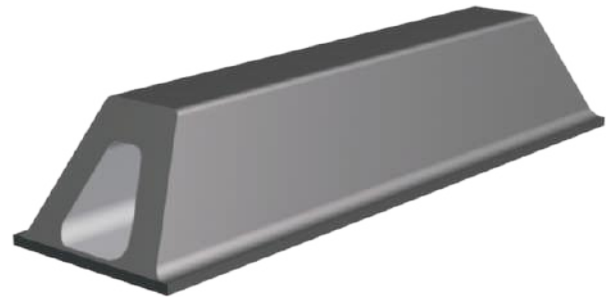
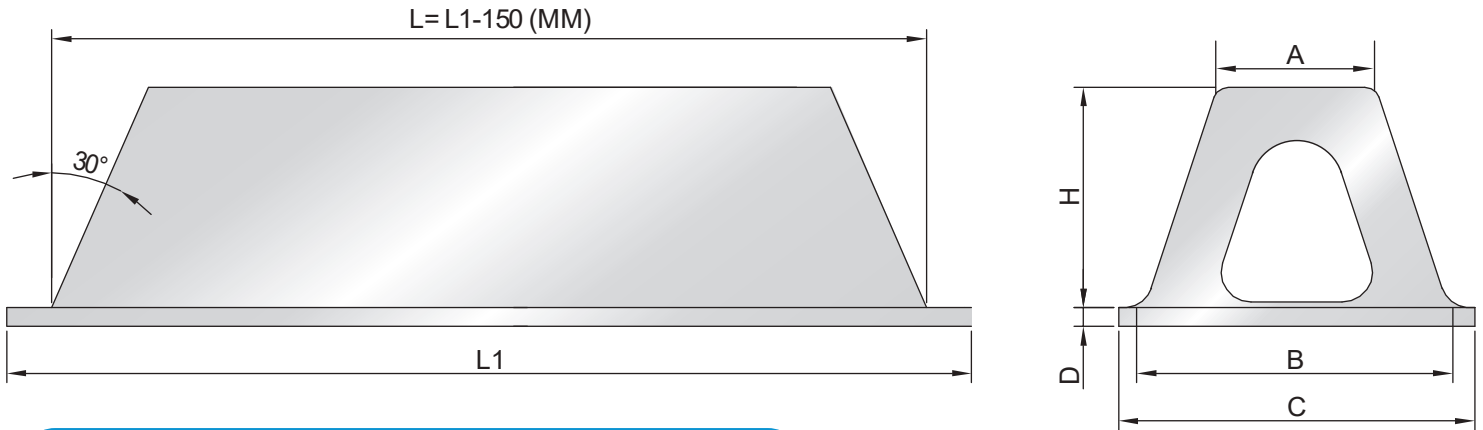
DIMENSION TABLE DIMENSION 'E' TO BE ARRIVED AT DEPENDING ON THE PILE DIA ALL DIMENSIONS ARE IN MM.

MODEL NO.	A	B	C	D	E	F	G	WEIGHT Kg/Mtr.
DRS 50	1500 TO 9500	1400 TO 9400	150	50	-	185	12	30
DRS 60	1500 TO 9500	1400 TO 9400	150	60	-	190	12	40
DRS 90	1500 TO 9500	1400 TO 9400	150	90	-	195	15	50
DRS 145	1500 TO 9500	1400 TO 9400	200	145	58	200	90	-

VARIOUS LENGTHS ARE AVAILABLE AS PER SPECIFIC REQUIREMENT WHILE CHANNEL OPTIONS ARE AVAILABLE FOR WELDING, DRILLED FLAT BACK PLATES TOO ARE USED FOR BOLTED CONNECTION FOR EASY REPLACEABILITY

D-TYPE BOAT LANDING FENDERS DD SERIES

DD series D-type Boat Landing Fenders are generally employed for Boat Landing applications of Offshore Platforms. These Fenders are used to act as a buffer between Boat Landing and the Barges Supply Vessels transfer minimum load to Offshore Jacket Legs. These Fenders are extremely rugged, reliable and maintenance free. These Fenders are supplied in different lengths and fitting arrangements as per Boat Landing Design. DD series Boat Landing Fenders are available in two different models in required lengths.



DIMENSION TABLE

ALL DIMENSIONS ARE IN MM.

DD 150H					DD 225H				
A	B	C	D	H	A	B	C	D	H
100	200	255	20	150	158	300	355	20	225

VARIOUS LENGTHS ARE AVAILABLE ON SPECIFIC REQUIREMENTS

PERFORMANCE TABLE

MODEL NO.	DD 225H	DD 150H
DEFLECTION	50%	50%
E(T-M)	1.64	0.5
R(T)	28.98	11.6

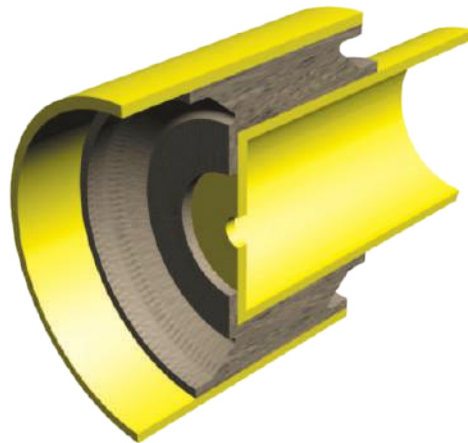
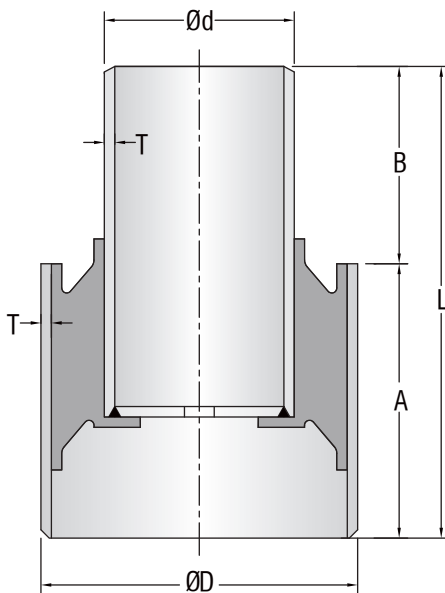
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SHOCK ABSORBER SA SERIES

SA series Shock Absorber are specially designed for offshore platform manufactured with a combination of steel and high modulus Rubber to absorb loads from multi-directions. The precession made concentric pipes when bonded together with rubber by a high pressure compression moulding process under controlled heating cooling cycle, resulted in to a versatile energy absorption Element for Offshore Structures. Shock Absorber can absorb energy both in compression and torsion. It is having extremely good resistance to both axial and bending. The high tensile rubber compound ensures good mechanical strength and excellent resilience. They are suitable in the marine environment and perform well in extreme climatic condition. Special compound design offer excellent resistance to ozone aging, ultra violet rays and sea water. Generally employed in combination with Eccentric Rubber Ring Steel fabricated Contact Post to absorb berthing energy at very high tidal variations at Platform. It absorbs and dissipates energy in every conceivable fashion and prevents damages to the structure. A unique Dock Entry Protection System made of 2 Shock Absorbers is also available, which protects Structures while moving Vessel is touching to dock wall / entrance channel or Vessel coming for dry docking. The design of custom made Dock Entry Protection System can be provided on specific request. SA series Shock Absorbers are available in 6 different models.



DIMENSION TABLE

ALL DIMENSIONS ARE IN MM.

MODEL NO.	A	B	ØD	Ød	T	L
SA 3560	500	225	610	356	18	725
SA 4076	625	425	762	406	19	1050
SA 4676	660	475	762	457	25	1135
SA 4090	665	450	914	406	25	1115
SA 4690	660	465	914	457	25	1125
SA 5090	675	475	914	508	25	1150

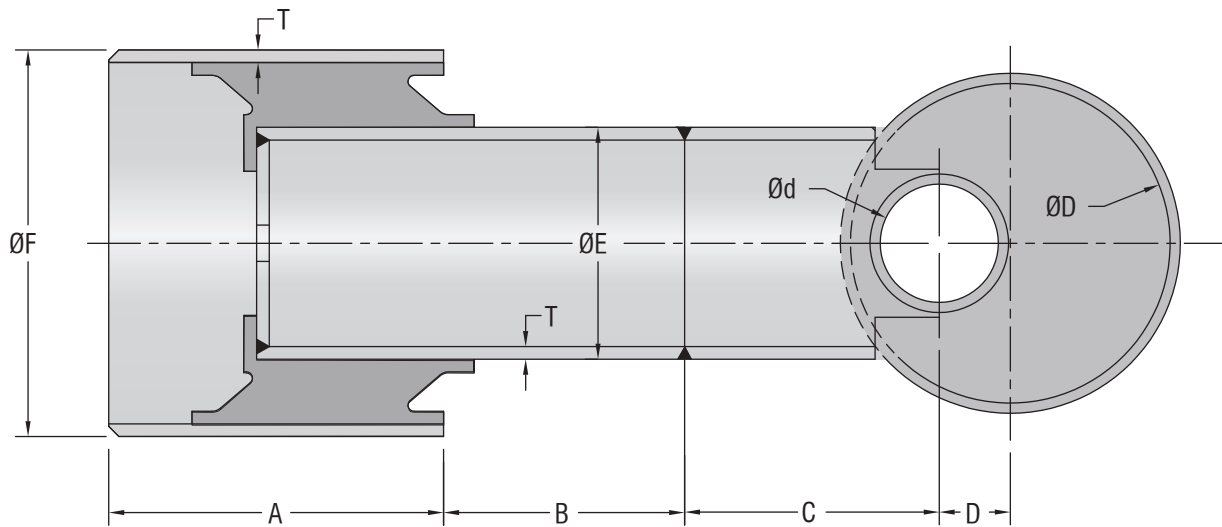
PERFORMANCE TABLE

MODEL NO.	E(T-M)	R(T)
SA 3560	6.25	60.0
SA 4076	14.0	120.0
SA 4676	16.5	155.0
SA 4090	24.0	140.0
SA 4690	22.0	160.0
SA 5090	20.0	150.0

(R : REACTION FORCE E : ENERGY ABSORPTION TOLERANCE ± 10%)

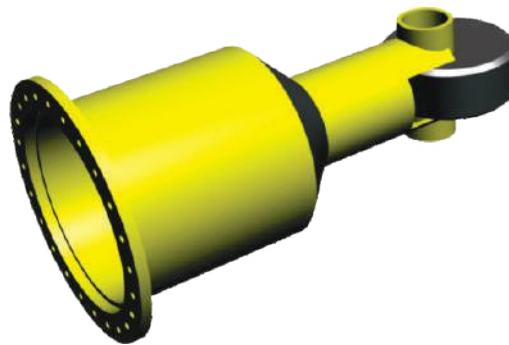
NOTE: INTERMEDIATE PERFORMANCE WITH SIMILAR E/R RATIO ARE AVAILABLE IN BETWEEN GRADES WITH GRADIENT OF 10% AS DOCUMENTED ELSEWHERE IN THE ARCHIVE. HEAVY DUTY SHOCK CELLS ARE AVAILABLE TO WITH STAND HIGHER ENERGY / REACTION FORCE.

SHOCK ABSORBER WITH ERR SAE SERIES



PERFORMANCE TABLE

MODEL NO.	E(T-M)	R(T)
SAE-3560	13.25	60.00
SAE-4076	21.00	120.0
SAE-4676	23.05	155.0
SAE-4090	31.00	140.0
SAE-4690	29.00	160.0
SAE-5090	27.00	150.0



(R: REACTION FORCE E: ENERGY ABSORPTION TOLERANCE: $\pm 10\%$)

NOTE: HIGHER PERFORMANCE CUSTOM BUILT SHOCK CELL CAN BE MANUFACTURE ON REQUEST.

DIMENSIONS TABLE

ALL DIMENSIONS ARE IN MM.

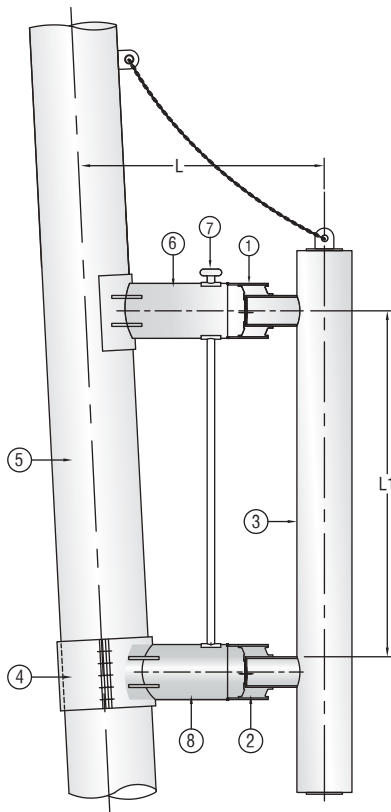
MODEL NO.	A	B	C	D	ØE	ØF	ØD	Ød	T
SAE-3560	500	225	320	100	356	610	535	215	18
SAE-4076	625	425	462	105	406	762	670	245	19
SAE-4676	660	475	502	140	457	762	670	273	25
SAE-4090	665	450	490	115	406	914	670	245	25
SAE-4690	660	465	495	145	457	914	805	305	25
SAE-5090	675	475	506	145	508	914	805	305	25

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BARGE BUMPER ASSEMBLY

Barge Bumper Systems are a unique and technically superior protection system for Offshore Platforms worldwide. They accommodate berthing for very high tidal variations. They are capable of absorbing both axial and lateral loads, thus giving it a distinct edge over any other Platform Protection System. Our make Barge Bumpers are extremely rugged and virtually maintenance free. All the components are NDT tested and Shock Cells are tested for axial as well as lateral load deflection simulating the loading conditions in house. Contact Post of Barge Bumper Assembly is made of High Tensile Steel which do not bend in case of point impacts and protects entire Barge Bumper Assembly. Our Barge Bumpers and Shock Cells are extensively used in various platforms. The concentric tubular design of our Shock Cells ensures very high mechanical strength in lateral and angular loading conditions. It also smoothens the impact of Vessels deflecting axially giving a good cushion effect. Barge Bumper Assemblies are available in different designs.



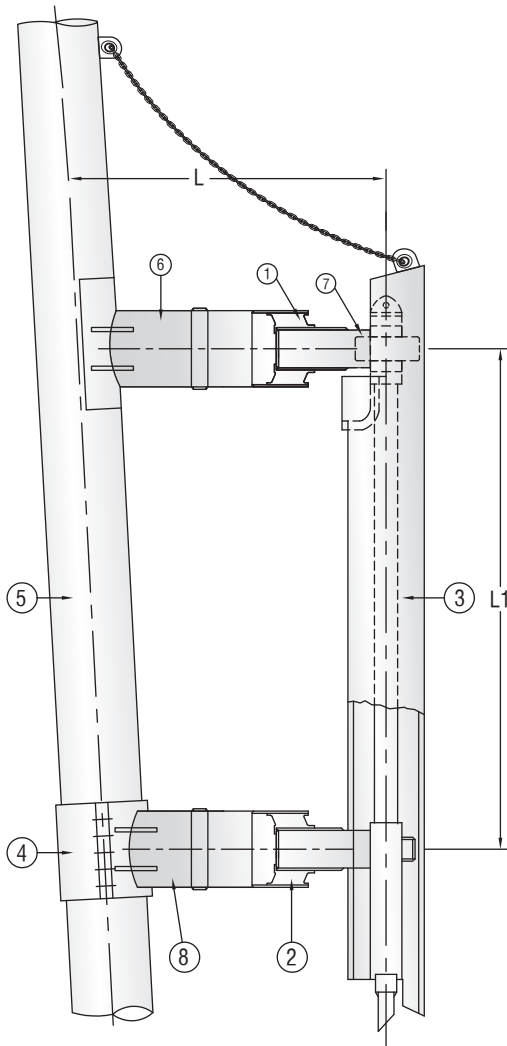
L TO MATCH THE EXISTING FITMENT.

L1 TO MATCH THE EXISTING FITMENT.

1. TOP SHOCK CELL
2. BOTTOM SHOCK CELL
3. CONTACT POST.
4. BOTTOM CLAMP
5. JACKET LEG.
6. TOP EXTENSION PIPE.
7. MOORING CLEAT.
8. BOTTOM PIPE.
9. EXTENSION PIPE



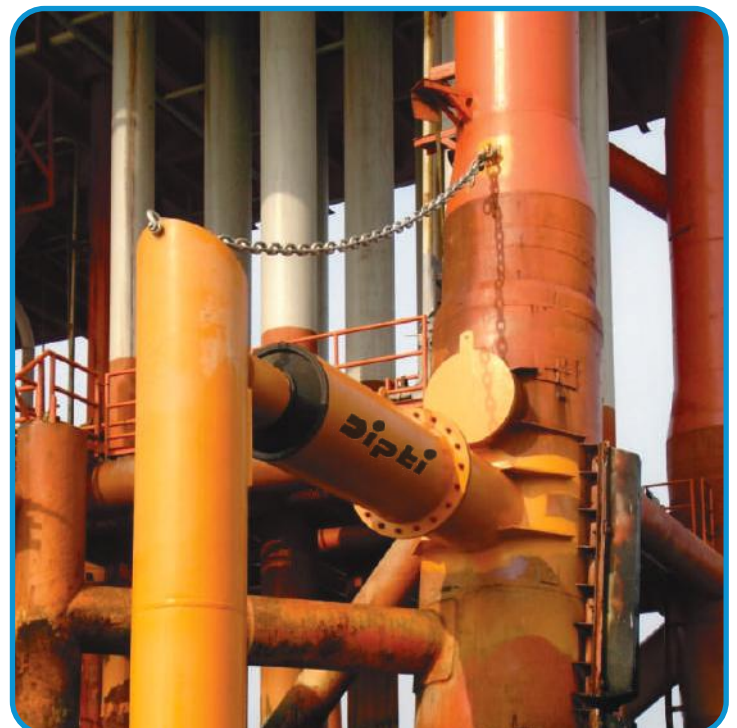
BARGE BUMPER ASSEMBLY WITH ERR



L TO MATCH THE EXISTING FITMENT.

L1 TO MATCH THE EXISTING FITMENT.

1. TOP SHOCK CELL
2. BOTTOM SHOCK CELL
3. CONTACT POST.
4. BOTTOM CLAMP.
5. JACKET LEG.
6. TOP EXTENSION PIPE.
7. ECCENTRIC RUBBER PIPE..
8. BOTTOM PIPE.
9. EXTENSION PIPE.

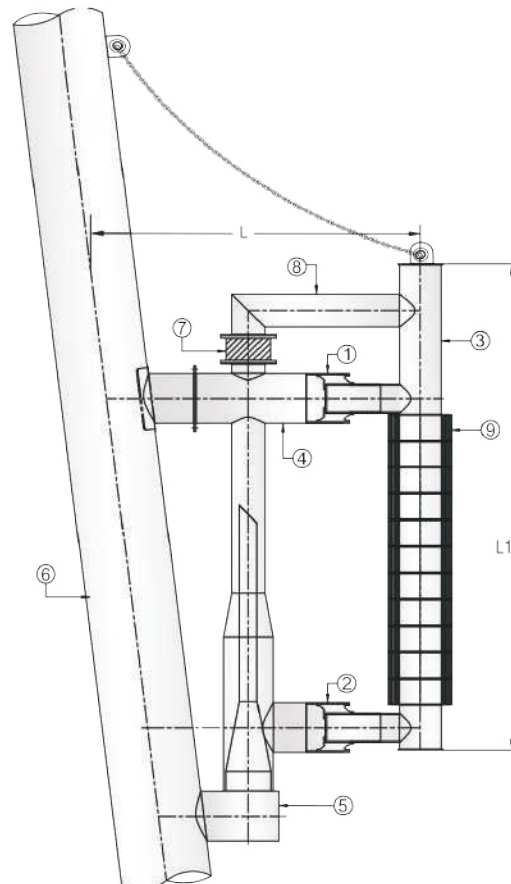


BARGE BUMPER ASSEMBLY WITH DRR



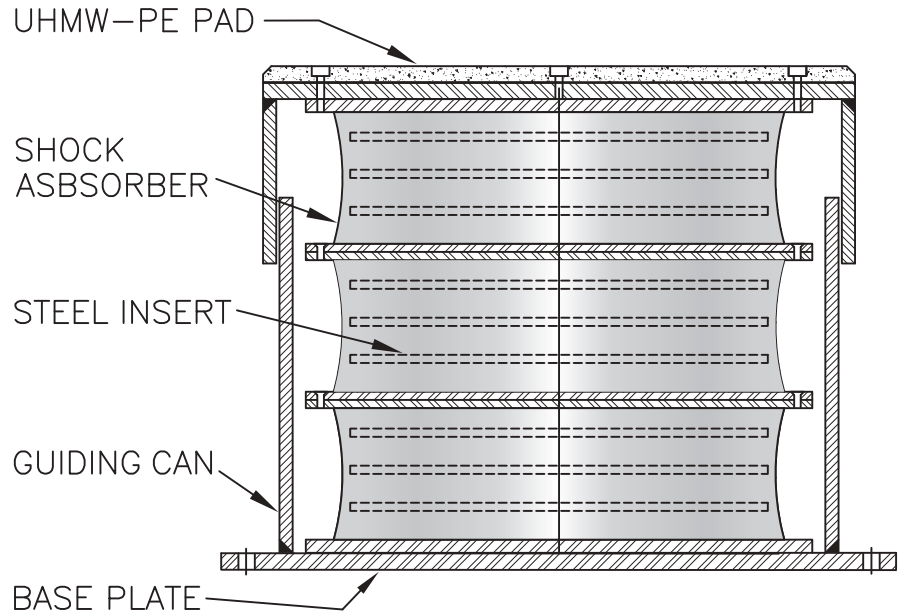
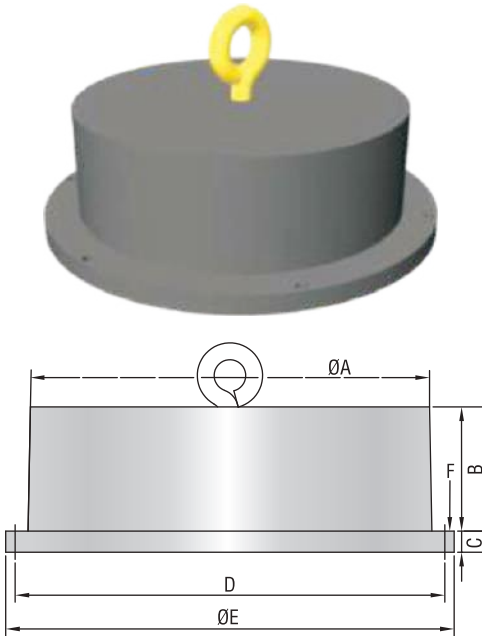
- L TO MATCH THE EXISTING FITMENT
- L1 TO MATCH THE EXISTING FITMENT
- 1. TOP SHOCK CELL
- 2. BOTTOM SHOCK CELL
- 3. CONTACT POST
- 4. TOP EXTENSION PIPE

- 5. BOTTOM CONE ARRANGEMENT
- 6. JACKET LEG
- 7. SHEAR FENDER
- 8. EXTENSION PIPE OF SHEAR FENDER- 9. DIPTI ROTATING RUBBER RING (DRR)



SHOCK PAD

Shock Pads are extensively used for transportation of top decks /heavy structures by sea. They are distinctively designed to absorb heavy loads due to the waves during the voyage. These Shock Pads are very robust in construction and can accommodate very high loads with resilience to keep the deck / structure balanced. Shock Pads can also be designed and manufactured as per customer's requirement for different load applications.



DIMENSION TABLE

ALL DIMENSIONS ARE IN MM.

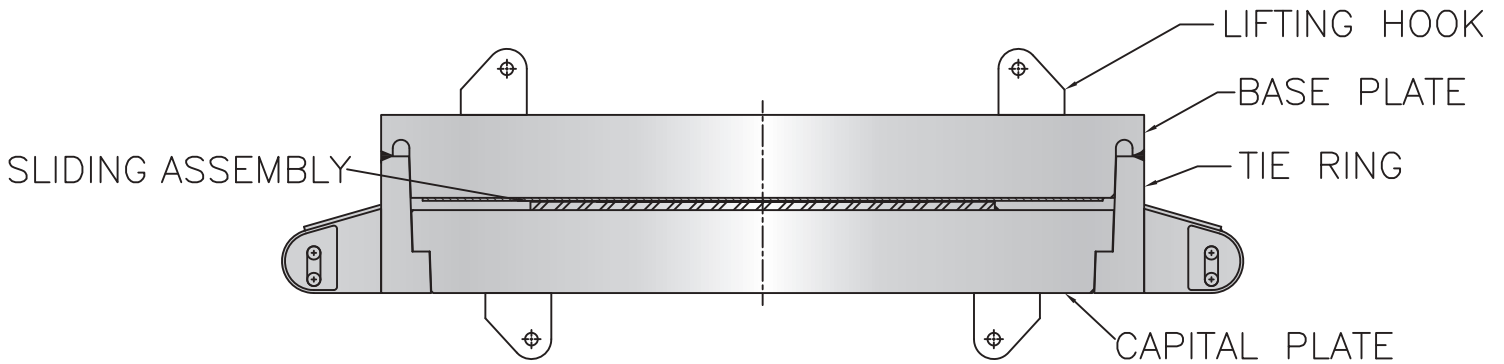
MODEL NO.	A	B	C	D	E	F	LOAD IN MT
DSP 790	790	255	45	915	955	M 22X6	1500
DSP 850	850	265	45	915	955	M 22X6	2750
DSP 1000	1000	264	36	-	1100	-	3525
DSP 1115	1115	400	30	1248	1380	M 30X12	1800
DSP 1250	1250	350	50	1350	1450	M 27X8	3410
DSP 1350	1350	364	36	-	1550	-	5075

AVAILABLE UP TO 3000 TON. LOAD BEARING CAPACITY



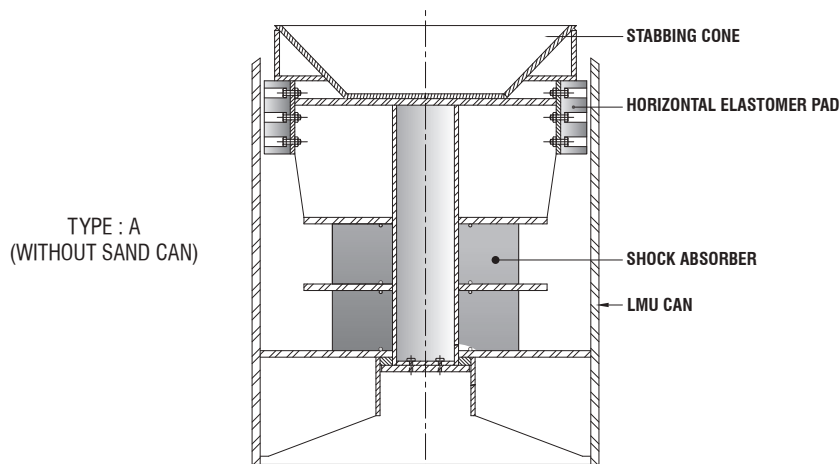
DECK SUPPORT UNIT

DSU's are generally employed as a robust sliding support during leg mating operation. They are capable of supporting the deck & facilitate leg mating during float over operation. The sliding surfaces are generally polished with SS and Kevlar reinforced teflon. The co-efficient of friction between these surfaces are very low to ensure a smooth transition of forces.

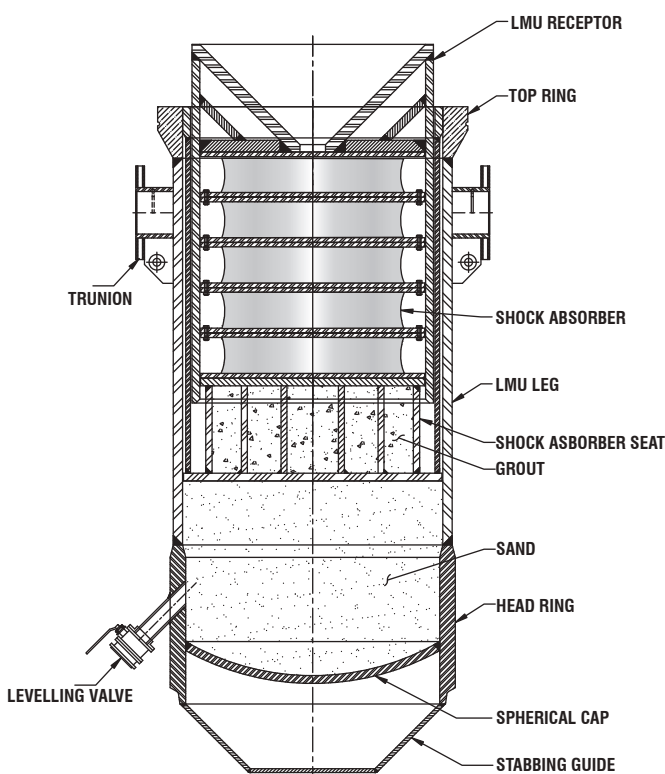


LEG MATING UNIT

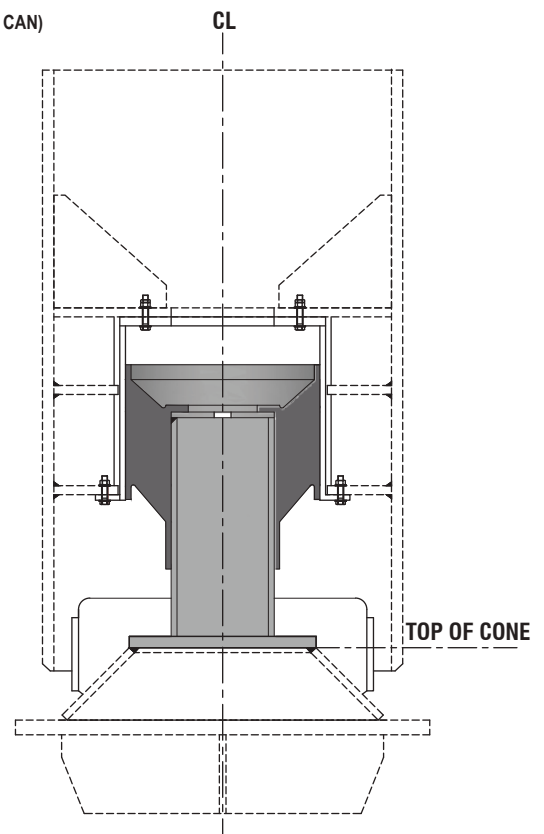
Leg Mating Unit (LMU) is specially designed for the smooth installation of the top deck on the jacket legs. They generally take lateral misalignment jerks and vertical loads and position the top deck easily on the Jacket. The deck is lowered on these mating units and they smoothly transfer these load to the structure without jerks and impact loading. Leg Mating Unit is a combination of horizontal elastomers and vertical elastomers assembled in metal fabricated cans. These elastomeric units with structural support show a very good resilience in actual load transfer conditions. Leg Mating Unit can be provided in both Top Deck and Jackets as per the requirement. These units are subjected to cyclic test, load deformation test and extreme load bearing capacity test in view of its critical function. The elastomers of our Leg Mating Units are capable of performing without creeping under high load as they are made from special grade elastomeric compound to achieve desired test results. Leg Mating Units are available in different designs. More details can be provided on specific request. Custom made Leg Mating Units are designed and manufactured as per client's requirement. IRM possess in house facility to design, manufacture & test the LMU including evaluation of design with FEA and further manufacturing and testing of the LMU under stringent quality check.



TYPE : A
(SHOCK ABSORBER WITHOUT SAND CAN)



TYPE : B
(SHOCK ABSORBER WITH SAND CAN)



TYPE : C
(WITH SHOCK CELL)

DESIGN MAY VARY AS PER SPECIFIC REQUIREMENT.

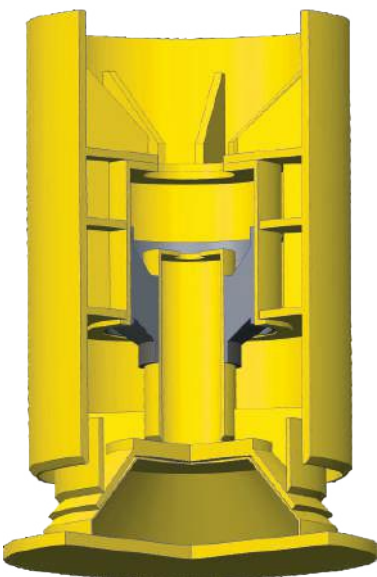
LEG MATING UNIT



TYPE : A
(SHOCK ABSORBER WITHOUT SAND CAN)



TYPE : B
(SHOCK ABSORBER WITH SAND CAN)



TYPE : C
(WITH SHOCK CELL)

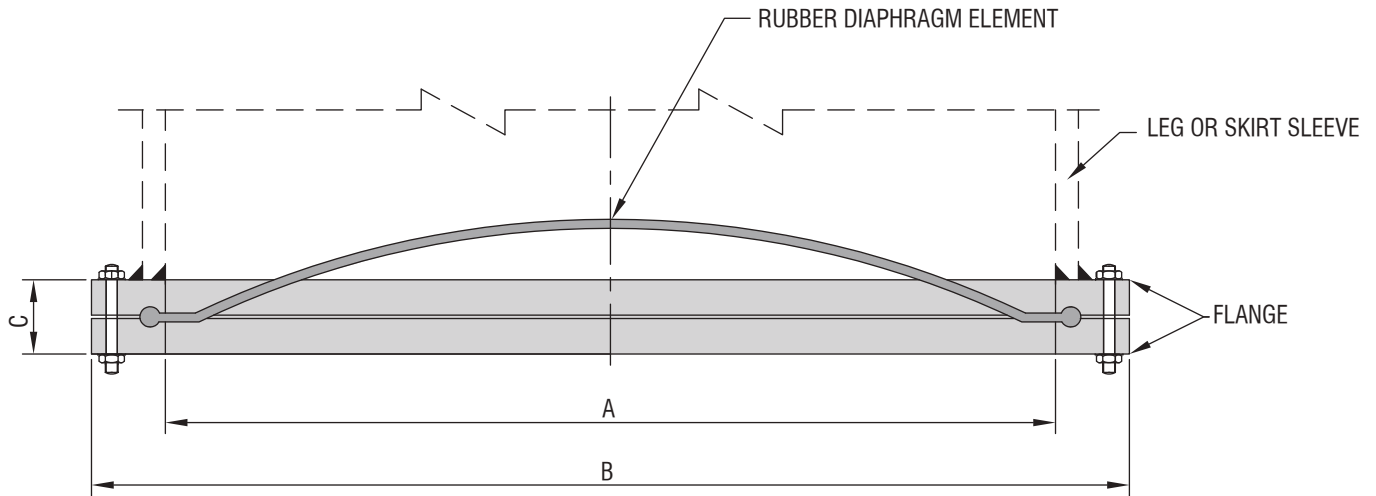


DIAPHRAGM CLOSURE

Diaphragm Closures are most important and critical installation aid for launching of Offshore Jacket. The critical function of these Diaphragms is to withstand very high hydrostatic pressure while launching the offshore jackets. They are specially designed to bear very high water pressure and at the same time to act as a flexible barrier to seal effectively the jacket legs and enables the platform to float in the sea, facilitating its movement and positioning on site after launching. If the diaphragm fails while launching, the whole jacket sinks in to deep sea and it would be practically very difficult to retrieve the same. The specific purpose of using these flexible diaphragms is, it can be easily ruptured by driving piles or using integral cutter depending on its design. They are also pressure tested in house, for the required pressure. Our Diaphragm Closures are having 100% success rate without any failure and are used in more than 50 platforms worldwide. Diaphragm Closures are available in wide range from 18 inch OD Pile to 144 inch OD Pile. Special size can also be developed to suit client's requirements.



DIAPHRAGM CLOSURE



DIMENSIONS TABLE

ALL DIMENSIONS ARE IN MM

PILE SIZE		A		B		C		WEIGHT OF ASSEMBLY
INCH	MM	INCH	MM	INCH	MM	INCH	MM	IN Kg.
18	457	24	610	34	864	2.9	74	135
24	610	28	711	38	965	3.0	76	164
24	610	30	762	40	1016	3.1	78	190
30	762	33	838	43	1092	3.1	78	201
36	914	38	965	48	1219	3.4	86	236
36	914	40	1016	50	1270	3.4	86	284
42	1067	44	1118	54	1372	3.4	86	316
42	1067	49	1245	59	1499	3.5	88	354
48	1219	51	1295	61	1549	3.6	91	374
48	1219	55	1397	65	1651	3.6	91	409
54	1372	58	1473	68	1727	3.7	94	442
60	1524	63.5	1613	73.5	1867	3.7	94	491
60	1524	66	1676	76	1930	3.9	99	512
66	1676	68	1727	78	1981	3.9	99	585
66	1676	71	1803	81	2057	3.9	99	620
72	1829	75	1905	85	2159	4.0	101.6	650
72	1829	78	1981	88	2235	4.0	101.6	684
78	1981	82	2083	92	2337	4.1	104	724
84	2134	87	2210	97	2464	4.1	104	770
84	2134	90	2286	100	2540	4.1	104	794
90	2286	95.5	2426	108.6	2760	4.1	104	850
96	2438	101	2565	111	2819	4.1	104	898
120	3048	128	3251	138	3505	4.2	107	1150
132	3353	139	3531	149	3785	4.2	107	1285
144	3658	149	3785	159	4039	4.2	107	1390

THE WEIGHT VALUES MENTIONED ARE SUBJECT TO CHANGE WITHOUT NOTICE.

PILE GRIPPER

Pile Grippers are unique Engineering products for the leveling of Jackets and also to prevent any movement during grouting. At mid-sea, waves and storm cause relative movements of Jackets with piles. This may damage pile foundation severely. Hence to restrict such movements of Jacket, Pile Grippers are fitted on Jackets. They are actuated hydraulically to hold Pile firmly and prevent any relative movement. Pile Grippers are used to level jackets before grouting and are very essential to stop slightest displacement of Jacket during the setting time of grout materials. All our pile grippers are 100% tested for its design and testing load under the witness of Third Party Inspection Agency at our factory before dispatch.

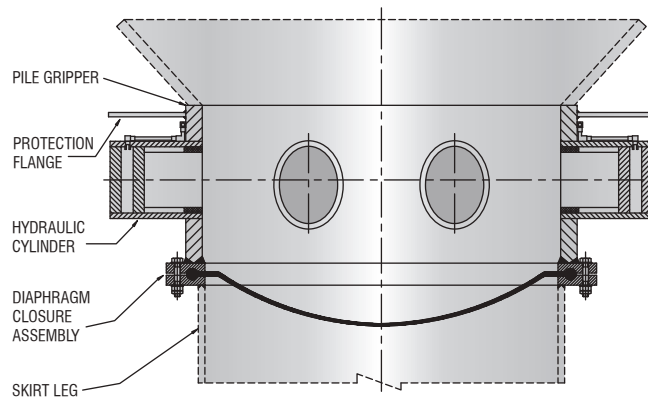
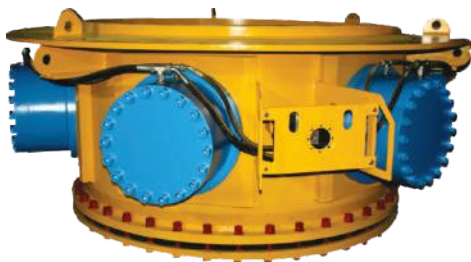
We supply Pile Grippers with complete accessories like Hydraulic Power unit, Control Panel, Hose Pipes, Distribution Unit, Hot stabs and other required components for ROV Intervention as per the requirement. The complete Hydraulic Power unit and Control panel are designed for ease of operation. Pile Grippers are available up to 140” pile dia size and even higher sizes as per client's requirement.

Installation & Operation of the Pile Grippers

Pile Grippers are welded to the Pile Sleeve. These Pile Gripper is designed for ease of welding at the yard by the client. After completion of installation of jackets the Pile Grippers remain in place as part of the permanent structure. The pre installed hydraulic pipelines will be removed thereafter. We provide our supervision services during Installation and testing of Pile grippers at site and during offshore operations. We have a well-trained & experienced team of Engineers to provide such services to our esteemed clients, for ease of Installation and operation of the Pile Grippers.

Key attributes :

- Custom built grippers as per the specific load requirement.
- Provides stability during the leveling of jacket in all weather conditions.
- Auxiliary back-up to overcome any contingency during operation.
- All accessories available as per client's requirement.



Hydraulic Power Pack for Pile Gripper

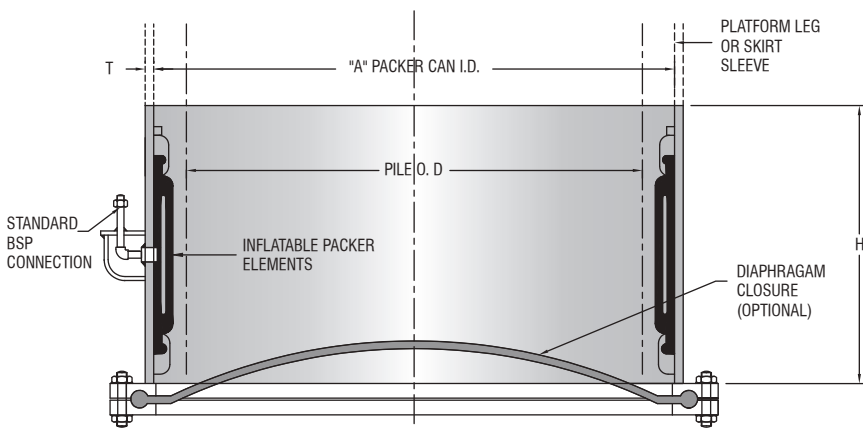


PILE GRIPPER



INFLATABLE GROUT PACKER

Inflatable Grout Packers are also an important and critical installation aid of Offshore Jacket. The critical function of these inflatable Packers are to seal Jacket legs from bottom side and to withstand the load of Grout column rest on it. Grout Packers provide a strong and reliable seal between the jacket leg and pile facilitating depositing of grout material to provide stability to the structure. These can be supplied in different sizes to suit any jacket leg and pile as per the specific requirement of the customer. Our make Grout Packers have got an enviable track record and have performed to the entire satisfaction of various clients. Our Grout Packers are tested in house simulating the required pressure and load of actual working conditions. Grout Packers are available in wide range from 24 inch OD to 144 inch OD Pile. Special size can also be developed as per clients' requirements. Grout packer assembly can also be supplied with suitable mud wiper to prevent mud penetration from the bottom side of jacket. Technical details of mud wiper can be furnished on request.



INFLATABLE GROUT PACKER

DIMENSIONS TABLE

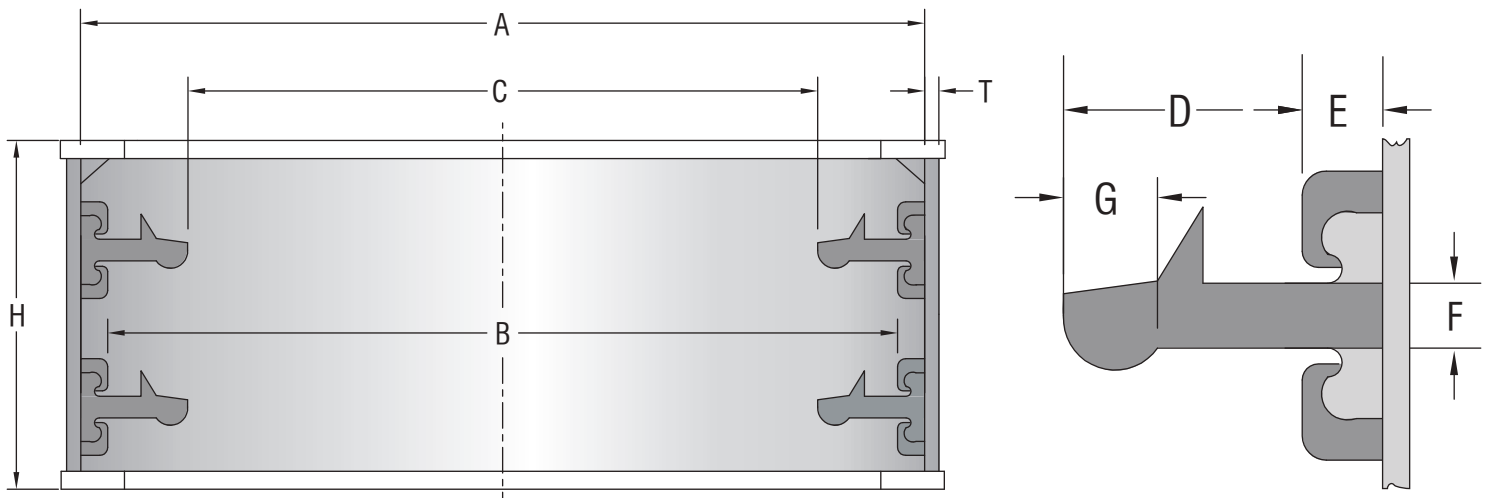
ALL DIMENSIONS ARE IN MM

PILE SIZE		A		T		H		ASSEMBLY WEIGHT
INCH	MM	INCH	MM	INCH	MM	INCH	MM	IN Kg.
18	457	23	584	0.75	19	24	610	247
22	559	27	686	0.75	19	24	610	289
24	610	30	762	0.75	19	24	610	321
30	762	35	889	0.75	19	24	610	374
30	762	36	914	0.75	19	24	610	385
36	914	41	1041	0.75	19	24	610	438
38	965	44	1118	0.75	19	24	610	470
40	1016	45	1143	0.75	19	24	610	481
42	1067	46	1168	0.75	19	24	610	445
42	1067	47	1194	0.75	19	24	610	502
42	1067	48	1219	0.75	19	24	610	486
44	1118	49	1245	0.75	19	24	610	523
44	1118	50	1270	0.75	19	24	610	534
46	1168	52	1321	0.75	19	24	610	555
48	1219	52.5	1334	0.75	19	24	610	535
48	1219	54	1372	0.75	19	24	610	577
53	1346	58.5	1486	0.75	19	24	610	624
54	1372	58.5	1486	0.75	19	24	610	596
54	1372	59.5	1511	0.75	19	24	610	635
56	1422	62	1575	1.00	25	24	610	815
60	1524	66	1676	1.00	25	30	762	1061
62	1575	68	1727	1.00	25	24	610	874
66	1676	72	1829	1.00	25	30	762	1156
66	1676	74	1880	1.00	25	30	762	1188
72	1829	78	1981	1.00	25	30	762	1252
72	1829	79	2007	1.00	25	30	762	1268
74	1880	80	2032	1.00	25	30	762	1284
78	1981	84	2134	1.50	38	30	762	1881
78	1981	85	2159	1.50	38	30	762	1904
84	2134	90	2286	1.50	38	30	762	2009
84	2134	91	2311	1.50	38	30	762	2031
87	2210	93	2363	1.50	38	36	914	2366
96	2438	102	2591	1.50	38	30	762	2264
96	2438	104	2642	1.50	38	34	864	2596
102	2591	108	2743	1.50	38	30	762	2315
104	2642	110	2794	1.50	38	30	762	2226
104	2642	112	2845	1.50	38	36	914	2843
108	2743	114	2896	1.50	38	30	762	2442
120	3048	127	3226	1.50	38	30	762	2857

THE WEIGHT VALUES MENTIONED ARE SUBJECT TO CHANGE WITHOUT NOTICE.

GROUT SEAL

Mechanical seal type Grout Seals are the superior alternative to Inflatable Grout Packers. These Grout Seals do not require any inflation system, thus reduce installation cost and offers effective sealing. Its unique design offers an extremely reliable sealing mechanism between the Pile & Jacket Leg. Grout Packers sometimes fails due to human error, breakage of inflation line during launching, puncture of packer while driving the pile. However, our Dual Lip Grout Seal Assembly is extremely reliable due to its unique cross section shape which offers zero failure performance. These seals provide a unique solution for the grouting of the jacket legs. Our Grout Seals has proved its superiority by saving substantial cost of Grouting. Grout Seals are available in wide range from 24 inch OD to 144 inch OD Pile. Special size can also be manufactured as per client's requirements. Grout Seal Assembly can also be supplied with suitable mud wiper to prevent mud penetration from the bottom side of jacket. Technical details of mud wiper can be furnished on request.



DIMENSIONS TABLE

ALL DIMENSIONS ARE IN MM

PILE SIZE		A±5	B±5	C±5	D	E	F	G	T
INCH	MM	MM	MM	MM	MM	MM	MM	MM	MM
20	508	708	648	392	128	30	30	75	18
24	610	810	750	494	128	30	30	75	20
30	762	962	902	646	128	30	30	75	20
36	914	1114	1054	798	128	30	30	75	22
42	1067	1267	1207	951	128	30	30	75	25
48	1219	1419	1359	1103	128	30	30	75	25
54	1372	1572	1514	1258	128	30	30	75	25
60	1524	1724	1664	1408	128	30	30	75	25
66	1676	1876	1816	1560	128	30	30	75	25
72	1829	2029	1969	1713	128	30	30	75	25
78	1981	2181	2121	1865	128	30	30	75	32
84	2134	2334	2274	2018	128	30	30	75	38
90	2286	2486	2426	2170	128	30	30	75	38
96	2438	2636	2576	2320	128	30	30	75	38
108	2743	2943	2883	2627	128	30	30	75	38
120	3048	3248	3188	2932	128	30	30	75	38

DIMENSIONS H WILL VARIES FROM 400H TO 800H

GROUT SEAL

GROUT SEAL WITH DIAPHRAGM CLOSURE

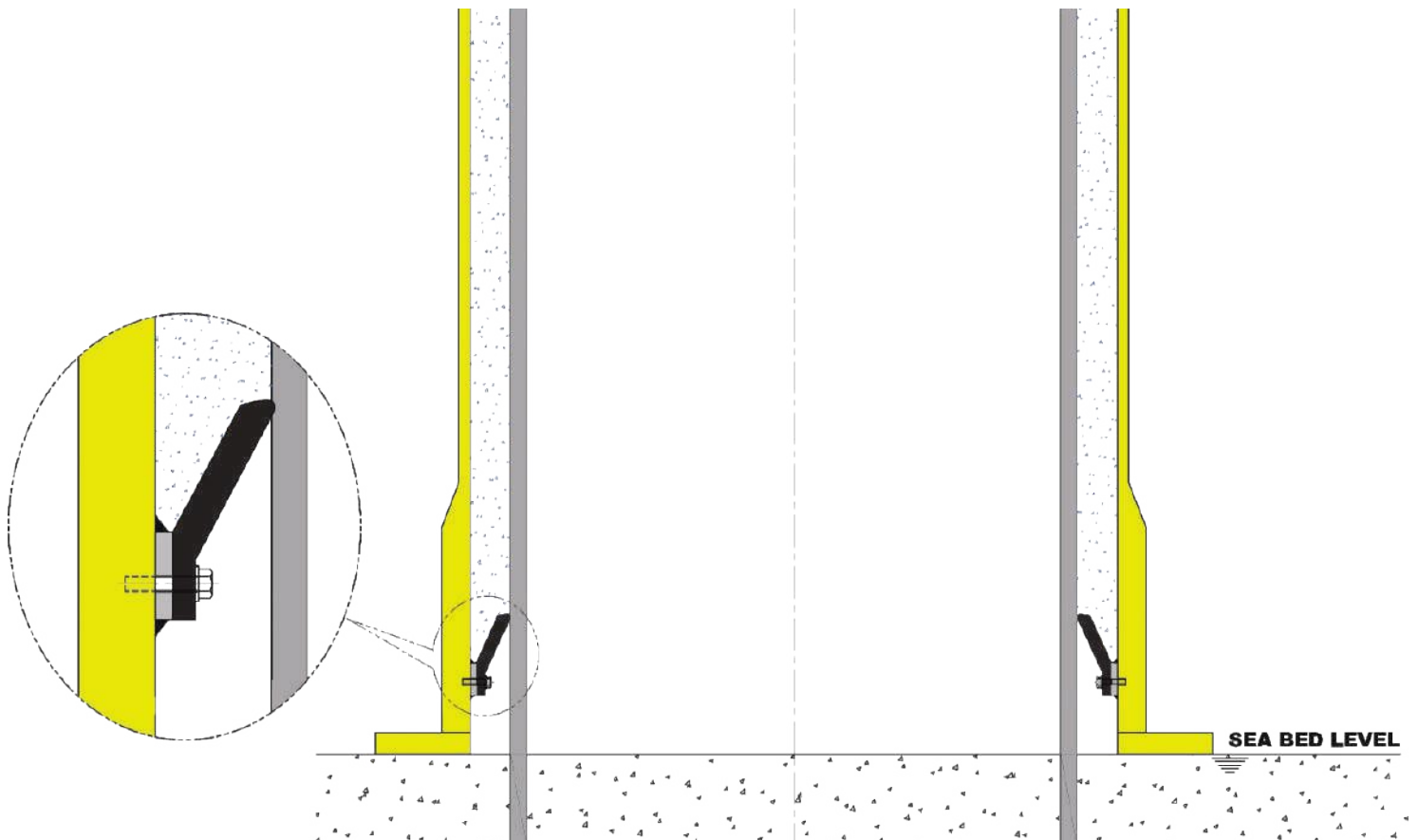


GROUT SEAL WITH MUD VIPER



WIPER GROUT SEALS

Wiper Grout Seals have been specially developed for wind turbine structure where generally the piles are pre driven. These Grout Seals can be used for monopole foundations or even tripod structures. These Grout Seals are custom built and size can vary to suit the structures / piles. Generally the diameter may vary from less than 1 mtr to 6.5 mtr. The overall design of the seals depends on the pile diameter grout head and the annular gap between the pile and the structure. The fixing arrangement can also be modified for ease of installation. These Grout Seals can be configured either to attach inside the leg or outside the pile depending on the operational requirement. These Wiper Grout Seals are manufactured from high quality rubber compound by compression moulding process which ensures and imparts high strength and reliability. For heavy duty applications the seals can also be reinforced with nylon fabrics to enhance their capacity. The rubber compound can be optimized for wide range of applications.



WIPER GROUT SEALS



PRODUCTS FOR OFFSHORE PLATFORM INSTALLATION



DECK SUPPORT UNITS



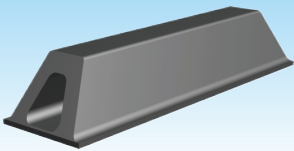
LEG MATING UNITS



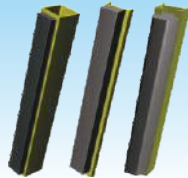
SHOCK PADS



LEG MATING UNITS



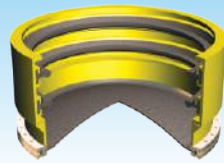
BOAT LANDING FENDERS



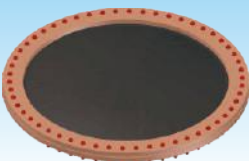
BOAT LANDING RUB STRIPS



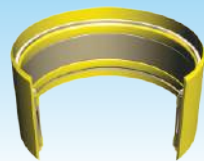
MUD WIPERS



GROUT SEALS



DIAPHRAGM CLOSURES



INFLATABLE GROUT PACKERS

& PROTECTION



SURGE & SWAY FENDERS



BARGE BUMPERS



SHOCK ABSORBERS



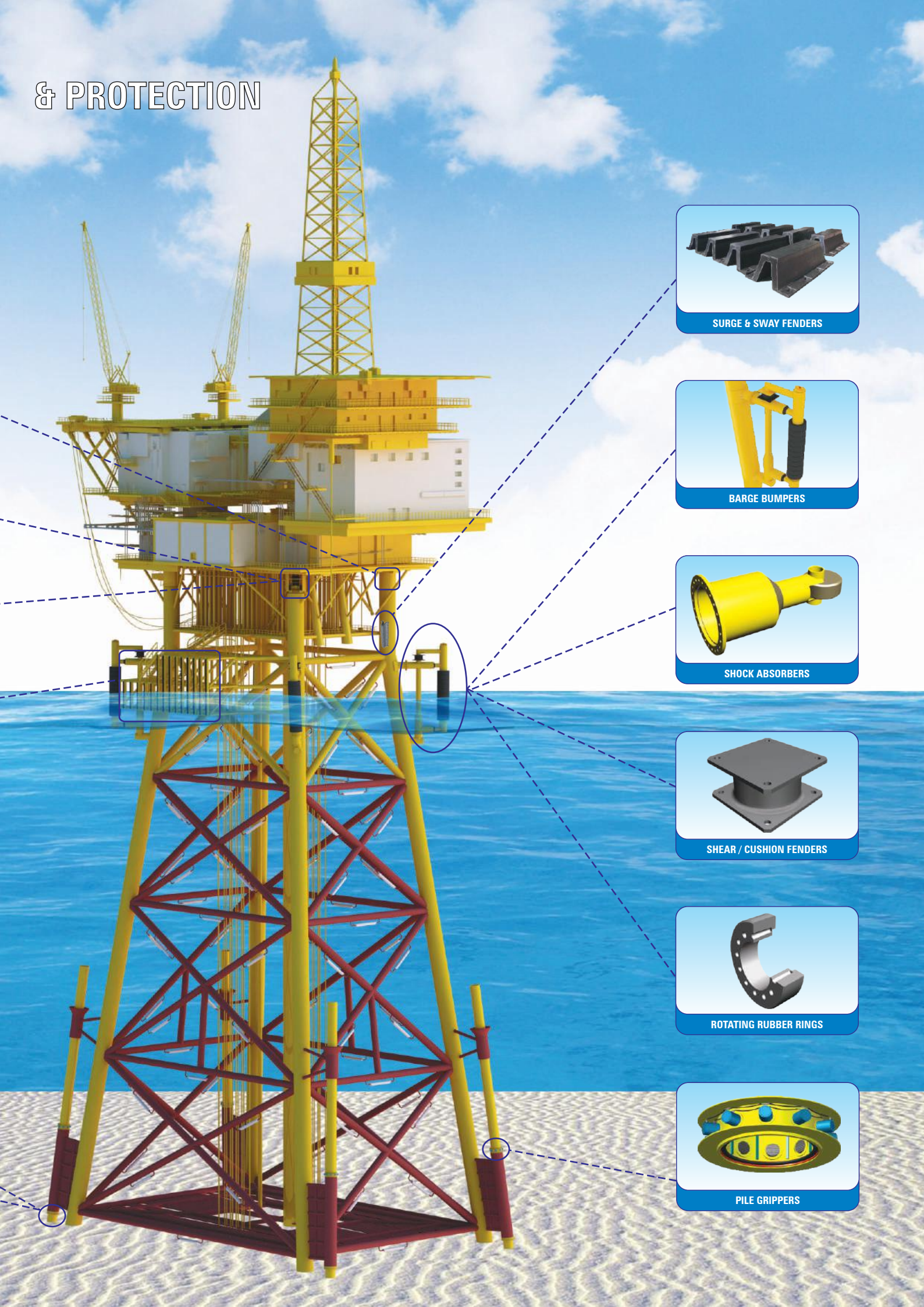
SHEAR / CUSHION FENDERS



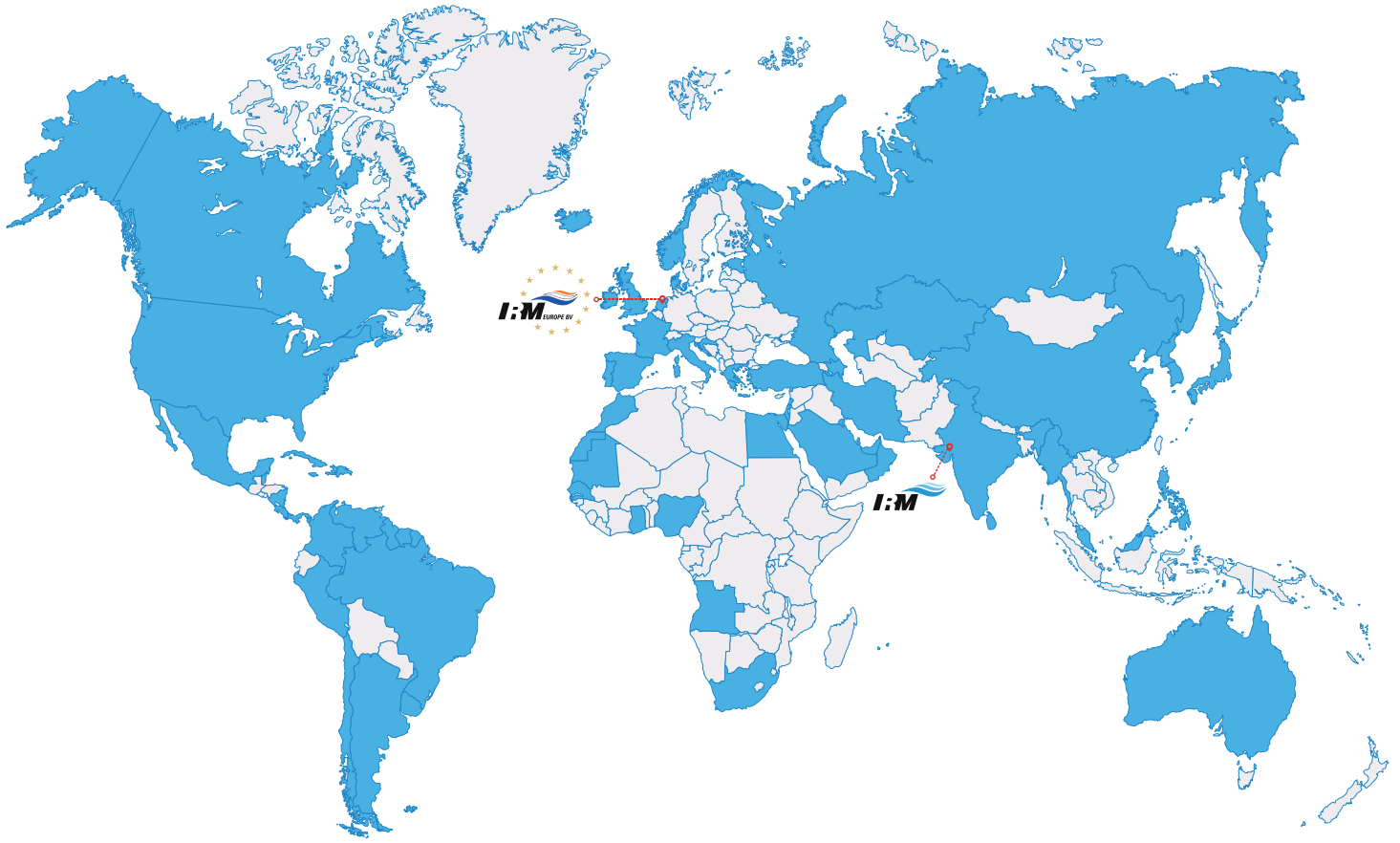
ROTATING RUBBER RINGS



PILE GRIPPERS



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