2012-12

Nonvulcanized butyl rubber waterstop

SPANSEAL®

Reactive adhesive waterstop

W-0620-PP

ちきゅうにやさしい

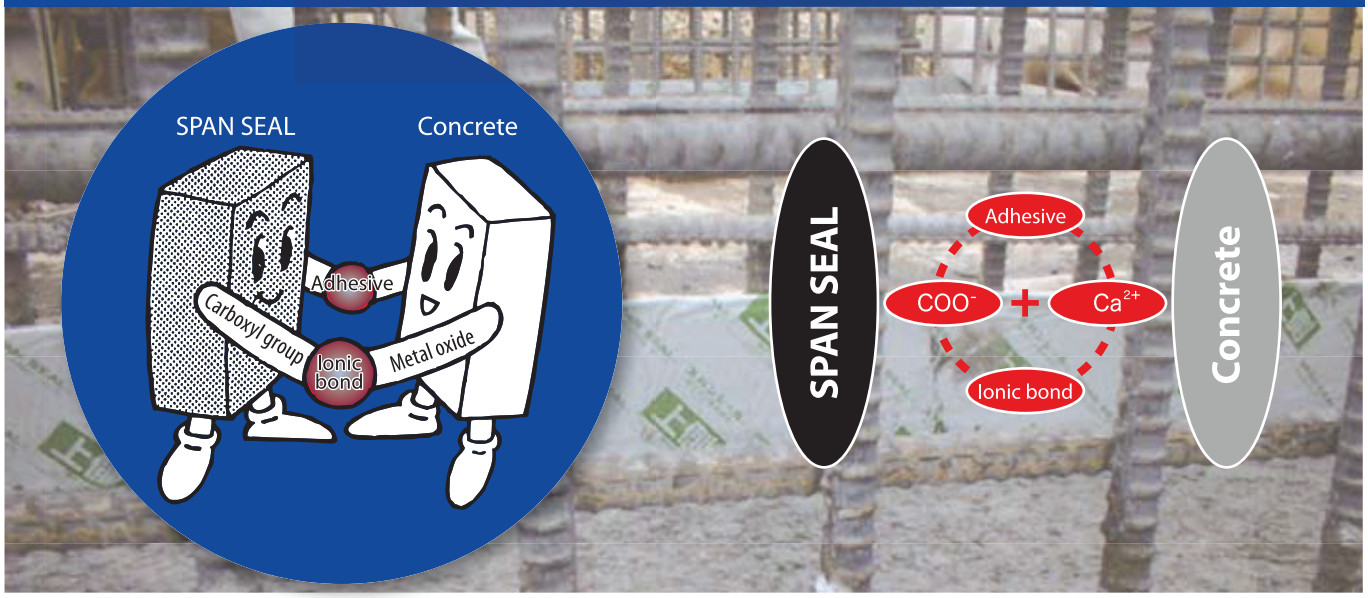
Recycle materials used
22% recycled rubber

Eco-friendly logo certification number
05 131 034

HAYAKAWA RUBBER CO., LTD.
http://www.hrc.co.jp/

Reactive adhesive waterstop

SPAN SEAL



Adhesive Performance Between SPAN SEAL and Green Concrete

SPAN SEAL is a flexible, self-adhesive strip of nonvulcanized butyl rubber which is specially treated to meet various requirements.
SPAN SEAL's best feature is that it adheres to green concrete during the hydration process.
This adhering mechanism is scientifically solved.
It is based upon the existence of active groups (carboxyl groups, etc.) generated while special treatment is performed on butyl rubber.
Namely, the metal oxide ions in cement react with the active groups in SPAN SEAL, thereby allowing a chemical compound to be formed (adhesion).

■Features

- Performs water stopping by integrating green concrete and SPAN SEAL.
- Its rubber base material offers flexibility and conformability to expand and contract with the concrete when temperature fluctuation occurs in the framework.
- Butyl rubber, as a main component, offers excellent resistance to water, alkali and weather.
- **SPAN SEAL W type** contains galvanized sheet iron (0.4 mm) in it's core to withstand bending against the pressures of screwcrete, concrete mixer, etc., and facilitates good workmanship.
- **SPAN SEAL RGS type** facilitates good workmanship and excellent workability because you can fix it in place with nails before assembling the rebar. It fits well in the corners and the uneven sections for concrete forms and underground walls.
- **SPAN SEAL WT type** offers better management of workmanpship by fitting it prior to pouring the concrete. It is easy to install. Just bend each section one at a time alternating sides and fix it on the rebar with the binding wire.
- **SPAN SEAL R and H types** use an adhesive agent to attach to H-beams and penetration pipes ensuring water stopping performance on the surface.
- The eco-friendly or "green" logo means the product is environmentally friendly.

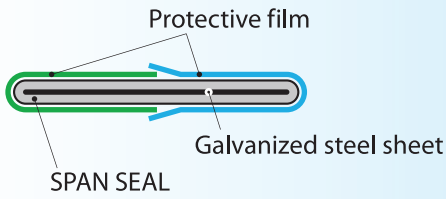
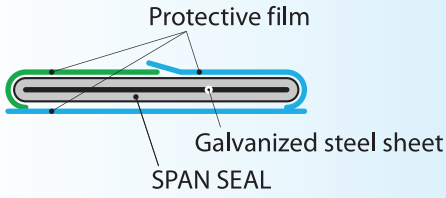
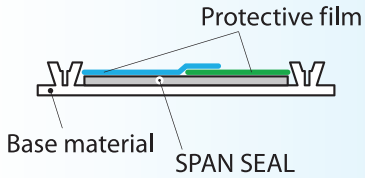
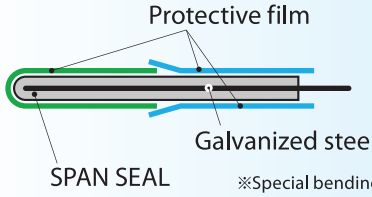
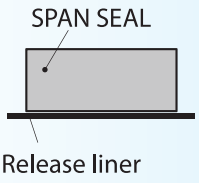
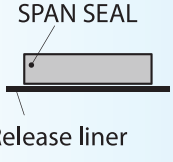
■Civil engineering applications

Railways/Roads	Tunnels, underground passages, subways, box culverts and bridges
Dams	Temporary diversion channels/tunnels : Concrete gravity dams (including inspection galleries, waterstop walls, etc.) and rock-fill dams (including inspection galleries, spillways, etc.)
Electric power plants	Power plants, headraces, tailraces, waterways, surge tanks and ducts
Water supply and sewage	Reservoirs, setting tanks, treatment tanks and pump stations
Agricultural irrigation	Culverts, reservoirs, waterways and siphons
Rivers, harbors, etc.	River mouth weirs, bank revetments, etc., pools, basement parking lots and underground malls

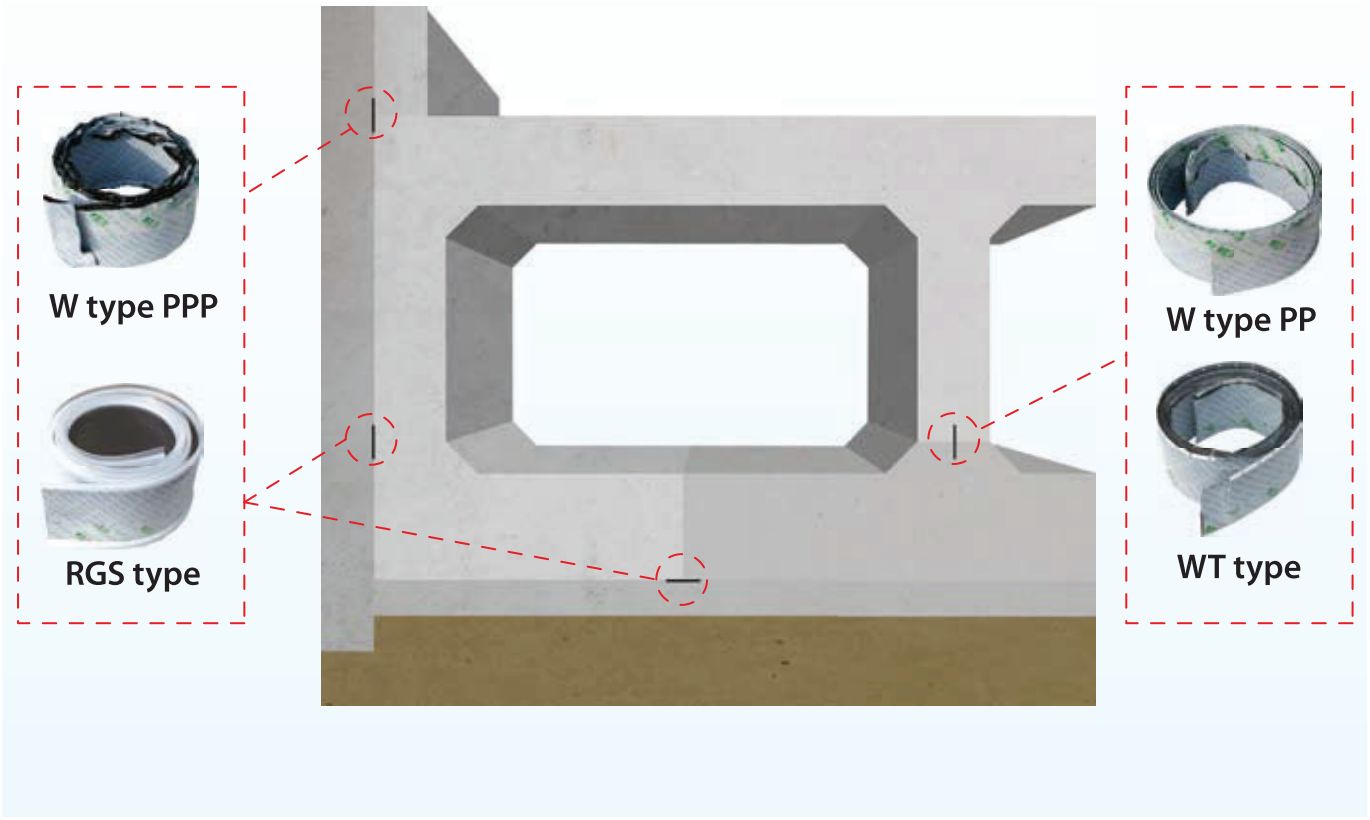
■Architectural applications

Above ground building structures	Construction joints at each floor and veranda joints
Underground building structures	Construction joints at each floor (including underground walls), water receiving tanks, temporary H-beams and penetration pipes
PC building structures	Joints

■Product list

	Configuration	Part number	Dimensions (mm) Thickness×Width×Length	Contents	Weight (kg/m)
Insert type	 	W-0610-PP	6×100×5100	5m×Qty.2	1.1
		W-0615-PP	6×150×5100	5m×Qty.2	1.7
		W-0620-PP	6×200×5100	5m×Qty.2	2.2
		W-0625-PP	6×250×5100	5m×Qty.2	2.7
		W-0630-PP	6×300×5100	5m×Qty.2	4.2
		W-1010-PP	10×100×5100	5m×Qty.2	1.7
		W-1015-PP	10×150×5100	5m×Qty.2	2.6
		W-1020-PP	10×200×5100	5m×Qty.2	3.5
		Made to order W-1030-PP	10×300×5100	5m×Qty.2	4.9
Sheath clasp type	 	W-0615-PPP	6×150×5100	5m×Qty.2	1.1
		W-0620-PPP	6×200×5100	5m×Qty.2	2.2
		Made to order W-0625-PPP	6×250×5100	5m×Qty.2	2.7
		Made to order W-0630-PPP	6×300×5100	5m×Qty.2	4.2
	  ※RGS-0544 protective film has divisons every 250 mm / 100 mm on a SPAN SEAL product with a width of 350 mm. Note, special custom orders are also available for non-standard protective film (150/200, 100/150/100, 75/200/75).	RGS-0529	5×290×5000	5m×Qty.2	1.5
		RGS-0544	5×440×5000	5m×Qty.2	2.4
Binding wire type	 ※Special bending jig included 	WT-0615-PPP	6×150×5100	5m×Qty.2	1.8
		WT-0620-PPP	6×200×5100	5m×Qty.2	2.6
Steel beam / Pipe type	 	R-0506	5×60×4050	4m×Qty.6	0.5
		R-0610	6×100×4050	4m×Qty.5	1.0
	For pipe	R-1503	15×30×4050	4m×Qty.4 4m×Qty.8	0.7
		R-2005	20×50×3050	3m×Qty.6	1.5
	 	H-0640	6×100×2500	Qty.6	1.0
		H-0635	6×100×2200	Qty.6	1.0
		H-0630	6×100×1900	Qty.6	1.0
Special adhesive agent	Santac bond PB-50 	Recommended amount when applying: approximately 3 m² (1.0 kg/can) Approximately 10 cans per H-beam Approximately 60 m (application width: 50 mm) needed for pipe			

■SPAN SEAL installation position: reference diagram

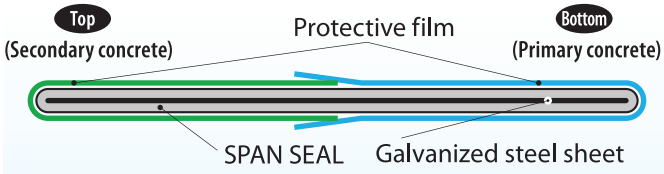


SPAN SEAL W Type

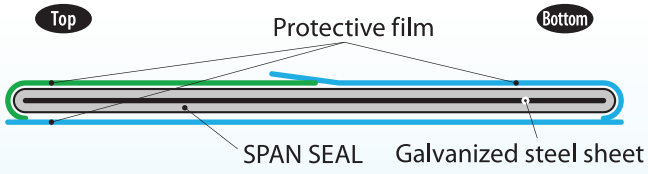
■Installation examples

SPAN SEAL W Type

■Product configuration

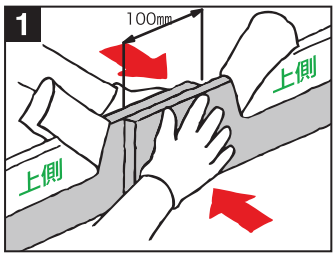


W type PP (insert type)

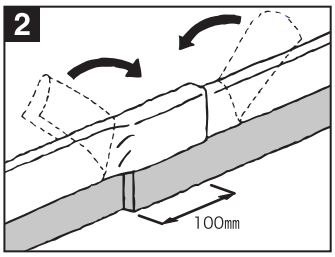


W type PPP (sheath clasp type)

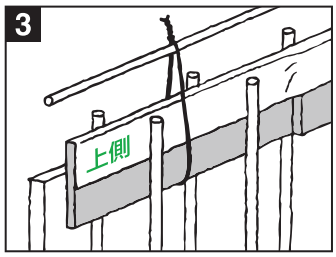
■Standard installation guide



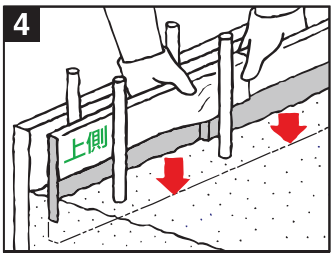
1. Pull back the protective film to show the joint section, and press with your hands to clamp together.
(More than 100 mm is required to overlap the two ends.)



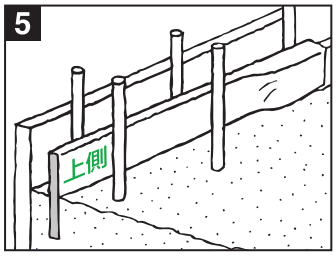
2. Return the top protective film back to its original position.



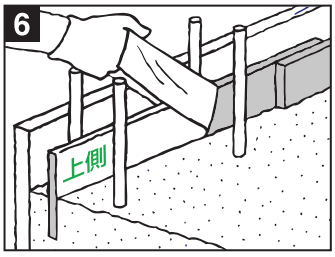
3. Lower it down but keep it hoisted with binding wire so that it sets slightly above the pouring (surface) level.



4. After the concrete form is poured and the concrete hydration begins just before the plastering holds it down, insert the waterstop until it reaches the specified position.



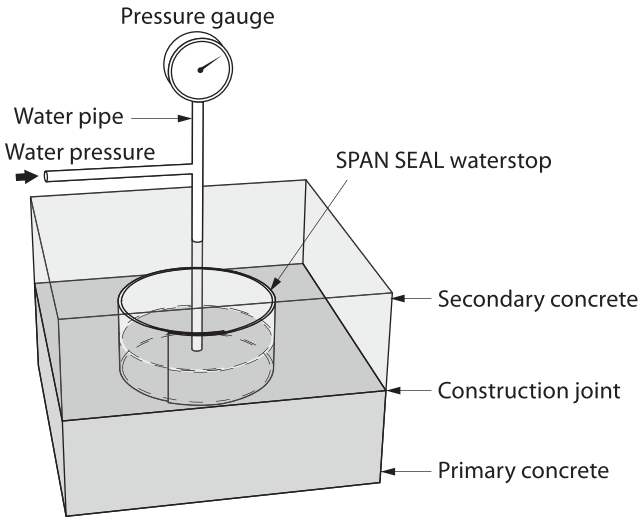
5. Insert and fix the SPAN SEAL waterstop so that about one third to one half of the waterstop is lowered into the primary pour.



6. Remove the top protective film before the secondary concrete pour.

■Water tightness test

※On-site test performed by the Hiroshima Prefectural Techonology Research Institute (eastern branch office).



■Test results

Water pressure(MPa)	Time (min.)	W-0610	W-0615	W-0620
0.1	30	No leak	No leak	No leak
0.3	30	No leak	No leak	No leak
0.5	30	No leak	No leak	No leak
0.7	30	No leak	No leak	No leak
1.0	30	-	No leak	No leak
1.2	30	-	-	No leak

SPAN SEAL RGS Type

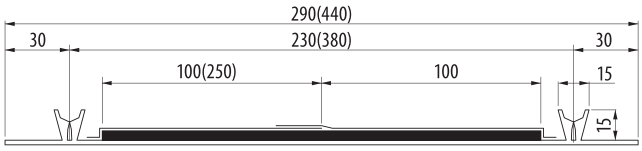
■Product dimensions

Unit : mm

RGS-0529: Thickness 5 mm × Width 290 mm × 5,000 mm

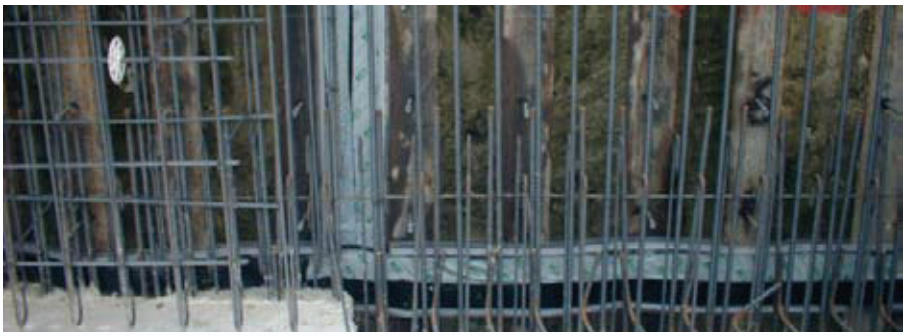
RGS-0544: Thickness 5 mm × Width 440 mm × 5,000 mm

※The value in parenthesis is for RGS-0544.
The other values (without parentheses) apply to both RGS-0529 and RGS-0544.



■Installation examples

Panoramic view



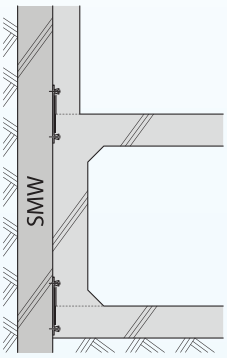
RGS intersecting installation

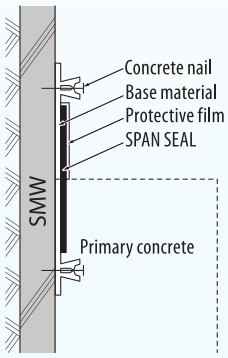
Inside corner

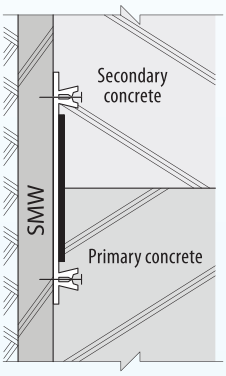
Outside corner

Joint section

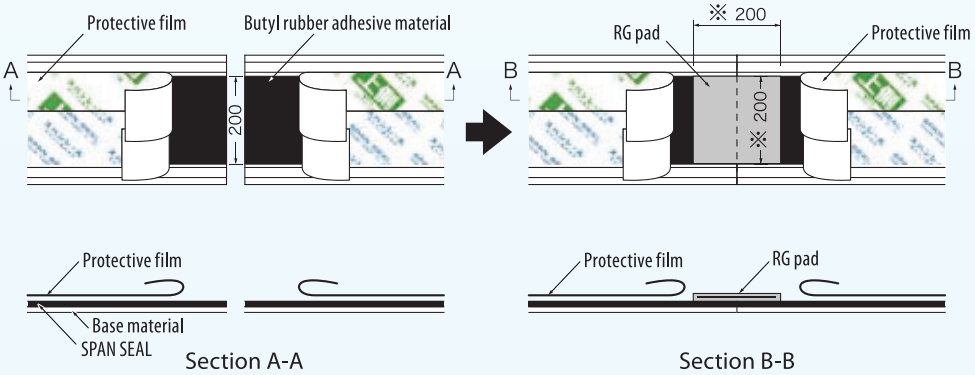
■When setting to SMW: Horizontal construction joint



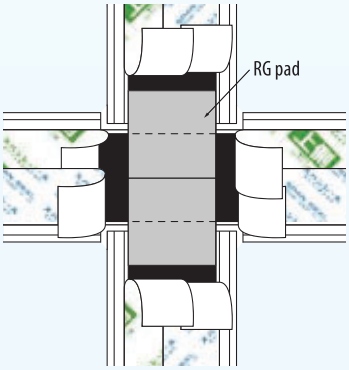




■Standard joining method



■Intersection joining method



※For the RGS-0529

New Product

SPAN SEAL WT Type

Features

- Easy to install. Just bend each section one at a time and fix it on the rebar with the binding wire.
- Helpful for quality assurance and enabling better management of workmanship by fitting the WT type prior to pouring the concrete.

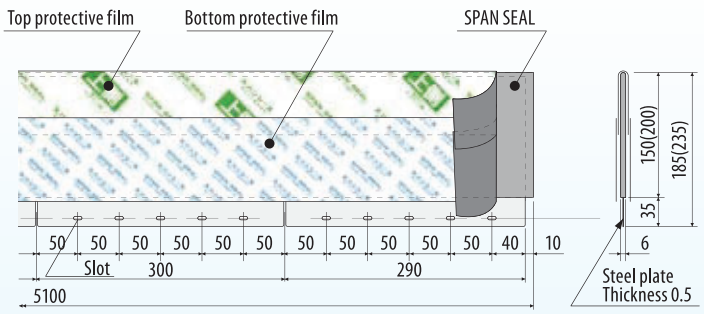
■Water tightness performance

Water pressure (MPa)	Time (min.)	Test results
0.1	30	No leak
0.3	30	No leak
0.5	30	No leak
0.7	30	No leak
1.0	30	No leak

■Product dimensions

WT-0615-PPP: Thickness 6mm × Width 150mm × 5,100mm
WT-0620-PPP: Thickness 6mm × Width 200mm × 5,100mm

Unit : mm



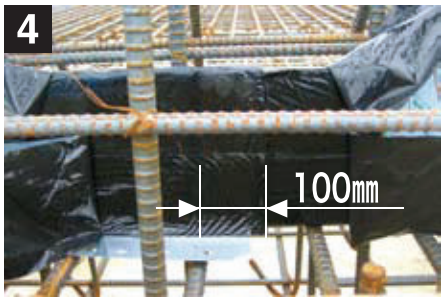
The values in parentheses are for the WT-0620-PPP.

■WT type installation guide

1. Take out the waterstop from its case, and flatten it out.
2. Bend each section one at a time with the special bending jig (sold separately).

3. Position the waterstop onto the steel plate.

4. Fix it in position to the rebar using the binding wire and slots on the bent edge.



5. Clamp the joint section securely for the 100 mm overlap (where the two sides overlap). After clamping together, return the protective film back in place (covering the joint).

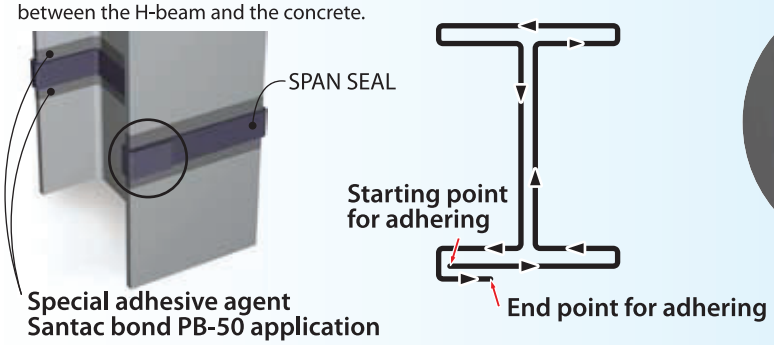
6. Corners: If it does not bend at the notch in the steel plate, use metal cutters to make a notch in the metal. It can be bent easily with your hands.

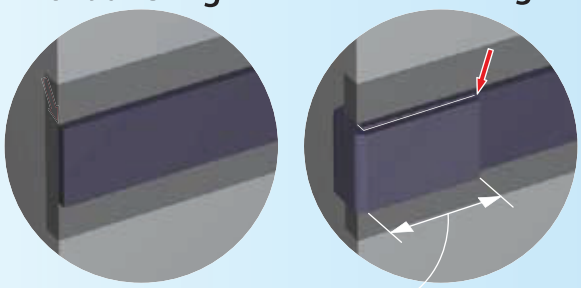
7. Remove the bottom film before the primary concrete pour. Then, proceed with the concrete pour.
8. Remove the top film before the secondary concrete pour. Then, proceed with the concrete pour.

SPAN SEAL H Type

● Waterstop for H-beams

After pouring the concrete for the pressure bearing foundation, use SPAN SEAL to stop the ground water from penetrating at the interface between the H-beam and the concrete.

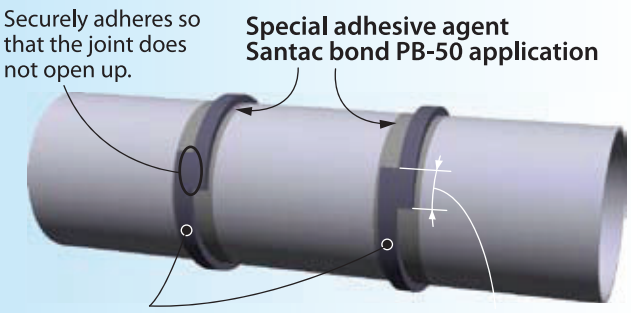




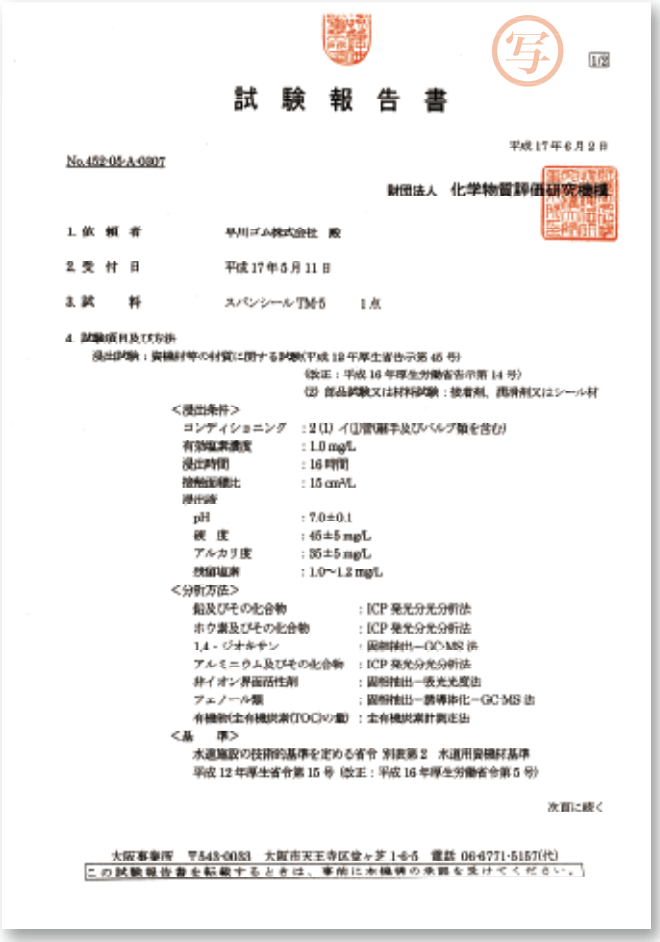
SPAN SEAL R Type

● Waterstop for penetration pipe

(Example showing two wraps)



■ 水質試験分析証明



試 験 報 告 書

平成17年6月2日

No.452-05-A-0007

財団法人 化学物質評価研究機構

1. 依 頼 者　　早川ゴム株式会社 殿
2. 受 付 日　　平成17年5月11日
3. 試　　料　　スパンシール TM-5　1点
4. 試験項目及び方法
浸出試験：資機材等の材質に関する試験(平成12年厚生省告示第65号)
(改正：平成16年厚生労働省告示第14号)
(2) 部品試験又は材料試験：接着剤、調整剤又はシール材
<浸出条件>
コンディショニング　：2(1) イ(管継手及びバルブ類を含む)
有効塩素濃度　：1.0 mg/L
浸出時間　：16時間
接触面積比　：15 cm²/L
浸出液
pH　：7.0±0.1
硬　度　：45±5 mg/L
アルカリ度　：35±5 mg/L
残留塩素　：1.0~1.2 mg/L
<分析方法>
鉛及びその化合物　：ICP 発光分光分析法
ホウ素及びその化合物　：ICP 発光分光分析法
1,4 - ジオキサン　：固相抽出—GC/MS 法
アルミニウム及びその化合物　：ICP 発光分光分析法
非イオン界面活性剤　：固相抽出—吸光光度法
フェノール類　：固相抽出—誘導体化—GC-MS 法
有機物(全有機炭素(TOC)の量)　：全有機炭素計測定法
<基　準>
水道施設の技術的基準を定める省令 別表第2　水道用資機材基準
平成12年厚生省令第15号 (改正：平成16年厚生労働省令第5号)

次頁に続く

大阪事業所　〒543-0033　大阪市天王寺区堂ヶ芝1-6-6　電話 06-6771-5157(代)
この試験報告書を転載するときは、事前に本機構の承認を受けてください。

■SPAN SEAL physical properties

Item		Condition	Test result		
Density		—	Mg/m³		1.46
Nonvolatile percentage		—	%		99.2
Tensile strength at break		—	MPa		0.079
Elongation at break		—	%		1210
Weather resistance		480 hrs	—		Slight surface hardening
Water absorption		168 hrs	%		0.3
Flexure temperature		—	℃		−58
Compressibility and restoration		50%	%		84.2
Heat resistance	Tensile strength	7 days	MPa		0.103
	Elongation at break	7 days	%		650
Cold resistance	Tensile strength	7 days	MPa		0.087
	Elongation at break	7 days	%		1080
Chemical resistance	Sulfuric acid	3%	TS retention ratio (tensile strength)	%	90
	Chloride	3%		%	93
	Sodium hydroxide	3%		%	89
	Acetic acid	3%		%	90
	Ammonia	3%		%	89
	Chlorine water	1000ppm		%	90

●The catalogue data uses representative values and are not standards to be used for quality assurance purposes.
●For product improvement purposes, we reserve the right to make changes to the specifications and external appearances without prior notice.

HAYAKAWA RUBBER CO., LTD.

ISO9001:2008 Certification　Head Office / Minoshima factory, Matsuhama factory
ISO14001:2004 Certification　Head Office/Minoshima factory

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TEL:+81-84-954-7801　FAX:+81-84-953-2121
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TEL:+81-3-3642-9434　FAX:+81-3-3643-6288
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TEL:+81-6-6386-6531　FAX:+81-6-6380-0670
● Nagoya office : Chubu shikaku Bldg., 1-2-22 Nishiki, Naka-ku, Nagoya, Aichi-pref. 460-0003
TEL:+81-52-211-3444　FAX:+81-52-211-5053
● Fukuoka office : Dai-ni Matsuwaka Bldg., 1-18-6 Shimizu, Minami-ku, Fukuoka, Fukuoka-pref. 815-0031
TEL:+81-92-511-3914　FAX:+81-92-511-3947

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H24.12.A6,000