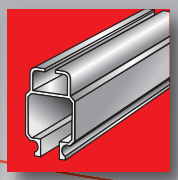
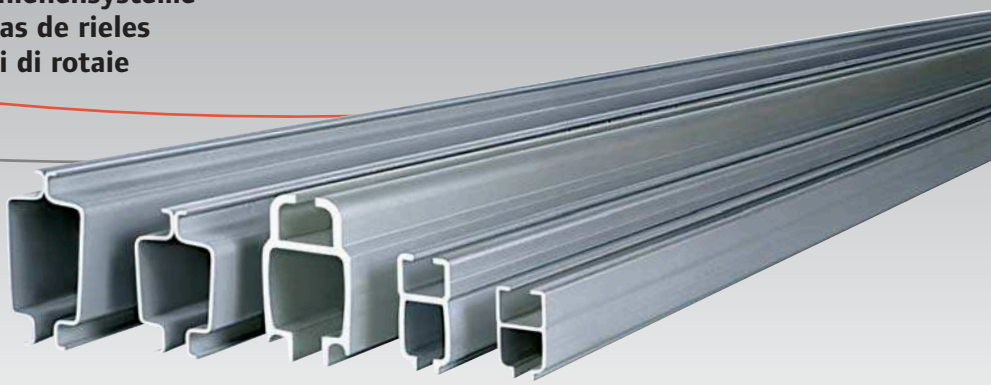


Rail systems
Systèmes de rails
Laufschienensysteme
Sistemas de rieles
Sistemi di rotaie



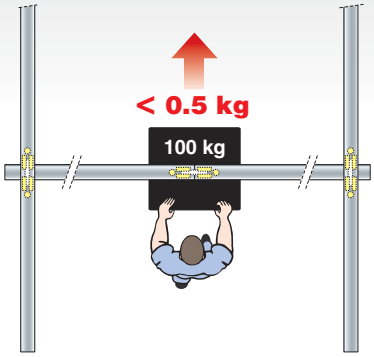
Thanks to the quality of the rolling surfaces, the guidance of the trolleys and the articulated suspensions, Ingersoll Rand systems allow you to move loads with a maximum starting force of 1.5 % of the total load (bridge plus load). Furthermore, the rolling effort required during displacement is less than 1 % – even if the load is pushed far away from the centre of the bridge (see sketches).

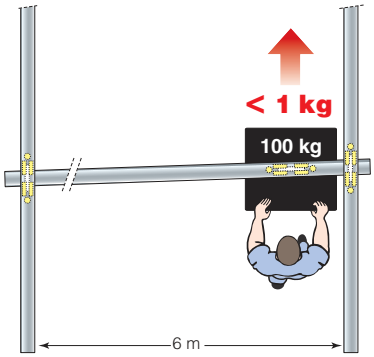
Grâce à la qualité des surfaces de roulement, au guidage des chariots et aux suspensions articulées, les systèmes Ingersoll Rand permettent de déplacer les charges avec un effort de mise en mouvement inférieur à 1,5% de la masse totale déplacée (masse du pont roulant + charge). L'effort de poussée (résistance au roulement) correspond ensuite à moins de 1% lors de la translation, même avec une poussée désaxée (voir figures ci-contre).

Aufgrund der Oberflächengüte der Laufflächen, der Führung der Fahrwerke und der drehbaren Aufhängungen, können mit Systemen von Ingersoll Rand Lasten mit einer Anlaufkraft verfahren werden, die maximal 1,5% der Gesamtlast ausmacht (Kranträger plus Anhängelast) Zudem beträgt die erforderlich Schubkraft für das Verfahren weniger als 1% - selbst wenn die Last weit außermittig verschoben ist (siehe Zeichnungen).

Gracias a la calidad de las superficies de rodadura, la guía de los carros y las suspensiones articuladas, los sistemas Ingersoll Rand permiten desplazar cargas con una fuerza inicial máxima de 1,5% de la carga total (puente y carga sumados). Es más, el esfuerzo de rodadura que se requiere durante el desplazamiento es menos del 1%, incluso si la carga se empuja lejos del centro del puente (ver las ilustraciones).

Grazie alla qualitá della superficie, il sistema rotante, la guida dei carrelli e delle sospensioni articolate, il sistema Ingersoll Rand consente di spostare carichi con una massima forza iniziale del 1,5% del carico totale (ponte piú carico). Per di piú, lo sforzo richiesto durante lo spostamento é inferiore al 1% anche quando il carico é spinto lontano dal centro del ponte (vedi figura).

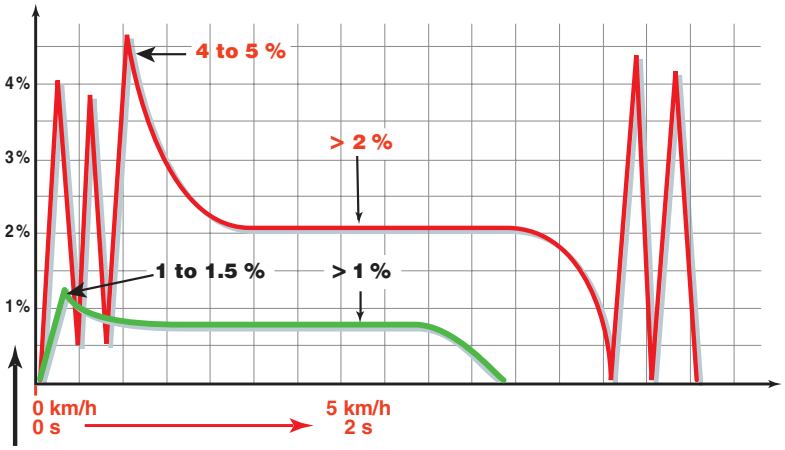




Starting
Mise en mouvement
Anlauf
Inicio
Partenza

Moving
Déplacement
Verfahren
Desplazamiento
Traslazione

Positionning
Positionnement
Positionieren
Posicionamiento
Posizionamento

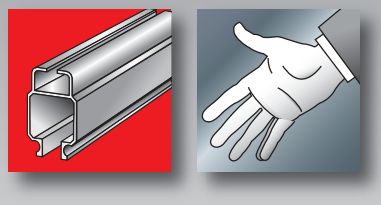


Manual effort applied
Effort appliqué
Aufgebrachter Kraftaufwand
Esfuerzo manual aplicado
Sforzo manuale applicato

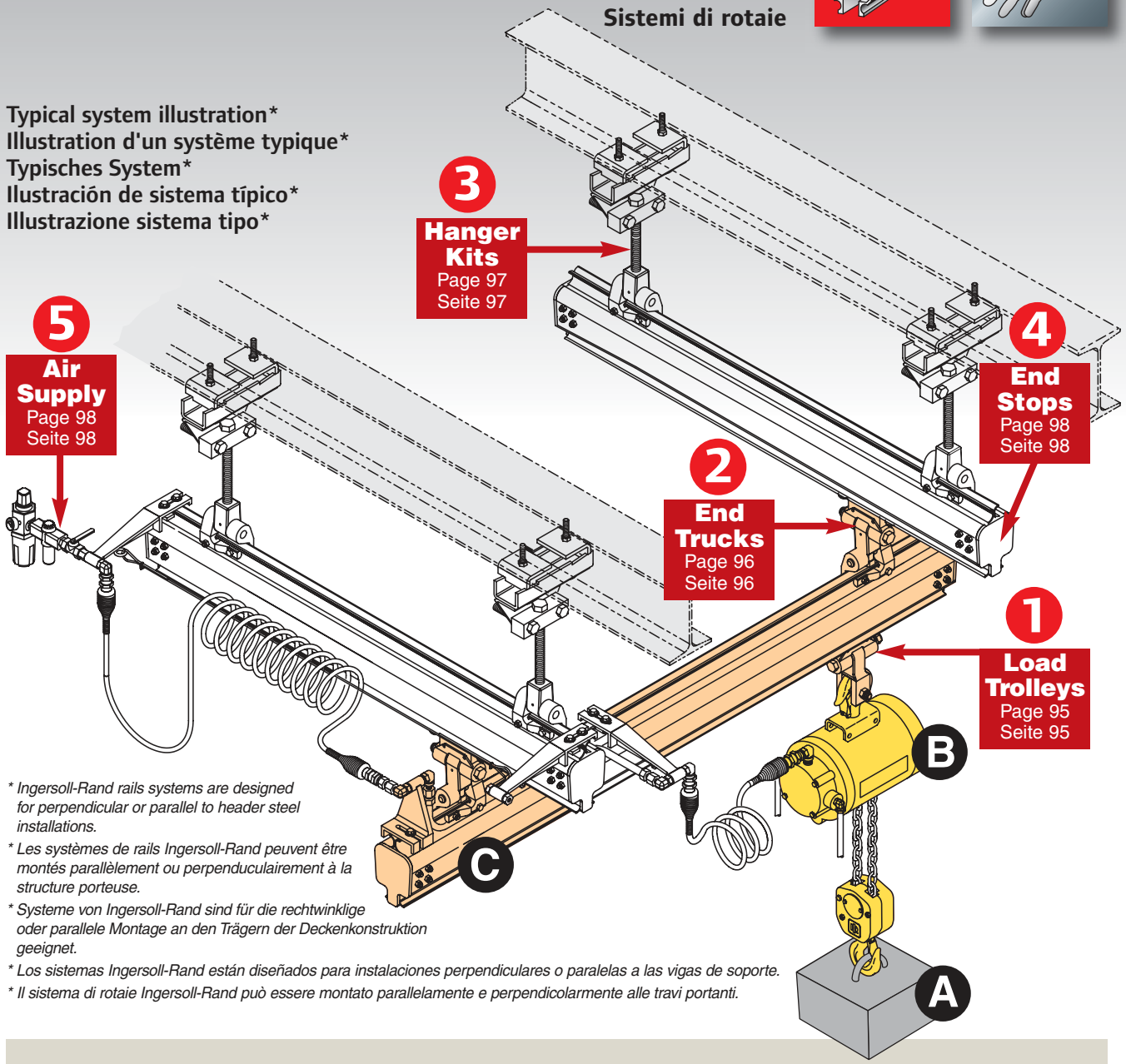
Time
Temps
Zeit
Tiempo
Tempo

Typical Enclosed Rail Systems
Rails à profil fermé classiques
Typische Profilschienensysteme
Sistemas integrados de rieles típicos
Sistemi di rotaie a profilo chiuso

Ingersoll Rand Enclosed Rail Systems
Rails à profil fermé Ingersoll Rand
Ingersoll Rand Profilschienensysteme
Sistemas integrados de rieles Ingersoll Rand
Sistemi di rotaie a profilo chiuso Ingersoll Rand



Typical system illustration*
Illustration d'un système typique*
Typisches System*
Ilustración de sistema típico*
Illustrazione sistema tipo*



** Ingersoll-Rand rails systems are designed for perpendicular or parallel to header steel installations.*

** Les systèmes de rails Ingersoll-Rand peuvent être montés parallèlement ou perpenduculairement à la structure porteuse.*

** Systeme von Ingersoll-Rand sind für die rechtwinklige oder parallele Montage an den Trägern der Deckenkonstruktion geeignet.*

** Los sistemas Ingersoll-Rand están diseñados para instalaciones perpendiculares o paralelas a las vigas de soporte.*

** Il sistema di rotaie Ingersoll-Rand può essere montato parallelamente e perpendicolarmente alle travi portanti.*

WARNING: To correctly calculate the load capacity of each component described in the next pages, please apply the following rule of calculation: **A + B + (C:2)**. ***A*** *= Load to be moved,* ***B*** *= Balancer or hoist weight,* ***C*** *= Weight of the lower rails and trolleys divided by 2.*

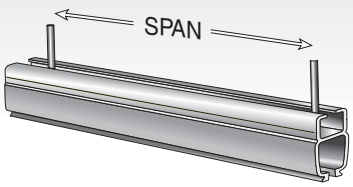
ATTENTION: Pour calculer la capacité de charge requise pour chacun des élément présentés dans les pages suivantes, appliquer la règle de calcul **A + B + (C:2)**. ***A*** *= Charge à déplacer,* ***B*** *= poids de l'équilibreur ou du palan,* ***C*** *= poids des rails inférieurs et chariots divisé par 2.*

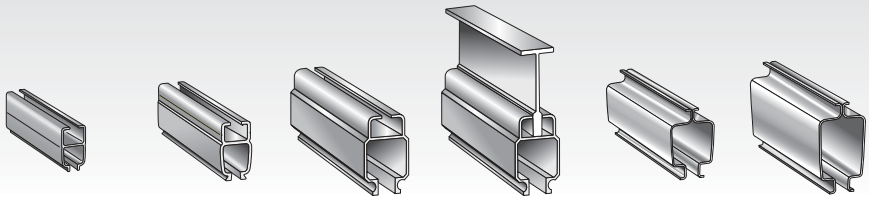
ACHTUNG: Für eine korrekte Kalkulation der max. Traglast der Bauteile auf den folgenden Seiten, verwenden Sie bitte folgende Berechnungsregel: **A + B + (C:2)**. ***A*** *= Bewegte Last (Werkstück),* ***B*** *= Gewicht Hebezeug,* ***C*** *= Gewicht der unteren Schienen inkl. Trolleys geteilt durch 2.*

ADVERTENCIA: para calcular correctamente la capacidad de carga de cada componente descrito en las siguientes páginas, por favor aplicar la siguiente regla de cálculo: **A + B + (C:2)**. ***A*** *= carga a mover,* ***B*** *= peso equilibrador ó polipasto,* ***C*** *= peso de los railes inferiores y carros dividido por 2.*

ATTENZIONE: Per calcolare correttamente il valore del carico pe rogni parte descritta nella pagina seguente, vogliate considerare la seguente formula **A + B + (C:2)**. ***A*** *= Carico da movimentare,* ***B*** *= peso del bilanciatore o del paranco,* ***C*** *= il peso più basso delle rail e carrelli diviso per 2.*

Span (m) / Load capacity (kg)
Portée (m) / Capacité de charge (kg)
Spannweite (m) / Traglast (kg)
Luz (m) / Capacidad de carga (kg)
Portata (m) / Capacità (kg)



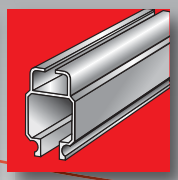


ZRAT	ZRA1	ZRA2	ZRA2T	ZRS2	ZRS3
(1 m = 3.0 kg)	(1m = 5.5 kg)	(1m = 11.3 kg)	(1m = 22.3)	(1m = 11.9 kg)	(1m = 13.2 kg)
ALUMINIUM	ALUMINIUM	ALUMINIUM	ALUMINIUM	STEEL	STEEL

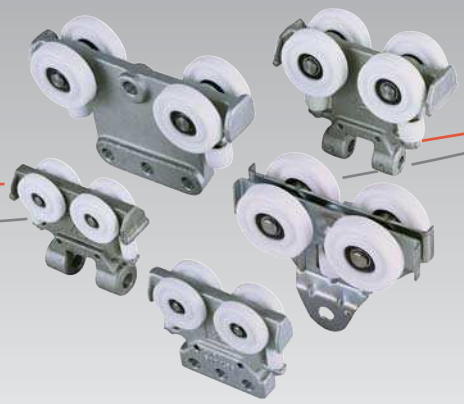
Span • Portée • Spannweite • Luz • Portata	Load capacity (kg) • Capacité de charge (kg) • Traglast (kg) • Capacidad de carga • Capacità (kg)					
Deflexion 1/450 • Déflexion 1/450 • Biegung 1/450 • Deflexión 1/450 • Flessione 1/450						
1 m	372	734	1361	1361	1293	1293
1,5 m	311	734	1361	1361	1293	1293
2 m	175	595	1361	1361	1293	1293
2,5 m	112	381	1361	1361	1219	1293
3 m	78	264	1011	1361	847	1293
3,5 m	57	194	742	1361	622	1074
4 m	44	149	568	1361	476	823
4,5 m	35	118	449	1361	376	650
5 m	28	95	364	1361	305	526
5,5 m	23	79	301	1361	252	435
6 m	19	66	253	1361	212	366
6,5 m	–	56	215	1361	180	312
7 m	–	49	186	1206	156	279
7,5 m	–	42	162	1051	–	–
8 m	–	37	142	923	–	–
8,5 m	–	33	126	818	–	–
9 m	–	29	112	–	–	–

Deflexion 1/500 (1) • Déflexion 1/500 (1) • Biegung 1/500 (1) • Deflexión 1/500 (1) • Flessione 1/500 (1)						
1 m	372	734	1361	1361	1293	1293
1,5 m	280	734	1361	1361	1293	1293
2 m	157	536	1361	1361	1293	1293
2,5 m	101	343	1310	1361	1097	1293
3 m	70	238	909	1361	762	1293
3,5 m	51	175	668	1361	560	967
4 m	39	134	512	1361	429	740
4,5 m	31	106	404	1361	339	585
5 m	25	86	327	1361	274	474
5,5 m	21	71	271	1361	227	392
6 m	17	60	227	1361	190	329
6,5 m	–	51	194	1259	162	280
7 m	–	44	167	1085	140	242
7,5 m	–	38	146	946	–	–
8 m	–	33	128	831	–	–
8,5 m	–	30	113	736	–	–
9 m	–	26	101	–	–	–

(1) UK standard – Norme britanique – Englische Norm – Norma inglesa – Norma inglese.

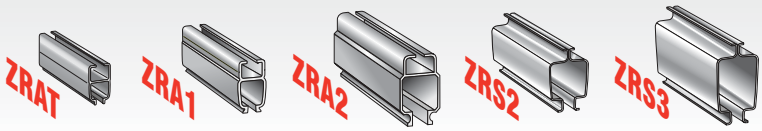


Rail systems
Systèmes de rails
Laufschienensysteme
Sistemas de rieles
Sistemi di rotaie



1 Load trolleys • Chariots de translation sous poutres mobiles • Laufwagen für Profilschienen • Carro de traslación • Carrelli di traslazione

For use with:
Pour utilisation avec:
In Verbindung mit:
Para uso con:
Per utilizzo con:



	ZRAT	ZRA1	ZRA2	ZRS2	ZRS3
Simple trolley Chariot simple Einfacher Laufwagen Carro sencillo Carrello semplice	SWL 227 kg Ref. **31057**	SWL 227 kg Ref. **30281**	SWL 454 kg Ref. **30172**	SWL 454 kg Ref. **30821**	SWL 454 kg Ref. **30821**
Load trolley (with suspension axle) Chariot avec axe de suspension Lastenlaufwagen Carro de carga Carrello di sospensione (con asse di sosp.)	—	SWL 227 kg Ref. **30304**	SWL 454 kg Ref. **30923**	SWL 454 kg Ref. **30842**	SWL 454 kg Ref. **30842**
Hoist trolley Chariot porte-palan Laufwagen für Hebezeuge Carro de polipasto Carrello porta paranco	SWL 227 kg Ref. **31313**	SWL 227 kg Ref. **30313**	SWL 454 kg Ref. **30314**	SWL 454 kg Ref. **30315**	SWL 454 kg Ref. **30315**
Dual hoist trolley Chariots jumelés porte-palan Doppelter Laufwagen für Hebezeuge Carro doble de polipasto Doppio carrello porta paranco	—	SWL 454 kg Ref. **30303**	SWL 908 kg Ref. **30906**	SWL 908 kg Ref. **30830**	SWL 908 kg Ref. **30830**
3 hole trolley Chariot large 3-Loch-Laufwagen Carro de 3 agujeros Carrello largo	SWL 227 kg Ref. **31056**	SWL 227 kg Ref. **30279**	SWL 454 kg Ref. **30015**	SWL 454 kg Ref. **30510**	SWL 454 kg Ref. **30510**
Reaction trolley (for cantilevered loads) Chariot 3 roues (pour portes-à-faux) Reaktionslaufwagen (für vortragende Lasten) Carro de reacción (para cargas descentradas) Carrello di reazione (per travi a sbalzo)	—	—	SWL 454 kg Ref. **30016**	SWL 454 kg Ref. **30511**	—
Bumper trolley Chariot de butée Anschlaglaufwagen Carro paragolpes Carrello respingente Ref. XXXXX-**1200**, L = 305 mm Ref. XXXXX-**2400**, L = 610 mm Ref. XXXXX-**3600**, L = 915 mm Ref. XXXXX-**4800**, L = 1220 mm	—	**30307-1200** **30307-2400** **30307-3600** **30307-4800**	**30148-1200** **30148-2400** **30148-3600** **30148-4800**	**30148-1200** **30148-2400** **30148-3600** **30148-4800**	**30148-1200** **30148-2400** **30148-3600** **30148-4800**

Curved rails for ZRA1 monorail installations
Rails courbes pour installations monorails ZRA1
Gebogene Schienen für ZRA1 Monoschienen-Installationen
Railes curvos para instalaciones monorail ZRA1
Travi curve per istallazione monorotaie ZRA1

R		Ref.
914 mm	15°	**30254**
914 mm	30°	**30255**
914 mm	45°	**30256**
914 mm	60°	**30257**
914 mm	90°	**30258**

Note : *The ZRA1 monorails use the same components as the ZRA1 bridge cranes (hanger kits, load trolleys, etc), except dual hoist trolley, ref. 30303.*

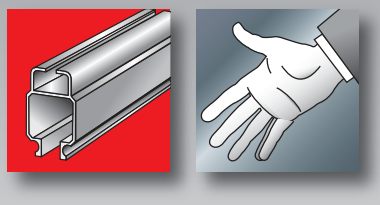
Nota : *Les configurations monorails ZRA1 utilisent les mêmes composants que les poutres mobiles ZRA1 (suspensions, chariots de charge, etc), sauf chariot jumelé porte-palan, réf. 30303.*

Anmerkung: *Mit ZRA1 Monoschienen werden die gleichen komponenten wie mit ZRA1-Brücken verwendet (Aufhängungen, Laufwagen etc.) außer Doppelter Laufwagen für Hebezeuge , Ref. 30303.*

Nota: *los monorailes ZRA1 usan los mismos componentes que la viga puente ZRA1 (Kit de suspensión de carros de carga, etc) excepto el carro doble de polipasto, ref. 30303.*

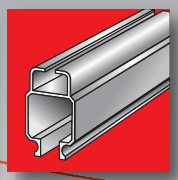
Nota : *La configurazione monorotaie ZRA1 utilizza gli stessi componenti dei carri ponti ZRA1 (sospensioni, carrelli di carico, etc…) ad eccezione del doppio carrello per paranco, rif. 30303.*

Rail systems
Systèmes de rails
Laufschienensysteme
Sistemas de rieles
Sistemi di rotaie

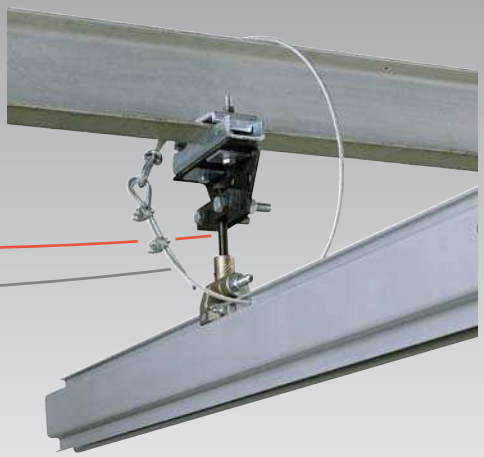


2 End trucks • Chariots supports de poutres mobiles
Brückenfahrwagen • Suspensiones del puente
Sospensioni per ponte mobile

	ZRAT	ZRA1	ZRA2	ZRS2 & 3	KBK1	KBK2 & KBK2L
ZRAT	SWL 227 kg Ref. **31059**	SWL 227 kg Ref. **30283**	SWL 454 kg Ref. **30909**	SWL 454 kg Ref. **30822**	SWL 227 kg Ref. **30283**	SWL 454 kg Ref. **30639**
ZRAT	SWL 454 kg Ref. **31060**	SWL 454 kg Ref. **30286**	SWL 908 kg Ref. **30911**	SWL 908 kg Ref. **30826**	SWL 454 kg Ref. **30286**	SWL 908 kg Ref. **30846**
ZRA1	SWL 227 kg Ref. **31059**	SWL 227 kg Ref. **30283**	SWL 454 kg Ref. **30909**	SWL 454 kg Ref. **30822**	SWL 227 kg Ref. **30283**	SWL 454 kg Ref. **30639**
ZRA1	SWL 454 kg Ref. **31060**	SWL 454 kg Ref. **30286**	SWL 908 kg Ref. **30911**	SWL 908 kg Ref. **30826**	SWL 454 kg Ref. **30286**	SWL 908 kg Ref. **30846**
ZRA2	—	SWL 227 kg Ref. **30295**	SWL 454 kg Ref. **30176**	SWL 454 kg Ref. **30824**	SWL 227 kg Ref. **30295**	SWL 454 kg Ref. **30927**
ZRA2	—	SWL 454 kg Ref. **30272**	SWL 908 kg Ref. **30177**	SWL 908 kg Ref. **30828**	SWL 454 kg Ref. **30272**	SWL 908 kg Ref. **30643**
ZRS2 ZRS3	—	SWL 227 kg Ref. **30320**	SWL 454 kg Ref. **30913**	SWL 454 kg Ref. **30597**	SWL 227 kg Ref. **30320**	SWL 454 kg Ref. **30563**
ZRS2 ZRS3	—	SWL 454 kg Ref. **30298**	SWL 908 kg Ref. **30915**	SWL 908 kg Ref. **30599**	SWL 454 kg Ref. **30298**	—

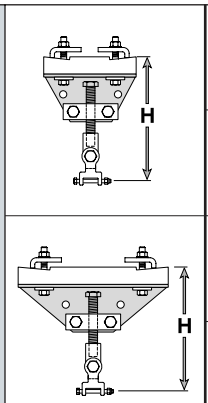
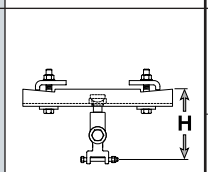
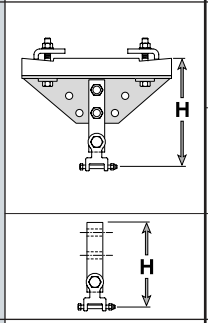
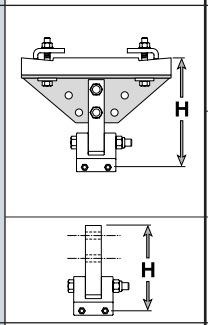
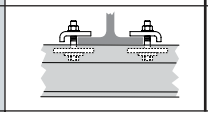


Rail systems
Systèmes de rails
Laufschienensysteme
Sistemas de rieles
Sistemi di rotaie

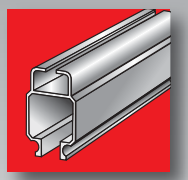


3 Hanger kits • Suspensions sous structure IPN, IPE, etc • Aufhängegesätze • Soportes de suspensión • Kits di sospensione su travi

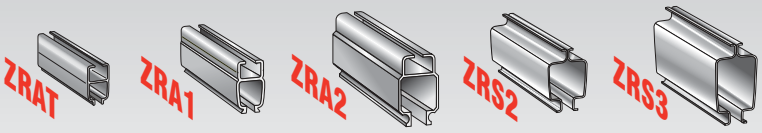
For use with:
Pour utilisation avec:
In Verbindung mit:
Para uso con:
Per utilizzo con:

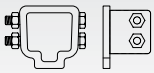
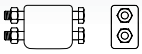
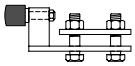
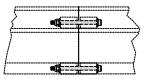
			ZRAT	ZRA1	ZRA2	ZRS2	ZRS3
ADJUSTABLE (± 22 mm) AJUSTABLE (± 22 mm) EINSTELLBAR (± 22 mm) AJUSTABLE (± 22 mm) REGOLABILE (± 22 mm)		63 → 127 mm	H = 287 mm **30287-006**	H = 287 mm **30287-006**	H = 295 mm **30195-006**	H = 273 mm **30814-006**	H = 273 mm **30814-006**
		63 → 127 mm	H = 439 mm **30287-012**	H = 439 mm **30287-012**	H = 447 mm **30195-012**	H = 425 mm **30814-012**	H = 425 mm **30814-012**
		127 → 254 mm	H = 287 mm **30288-006**	H = 287 mm **30288-006**	H = 295 mm **30196-006**	H = 273 mm **30815-006**	H = 273 mm **30815-006**
		127 → 254 mm	H = 439 mm **30288-012**	H = 439 mm **30288-012**	H = 447 mm **30196-012**	H = 425 mm **30815-012**	H = 425 mm **30815-012**
SHORT COURTE KURZ CORTO CORTO		63 → 127 mm	H = 156 mm **30300**	H = 156 mm **30300**	H = 164 mm **30921**	H = 142 mm **30840**	H = 142 mm **30840**
		127 → 254 mm	H = 156 mm **30301**	H = 156 mm **30301**	H = 164 mm **30922**	H = 142 mm **30841**	H = 142 mm **30841**
PARALLEL BEAM FER PORTEUR PARALLELE PARALLEL ZUM TRÄGER VIGA PARALELA TRAVE PARALLELA		63 → 127 mm	H = 292 mm **30290**	H = 292 mm **30290**	H = 301 mm **30199**	H = 279 mm **30817**	H = 279 mm **30817**
		127 → 254 mm	H = 292 mm **30291**	H = 292 mm **30291**	H = 301 mm **30900**	H = 279 mm **30818**	H = 279 mm **30818**
		Block mount	H = 244 mm **30289**	H = 244 mm **30289**	H = 253 mm **30198**	H = 231 mm **30816**	H = 231 mm **30816**
PERPENDICULAR BEAM FER PORTEUR PERPENDICULAIRE RECHTWINKLIG ZUM TRÄGER VIGA PERPENDICULAR TRAVE PERPENDICOLARE		63 → 127 mm	H = 292 mm **30292**	H = 292 mm **30292**	H = 301 mm **30901**	H = 279 mm **30819**	H = 279 mm **30819**
		63 → 127 mm	H = 292 mm **30293**	H = 292 mm **30293**	H = 301 mm **30902**	H = 279 mm **30820**	H = 279 mm **30820**
		Block mount	H = 244 mm **30285**	H = 244 mm **30285**	H = 253 mm **30193**	H = 231 mm **30813**	H = 231 mm **30813**
RIGID RIGIDE STARR RIGIDA RIGIDO		Rigid mount	**30227**	**30227**	**30052**		

Rail systems
Systèmes de rails
Laufschienensysteme
Sistemas de rieles
Sistemi di rotaie

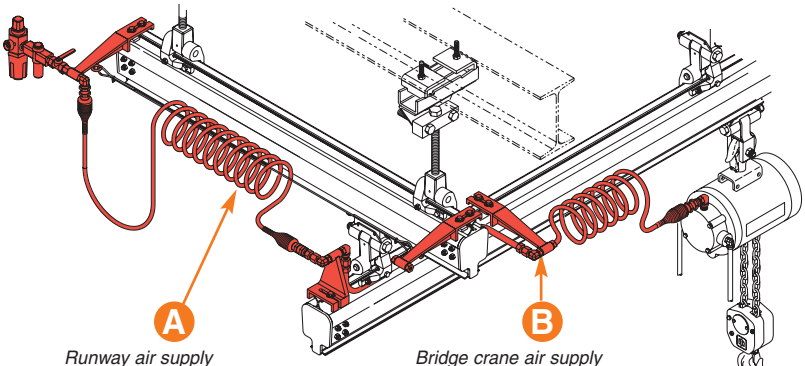


4 End stops and splice bolt kit
Butées et raccordements de rails
Endanschläge und Verbindungssätze
Tope final y uniones
Fine corsa e raccordi per rotaie



		ZRAT	ZRA1	ZRA2	ZRS2	ZRS3
End stop Butée de fin de rail Endanschlag Tope final Fine corsa per rotaie		Ref. **31022**	Ref. **30275**	Ref. **30183**	Ref. **30804**	Ref. **30808**
Redundent Butée additionnelle (redondante) Zusätzlicher Anschlag Redundante Respingente		Ref. **31024**	Ref. **30277**	Ref. **30185**	Ref. **30806**	Ref. **30810**
Adjutable end stop Butée réglable Einstellbarer Anschlag Tope final ajustable Fine corsa e respingente regolabile		Ref. **30738**	Ref. **30738**	Ref. **30733**	Ref. **30733**	Ref. **30733**
Splice bolt kit Kit de raccordement Verbindungssatz Uniones Kit di raccordo		Ref. **31020**	Ref. **30231**	Ref. **30057**	Ref. **30515**	Ref. **30515**

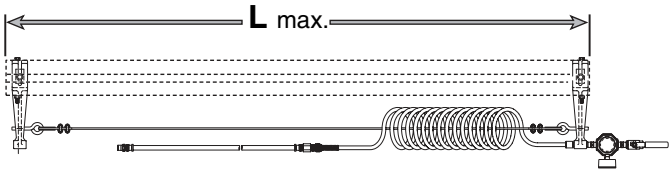
5 Air supply
Alimentations d'air
Luftversorgungssätze
Suministro de aire
Alimentazione aria



Runway air supply
Alimentation d'air voie de roulement
Luftversorgungssatz Laufschiene
Suministro de aire de viga carril
Alimentazione aria piano rotaia

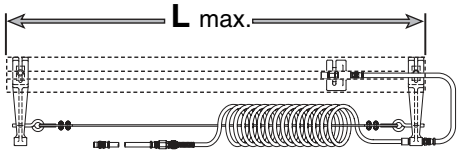
Bridge crane air supply
Alimentation d'air poutre mobile
Luftversorgungssatz Brücke
Suministro de aire de viga puente
Alimentazione aria carro ponte

A

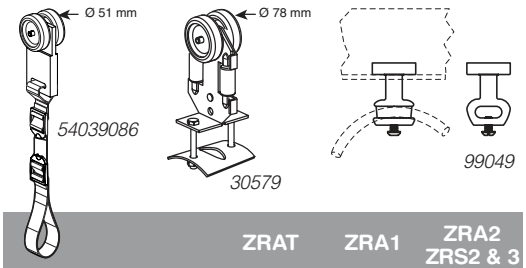


Ø 3/8'''	Ref.	Ø 1/2'''	Ref.
L = 15 m	**90000-1**	L = 15 m	**90001-1**
L = 22.5 m	**90000-2**	L = 22.5 m	**90001-2**
L = 30 m	**90000-3**	L = 30 m	**90001-3**
L = 37.5 m	**90000-4**	L = 37.5 m	**90001-4**
L = 45 m	**90000-5**	L = 45 m	**90001-5**

B



Ø 3/8'''	Ref.	Ø 1/2'''	Ref.
L = 9 m	**ZHS90025**	L = 9 m	**ZHS90026**



	ZRAT	ZRA1	ZRA2 ZRS2 & 3
ELECTRIC			
Festoon trolley Chariot porte-guirlande Girlandenwagen Carro portamangueras Carrelli portacavo	—	**54039086**	**54039078**
Slider Glisseur porte-guirlande Girlandengleiter Deslizador Cursore	**99048**	**99048**	**99049**
PNEUMATIC & ELECTRIC			
Festoon trolley Chariot porte-guirlande Girlandenwagen Carro portamangueras Carrelli portacavo	**31005** + **31011**	**30579**	**30581**